



*An Employee-Owned Company*

October 17, 2019

Mr. Jeff Kashak  
County of San Diego  
Department of Public Works  
5510 Overland Avenue, Suite 410  
San Diego, CA 92123

Reference: Greenhouse Gas Analysis for the Ashwood Street Corridor Improvements Project  
(RECON Number 8661)

Dear Mr. Kashak:

This letter describes the results of a greenhouse gas (GHG) analysis for the Ashwood Street Corridor Improvements Project (project) located in the unincorporated community of Lakeside in eastern San Diego County, California. As discussed below, emissions would be less than the 900 metric tons of carbon dioxide equivalent (MT CO<sub>2</sub>E) annual screening threshold; therefore, GHG impacts would be less than significant.

## **1.0 Introduction**

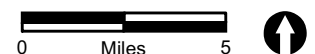
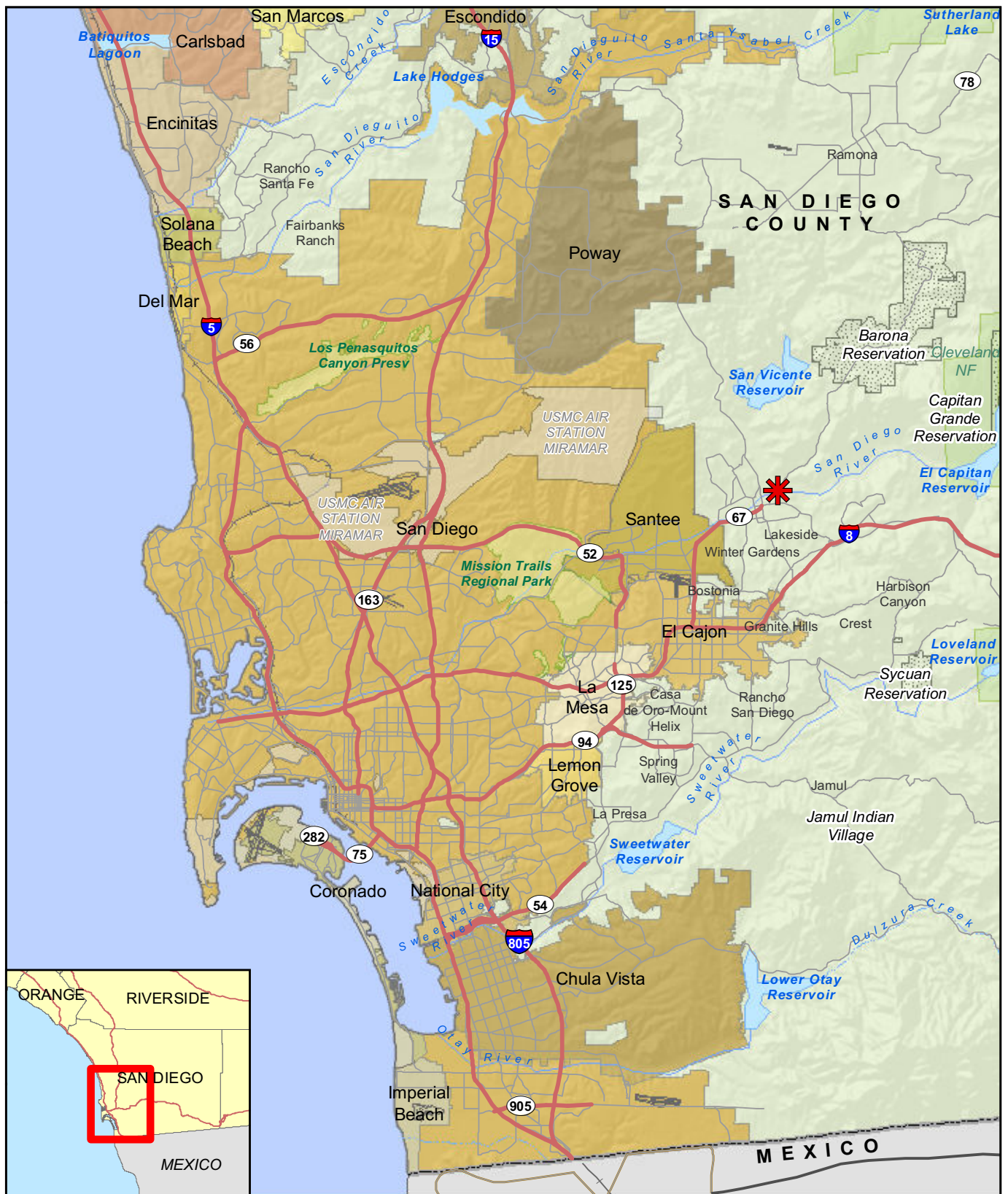
### **1.1 Purpose of the Report**

The purpose of this analysis is to characterize existing GHG conditions at the project site and in the region, identify applicable rules and regulations, and analyze GHG impacts from construction and operation of the project. This report was prepared in accordance with the County of San Diego (County) Guidelines for Determining Significance and Report Format Content and Requirements.

### **1.2 Project Location and Description**

The County Department of Public Works proposes to improve an approximately 1.3-mile segment of Ashwood Street within the unincorporated community of Lakeside in San Diego County (Figures 1 and 2). Specifically, improvements would occur on Ashwood Street between Maplevue Street and approximately 1,400 feet north of the intersection with Willow Road (where Ashwood Street transitions into Wildcat Canyon Road). The goals of the project are to improve traffic movement and sight distance at various locations including El Capitan High School, Cactus County Park, and the intersections of Ashwood Street with Maplevue Street and Willow Road. The project would also enhance pedestrian access with the continuation of sidewalk along the west side of Ashwood Street. The project would not impact the existing bicycle lanes or equestrian crossing associated with the San Diego River Park Regional Trail. All pedestrian curb ramps installed by the County would be compliant with the Americans with Disability Act requirements, including truncated domes and crosswalk pavement markings.

Specifically, Maplevue Street would be improved by installing an additional left-turn lane for vehicles traveling eastbound turning north onto Ashwood Street. As motorists travel north, Ashwood Street would be widened to include an additional travel lane only for vehicles entering El Capitan High School. To enhance turning movements into and out of El Capitan High School, a traffic signal system would be installed at the school's entrance; however, the primary northbound travel lane on Ashwood Street would remain unsignalized. A raised median would be installed to separate through-traffic from vehicles entering the school. To accommodate the roadway widening near El Capitan High School, a soil nail retaining wall and a soldier pile wall would be installed along the east and west sides of Ashwood Street, respectively, due to the proximity of steep slopes.



✱ Project Location

RECON

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**FIGURE 1**  
Regional Location  
Ashwood Street Corridor Improvements Project





0 Feet 1,000



 Project Boundary

**FIGURE 2**  
Project Location on Aerial Photograph  
Ashwood Street Corridor Improvements Project

To improve pedestrian access, a sidewalk would be installed on the west side of Ashwood Street between El Capitan High School and Cactus County Park. A dedicated left-turn lane would also be installed for vehicles entering Cactus Park's western property. At the intersection of Ashwood Street and Willow Road, the existing all-way stop would be signalized with Americans with Disability Act-compliant pedestrian ramps and crosswalk pavement markings, and a dedicated left-turn lane would be added in each direction.

Existing storm drain facilities would be relocated and concrete brow ditches would be installed to adequately convey and capture stormwater runoff along Ashwood Street. Stormwater runoff would either be conveyed to proposed biofiltration basins for treatment or directed to curb inlets to reduce the volume of runoff discharged from the site. The project would not alter or modify the existing culvert system that conveys flows from the San Diego River underneath Ashwood Street.

Following approval of the project, the County would proceed with acquiring right-of-way necessary to construct the road improvements, including areas for slopes, drainages, or other facilities. In addition, temporary easements would be required during construction activities. No structure demolitions are proposed. Construction is anticipated to take approximately 24 months to complete. No nighttime construction is anticipated to be required.

## **2.0 Existing Conditions**

### **2.1 Existing Setting**

Ashwood Street is currently a two-lane roadway with year 2020, 2035, and 2050 traffic volumes ranging from 13,000 to 23,500 in the vicinity of the proposed project (San Diego Association of Governments [SANDAG] 2019). Existing sources of GHG emissions consist of vehicle traffic traveling on Ashwood Street.

The project site consists primarily of existing roadways and adjacent landscaped areas and hillsides. Elevations range from 400 feet above mean sea level just south of the San Diego River channel to 680 feet above mean sea level on the hill in the southern portion of the site. The project site occurs in a largely developed area, with a high school and equestrian facilities to the west, single-family residences and a horse ranch to the east, and multi-family residential and small commercial developments to the south. Small patches of undeveloped land occur along the hill in the eastern portion of the project site and a large expanse of undeveloped land extends north and east from the northern portion of the project site.

### **2.2 Regulatory Setting**

In response to rising concern associated with increasing GHG emissions and global climate change impacts, several plans and regulations have been adopted at the international, national, and state levels with the aim of reducing GHG emissions. The main source of GHG emissions associated with the project would be construction of the road improvements. The following is a discussion of the plans and regulations most applicable to the project.

#### **2.2.1 State**

##### **2.2.1.1 Executive Orders and Statewide GHG Emission Targets**

###### **Executive Order S-3-05**

This Executive Order (EO) established the following GHG emission reduction targets for the State of California:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.



This EO also directs the secretary of the California Environmental Protection Agency to oversee the efforts made to reach these targets, and to prepare biannual reports on the progress made toward meeting the targets and on the impacts to California related to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. With regard to impacts, the report shall also prepare and report on mitigation and adaptation plans to combat the impacts. The first Climate Action Team Assessment Report was produced in March 2006 and has been updated every two years.

#### *Executive Order B-30-15*

This EO establishes an interim GHG emission reduction goal for the State of California by 2030 of 40 percent below 1990 levels. This EO also directed all state agencies with jurisdiction over GHG-emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05. Additionally, this EO directed California Air Resources Board (CARB) to update its Climate Change Scoping Plan to address the 2030 goal.

##### *2.2.1.2 California Global Warming Solutions Act*

In response to EO S-3-05, the California Legislature passed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, and thereby enacted Sections 38500–38599 of the California Health and Safety Code. The heart of AB 32 is its requirement that CARB establish an emissions cap and adopt rules and regulations that would reduce GHG emissions to 1990 levels by 2020. AB 32 also required CARB to adopt a plan by January 1, 2009 indicating how emission reductions would be achieved from significant GHG sources via regulations, market mechanisms, and other actions.

Approved in September 2016, Senate Bill (SB) 32 updates the California Global Warming Solutions Act of 2006. Under SB 32, the state would reduce its GHG emissions to 40 percent below 1990 levels by 2030. In implementing the 40 percent reduction goal, CARB is required to prioritize emissions reductions to consider the social costs of the emissions of GHGs. ‘Social costs’ is defined as “an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year.”

##### *2.2.1.3 Climate Change Scoping Plan*

As directed by the California Global Warming Solutions Act of 2006, CARB adopted the *Climate Change Scoping Plan: A Framework for Change (Scoping Plan)* in 2008, which identifies the main strategies California will implement to achieve the GHG reductions necessary to reduce forecasted business as usual emissions in 2020 to the state’s historic 1990 emissions level (CARB 2008). In November 2017, CARB released the *2017 Climate Change Scoping Plan Update, The Strategy for Achieving California’s 2030 Greenhouse Gas Target* (2017 Scoping Plan; CARB 2017). The 2017 Scoping Plan identifies the state strategy for achieving its 2030 interim reduction target codified by SB 32. Measures under the 2017 Scoping Plan build on existing programs such as the Cap-and-Trade Regulation, Low Carbon Fuel Standard (LCFS), Advanced Clean Cars Program (ACC), Renewable Portfolio Standard, Sustainable Communities Strategy, and the Short-Lived Climate Pollutant Reduction Strategy. Additionally the 2017 Scoping Plan proposes new policies to address GHG emissions from natural and working lands.

##### *2.2.1.4 California Advanced Clean Car Program*

The ACC Program, adopted January 2012, combines the control of smog, soot-causing pollutants, and GHG emissions into a single coordinated package of requirements for model years 2015 through 2025. Accordingly, the ACC program coordinates the goals of the Pavley regulations (see below), low emissions vehicle (LEV), zero emission vehicle, and Clean Fuels Outlet programs in order to lay the foundation for the commercialization and support of ultra-clean vehicles.

AB 1493 (Pavley) directed CARB to adopt vehicle standards that lowered GHG emissions from passenger vehicles and light-duty trucks to the maximum extent technologically feasible, beginning with the 2009

model year. CARB has adopted amendments to its regulations that would enforce AB 1493 but provide vehicle manufacturers with new compliance flexibility.

CARB has also adopted a second phase of the Pavley regulations, originally termed 'Pavley II' but now called the 'Low Emission Vehicle III' (LEV III) Standards or ACC Program, which covers model years 2017 to 2025. CARB estimates that LEV III will reduce vehicle GHGs by an additional 4.0 million MT CO<sub>2</sub>E for a 2.4 percent reduction over Pavley I. These reductions come from improved vehicle technologies such as smaller engines with superchargers, continuously variable transmissions, and hybrid electric drives. On August 7, 2012, the final regulation for the adoption of LEV III became effective.

#### *2.2.1.5 Low Carbon Fuel Standard*

EO S-01-07 directed that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through a LCFS. LCFS promotes the use of GHG-reducing transportation fuels (e.g., liquid biofuels, renewable natural gas, electricity, and hydrogen) through a declining carbon intensity standard. The carbon intensity of a fuel is a measure of the GHG emissions associated with the production, distribution, and consumption of a fuel. CARB approved LCFS in 2009 and implemented it in 2010 as an early action measure under AB 32. Subsequently CARB approved amendments to the LCFS, which began implementation January 1, 2013. Due to a court ruling that found procedural issues related to the original adoption of the LCFS, CARB re-adopted the LCFS regulation in September 2015, which went into effect on January 1, 2016. The program establishes a strong framework to promote the low carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG goals (CARB 2016).

#### *2.2.1.6 Regional Emissions Targets – Senate Bill 375*

SB 375, the 2008 Sustainable Communities and Climate Protection Act, was signed into law in September 2008 and requires CARB to set regional targets for reducing passenger vehicle GHG emissions in accordance with the Scoping Plan. The purpose of SB 375 is to align regional transportation planning efforts, regional GHG reduction targets, and fair-share housing allocations under state housing law. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy or Alternative Planning Strategy to address GHG reduction targets from cars and light-duty trucks in the context of that MPO's Regional Transportation Plan. The San Diego region's MPO is SANDAG. In 2010, CARB set targets for the SANDAG region of a 7 percent reduction in GHG emissions per capita from automobiles and light-duty trucks compared to 2005 levels by 2020 and a 13 percent reduction by 2035. These targets are periodically reviewed and updated. CARB's currently proposed targets for the SANDAG region are a reduction of 15 percent by 2020 and 21 percent by 2035.

#### *2.2.1.7 California Environmental Quality Act*

In 2010, the California Environmental Quality Act (CEQA) Guidelines (with Appendix G) were amended to address the analysis of GHG emissions. A new Section 15064.4: *Determining the Significance of Impacts from Greenhouse Gas Emissions* was added, which required a CEQA lead agency to "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." In December 2018, the CEQA Guidelines were amended, and Section 15064.4 was revised stating that a lead agency has the discretion whether to quantify GHG emissions resulting from a project and/or rely on a qualitative analysis or performance-based standard. Section 15064.4 was also revised to add that "[i]n determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable."

#### *2.2.1.8 California Air Pollution Control Officers Association*

The California Air Pollution Control Officers Association (CAPCOA) white paper titled "CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California

Environmental Quality Act” dated January 2008 provides a current methodology used for jurisdictions across the state to identify a screening level for GHG emissions (CAPCOA 2008). The CAPCOA guidance states that projects should be screened to determine if their associated GHG emissions exceed 900 MT CO<sub>2</sub>E. This metric was developed by experts in air quality that reviewed hundreds of projects approved in several air districts throughout California where the smallest 10 percent of projects were identified and modeled. The review identified that 10 percent of the development in these districts was represented by small projects, such as single-family residential projects with less than 50 units, commercial offices with less than 35,000 square feet, and retail uses of less than 11,000 square feet. It was determined that emissions on this scale are de minimis; and therefore, it was concluded that controlling emissions on this smaller scale would not help or hinder the State’s progress in meeting the statewide goals. Thus, these projects did not warrant significant evaluation, and emissions from these projects would be largely controlled by state regulatory actions, such as building code requirements.

After issuance of the CAPCOA guidance, several lead agencies and air districts within the State developed mass emission screening levels using the same data sets. These are known as “bright line” limits, which are defined as an exceedance of the 900 MT CO<sub>2</sub>E screening level. This same method was used by the Bay Area Air Quality Management District, the South Coast Air Quality Management District, San Luis Obispo County Air Pollution Control District, and the Sacramento Metropolitan Air Quality Management District to develop screening level thresholds specific to their jurisdictions. In each jurisdiction, the districts developed higher screening levels up to 1,100 MT CO<sub>2</sub>E. The Sacramento Metropolitan Air Quality Management District also uses the same threshold to assess construction emissions separate from operation emissions. In addition, local jurisdictions have used a similar approach, including the City of Escondido, which uses a 2,500 MT CO<sub>2</sub>E screening level and the City of Carlsbad Climate Action Plan (CAP) which identifies the same 900 MT CO<sub>2</sub>E screening level. Applying the CAPCOA screening level to this project is valid and adequate as it is based on current methodologies and is used throughout the State.

### ***2.2.2 Local***

The County’s General Plan incorporates smart growth and land planning principles intended to reduce vehicle miles traveled and thus a reduction of GHG emissions. Specifically, the General Plan directed preparation of a County CAP with reduction targets; development of regulations to encourage energy-efficient building design and construction; and development of regulations that encourage energy recovery and renewable energy facilities, among other actions. These planning and regulatory efforts are intended to ensure that actions of the County do not impede AB 32 and SB 375 mandates.

As such, on February 14, 2018, the County Board of Supervisors adopted a CAP, which identifies specific strategies and measures to reduce GHG emissions in the largely rural, unincorporated areas of San Diego County as well as County government operations. The CAP aims to meet the State’s 2020 and 2030 GHG reduction targets (AB 32 and SB 32, respectively), and demonstrate progress towards the 2050 GHG reduction goal. Concurrent with adoption of the CAP, the County adopted new Guidelines for Determining Significance for Climate Change (County of San Diego 2018a), which identifies that a proposed project would have a less than significant cumulatively considerable contribution to global climate change if it is consistent with the County’s CAP (County of San Diego 2018b). As defined in these Guidelines, consistency with the CAP is determined through the CAP Consistency Review Checklist (Checklist; County of San Diego 2018b). The Checklist follows a two-step process to determine if projects are consistent with the CAP and whether they may have a significant cumulative impact under the County’s adopted GHG thresholds of significance. The Checklist first assesses a project’s consistency with the growth projections and land use assumptions that formed the basis of CAP emissions projections. The second step of the CAP Checklist is to review and evaluate a project’s consistency with the applicable measures of the CAP. If a project is consistent with the projections and land use assumptions in the CAP, its associated growth in terms of GHG emissions would have been accounted for in the CAP’s projections, and project implementation of the CAP reduction measures will contribute towards reducing the County’s emissions and meeting the County’s reduction targets.

However, the proposed project consists of improvements to an existing County-maintained roadway, so the project site does not have a County-designated zone or land use to compare against the assumed designations used in the CAP. As noted in the County's Guidelines for Determining Significance, projects that may intensify GHG emissions over existing designations (or would result in greater GHG emissions than assessed in the CAP) are required to (1) prepare a separate, project-level GHG analysis, (2) explain how the Proposed Project is consistent with the CAP, and (3) demonstrate that the Proposed Project will not prevent the County from meeting its share of emissions reductions. Because the CAP and the County Guidelines are based upon land use assumptions of the 2011 General Plan, this means the CAP cannot be used to streamline the review of GHG emissions resulting from the proposed roadway improvement project. Also, the proposed project would not amend the General Plan. As such, the project is not required to use the "no net increase" or "net zero" thresholds of significance prescribed by the County's Climate Change Significance Guidelines, which anticipate a "no net increase" or "net zero" threshold for projects that amend the General Plan. As such, although the CAP cannot be used to streamline the review of GHG emissions from the project, a project-specific climate change analysis was completed in compliance with the CAP to analyze potential project-related emissions and to show consistency with the CAP. Therefore, following rationale presented in the CAPCOA Guidance, the aggregate emissions from all projects with individual annual emissions that are equal to or less than 900 MT CO<sub>2</sub>E would not impede achievement of the state GHG emissions reduction targets codified by AB 32 (2006) and SB 32 (2016), and impacts under CEQA would therefore be less than cumulatively considerable.

Lastly, it should be noted that a ruling by the Superior Court of California dated December 24, 2018 ordered the County to set aside its February 14, 2018 approval of the CAP and the Supplemental Environmental Impact Report. As of this writing, no further court decisions have occurred. As stated in court documents, "the injunction does not prohibit all development projects in the County; it affects only those projects reliant on the use of the legally inadequate program set forth in M-GHG-1. While the injunction is in place, the County may consider any project that does not depend on the use of the legally insufficient M-GHG-1 program." M-GHG-1 refers to the Supplemental Environmental Impact Report mitigation measure requiring in-process and future General Plan Amendments to reduce their emissions to ensure that CAP emission forecasts are not substantially altered such that attainment of GHG reduction targets could not be achieved.

### **3.0 Significance Criteria and Analysis Methodologies**

#### **3.1 Guidelines for Determining Significance**

The following significance threshold for GHG emissions is based on criteria included in the County's Guidelines for Determining Significance—Climate Change (County of San Diego 2018a).

- A proposed project would have a less than significant cumulatively considerable contribution to climate change impacts if it is found to be consistent with the County's Climate Action Plan; and, would normally have a cumulatively considerable contribution to climate change impacts if it is found to be inconsistent with the County's Climate Action Plan.

In accordance with CEQA Guidelines Section 15183.5 and the County's Guidelines for Determining Significance for Climate Change, projects that can demonstrate consistency with the adopted CAP, as demonstrated through completion of the CAP Consistency Review Checklist, would have a less than significant impact to climate change. However, as noted above in Section 3.2, the project consists of improvements to an existing County-maintained roadway, and it does not have an unincorporated County-designated zone or land use to compare against the designations used in the County's CAP. Furthermore, because the project is limited to temporary construction activities and would not affect the long-term operational characteristics of the roadway, the CAP Checklist is not applicable. The CAP projections and Checklist focus primarily on typical land use development with operational components and do not capture emissions sources such as construction. As such, the CAP cannot be used to streamline the review of GHG emissions associated with the project. The project would apply the CEQA Guidelines,



Appendix G Environmental Checklist (County of San Diego 2018b), which includes the following criteria for evaluating GHG emissions. Specifically, a significant impact from GHG emissions would result if the project would:

- 1) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- 2) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs.

Development projects typically result in GHG emissions from both construction and long-term operational activities. Operational activities are consistent sources of GHG emissions that continue for the entire lifespan of a project. Comparatively, construction emissions are often intensive and vary substantially between phases of construction, but they are emitted over a finite time and end at the termination of construction activities. Thus, construction emissions are considered short-term sources of GHG emissions. The annual emissions screening level of 900 MT CO<sub>2</sub>E (described in Section 3.2) was originally developed to address operational impact of GHG emissions from land use development. Since the introduction of the CAPCOA guidance, several air districts in the state have issued additional guidance that construction emissions should be included in assessment of operational GHG emissions by amortizing the total GHG construction emissions over the lifespan of a project, and then adding that amortized total to the operational emissions. This approach ensures all GHG emissions that occur from a project are included in the assessment. While similar to land use developments, different improvements or maintenance activities can vary depending on the improvement, unlike typical land use developments where an average lifespan is used, infrastructure projects should be assessed based on the specific improvement life span (e.g., 21-year lifespan on asphalt-concrete resurfacing).

While 900 MT CO<sub>2</sub>E was not originally intended to be used for temporary GHG emission sources, such as construction, the industry standard practice has been to amortize construction over the life of the project and evaluate the emissions using the 900 MT CO<sub>2</sub>E screening level. Comparing the summation of amortized construction emissions against a threshold intended to assess operational-related impacts is considered an appropriate approach for assessment of construction-related emissions due to the short-term nature of the emissions source.

### **3.2 Methodology and Assumptions**

Construction emissions were calculated using the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Road Construction Emissions Model, Version 8.1.0 (SMAQMD 2016). Version 8.1.0 incorporates the most currently approved Emission Factor model and Off-Road emissions factors model. The Road Construction Emissions Model calculates air quality and GHG emissions from grubbing/land clearing, grading/excavation, drainage/utilities/sub-grade, and paving activities associated with construction projects that are linear in nature (e.g., road or levee construction, pipeline installation, transmission lines).

GHG emissions are estimated in terms of MT CO<sub>2</sub>E. CO<sub>2</sub>E emissions give weight to the global-warming potential (GWP) of different gases. The GWP is the potential of a gas to warm the global climate in the same amount as an equivalent amount of emissions of carbon dioxide (CO<sub>2</sub>). As an example, CO<sub>2</sub> has a GWP of 1, methane (CH<sub>4</sub>) has a GWP of 21, and nitrous oxide (N<sub>2</sub>O) has a GWP of 310, which means the global warming effect of CH<sub>4</sub> and N<sub>2</sub>O are 21 and 310 times that of CO<sub>2</sub>, respectively.

Construction activities emit GHGs primarily through the combustion of fuels in the engines of off-road construction equipment (primarily diesel) and in the engines of on-road vehicles used for the delivery of materials and the commute vehicles of the construction workers. Every phase of the construction process, including demolition, grading, paving, and building, emits GHGs in volumes proportional to the quantity and type of construction equipment used.

Construction activities for the project are anticipated to begin in 2021 and last for approximately two years. Construction activities would include grubbing/land clearing, grading/excavation, constructing drainage/utilities, and paving. Earthwork would include the export of 27,000 cubic yards of soil. Soil import was modeled over the duration of the grading/excavation phase. Table 1 summarizes the anticipated construction equipment that would be required for each phase along with the anticipated total duration of each phase over the two year construction period. Detailed Road Construction Emissions Model input is provided in Attachment 1.

<b>Table 1 Construction Equipment</b>		
<b>Phase</b>	<b>Duration</b>	<b>Construction Equipment</b>
Grubbing/Land Clearing	2.4 months	Rubber Tired Dozers Scrapers Skid Steer Loaders Tractors/Loaders/Backhoes Signal Board Water Truck
Grading/Excavation	10.8 months	Excavators Graders Plate Compactors Rubber Tired Loaders Tractors/Loaders/Backhoes Signal Boards Water Truck
Drainage/Utilities	7.2 months	Graders Plate Compactors Pumps Signal Boards
Paving	3.6 months	Air Compressors Bore/Drill Rig Cement and Mortar Mixers Crane Excavator Pumps Rollers Surfacing Equipment Sweepers/Scrubbers Welders Signal Boards
Source: Jeff Kashak (County of San Diego), email message to author, February 4, 2019.		

Construction activities would occur over a two year period. To determine annual GHG emissions, total construction emissions were amortized over the approximate lifetime of the project of 21 years (as explained in Section 4.0).

#### **4.0 GHG Emission Quantification**

##### **4.1 Construction GHG Emissions**

Based on the methodology summarized in Section 5.0, the primary source of GHG emissions (construction) have been calculated for the project. Table 2 summarizes the project emissions. The complete model outputs for the project are included in Attachment 1.

Table 2 Construction GHG Emissions (MT CO <sub>2</sub> E)						
Phase	Duration (months)	Soil/Asphalt Hauling	Worker Commute	Water Truck	Off-road vehicles	Total GHG Emissions
Grubbing/Land Clearing	2.4	0	6	3	114	123
Grading/Excavation	10.8	505	80	15	687	1,287
Drainage/Utilities	7.2	0	38	0	366	404
Paving	3.6	0	15	0	223	238
Total	24.0	505	138	18	1,390	2,052
<b>Annual Emissions (amortized over 21 years)</b>						<b>98</b>
Note: Totals may vary due to independent rounding.						

## 4.2 Operational GHG Emissions

The main source of GHG emissions associated with the project would be construction of the road improvements. Once construction is complete, the project would not be an operational source of GHG emissions.

## 5.0 Recommended Project Design Features, Impacts, and Mitigation Measures

As shown, the project would result in a total of 2,052 MT CO<sub>2</sub>E over the entire two-year construction period for an average of 98 MT CO<sub>2</sub>E per year when amortized over the lifetime of the project (21 years). Annual emissions would not exceed 900 MT CO<sub>2</sub>E per year. As discussed in Section 4.0, the annual 900 MT CO<sub>2</sub>E screening level corresponds to the most ambitious state reduction target and is highly conservative. Projects with individual annual emissions that are equal to or less than 900 MT CO<sub>2</sub>E would not impede achievement of the state GHG emissions reduction targets codified by AB 32 (2006) and SB 32 (2016), and impacts under CEQA would therefore be less than cumulatively considerable. As the project would not exceed the 900 MT CO<sub>2</sub>E screening threshold for GHG emissions, GHG impacts associated with the project would be less than significant. No mitigation measures would be required.

Further, once project construction is complete, GHG emissions associated with the project would no longer be emitted.

If you have any questions about the results of this analysis, please contact me at [jfleming@reconenvironmental.com](mailto:jfleming@reconenvironmental.com) or (619) 308-9333 extension 177.

Sincerely,



Jessica Fleming  
Air Quality Specialist

JLF:jg

Attachment

## **6.0 References Cited**

### California Air Pollution Control Officers Association (CAPCOA)

- 2008 CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act, January.

### California Air Resources Board (CARB)

- 2008 Climate Change Scoping Plan: A Framework for Change.  
[http://www.arb.ca.gov/cc/scopingplan/document/adopted\\_scoping\\_plan.pdf](http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf). December.
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- 2017 The 2017 Climate Change Scoping Plan Update, The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. January 20, 2017.

### Sacramento Metropolitan Air Quality Management District (SMAQMD)

- 2016 Road Construction Emissions Model, Version 8.1.0.

### San Diego Association of Governments (SANDAG)

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### San Diego, County of

- 2018a County of San Diego Guidelines for Determining Significance—Climate Change. Land Use and Environment Group. February 2018.
- 2018b County of San Diego Climate Action Plan. SCH # 2016101055. February 2018.




## **ATTACHMENT 1**

Road Construction Emissions Model Data

## Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Ashwood																																																								
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)																																										
Grubbing/Land Clearing	3.25	28.41	34.82	21.52	1.52	20.00	5.54	1.38	4.16	0.05	5,084.90	1.50	0.05	5,137.34																																										
Grading/Excavation	4.59	35.74	50.65	22.42	2.42	20.00	6.17	2.01	4.16	0.12	11,822.99	2.04	0.22	11,940.47																																										
Drainage/Utilities/Sub-Grade	3.18	31.95	29.49	41.48	1.48	40.00	9.68	1.36	8.32	0.06	5,585.20	1.18	0.05	5,629.34																																										
Paving	3.34	34.50	30.00	1.50	1.50	0.00	1.38	1.38	0.00	0.07	6,554.31	1.66	0.06	6,613.18																																										
Maximum (pounds/day)	4.59	35.74	50.65	41.48	2.42	40.00	9.68	2.01	8.32	0.12	11,822.99	2.04	0.22	11,940.47																																										
Total (tons/construction project)	1.02	8.89	10.46	6.58	0.50	6.07	1.70	0.44	1.26	0.02	2,240.71	0.44	0.03	2,261.88																																										
<div>Notes:</div> <div>Project Start Year -&gt; 2021</div> <div>Project Length (months) -&gt; 24</div> <div>Total Project Area (acres) -&gt; 33</div> <div>Maximum Area Disturbed/Day (acres) -&gt; 2</div> <div>Water Truck Used? -&gt; Yes</div> <table><tr><td></td><td colspan="2">Total Material Imported/Exported Volume (yd³/day)</td><td colspan="4">Daily VMT (miles/day)</td></tr><tr><td>Phase</td><td>Soil</td><td>Asphalt</td><td>Soil Hauling</td><td>Asphalt Hauling</td><td>Worker Commute</td><td>Water Truck</td></tr><tr><td>Grubbing/Land Clearing</td><td>0</td><td>0</td><td>0</td><td>0</td><td>320</td><td>40</td></tr><tr><td>Grading/Excavation</td><td>114</td><td>329</td><td>360</td><td>990</td><td>920</td><td>40</td></tr><tr><td>Drainage/Utilities/Sub-Grade</td><td>0</td><td>0</td><td>0</td><td>0</td><td>680</td><td>0</td></tr><tr><td>Paving</td><td>0</td><td>0</td><td>0</td><td>0</td><td>520</td><td>0</td></tr></table>																Total Material Imported/Exported Volume (yd³/day)		Daily VMT (miles/day)				Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck	Grubbing/Land Clearing	0	0	0	0	320	40	Grading/Excavation	114	329	360	990	920	40	Drainage/Utilities/Sub-Grade	0	0	0	0	680	0	Paving	0	0	0	0	520	0
																Total Material Imported/Exported Volume (yd³/day)		Daily VMT (miles/day)																																						
															Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck																																			
															Grubbing/Land Clearing	0	0	0	0	320	40																																			
															Grading/Excavation	114	329	360	990	920	40																																			
															Drainage/Utilities/Sub-Grade	0	0	0	0	680	0																																			
															Paving	0	0	0	0	520	0																																			
															PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.																																									
															Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.																																									
															CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.																																									
Total Emission Estimates by Phase for -> Ashwood																																																								
Project Phases				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust																																															
(Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)																																										
Grubbing/Land Clearing	0.09	0.75	0.92	0.57	0.04	0.53	0.15	0.04	0.11	0.00	134.24	0.04	0.00	123.04																																										
Grading/Excavation	0.55	4.25	6.02	2.66	0.29	2.38	0.73	0.24	0.49	0.01	1,404.57	0.24	0.03	1,286.88																																										
Drainage/Utilities/Sub-Grade	0.25	2.53	2.34	3.29	0.12	3.17	0.77	0.11	0.66	0.00	442.35	0.09	0.00	404.47																																										
Paving	0.13	1.37	1.19	0.06	0.06	0.00	0.05	0.05	0.00	0.00	259.55	0.07	0.00	237.58																																										
Maximum (tons/phase)	0.55	4.25	6.02	3.29	0.29	3.17	0.77	0.24	0.66	0.01	1404.57	0.24	0.03	1,286.88																																										
Total (tons/construction project)	1.02	8.89	10.46	6.58	0.50	6.07	1.70	0.44	1.26	0.02	2240.71	0.44	0.03	2,051.96																																										
PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.																																																								
Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.																																																								
CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.																																																								
The CO2e emissions are reported as metric tons per phase.																																																								

<b>Road Construction Emissions Model</b>		Version 8.1.0	
<b>Data Entry Worksheet</b>			
<p><small>Note: Required data input sections have a yellow background.</small></p> <p><small>Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.</small></p> <p><small>The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.</small></p> <p><small>Please use "Clear Data Input &amp; User Overrides" button first before changing the Project Type or begin a new project.</small></p>		<p>To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.</p> 	
<b>Input Type</b>			
Project Name	Ashwood		
Construction Start Year	2021	Enter a Year between 2014 and 2025 (inclusive)	
Project Type	2	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction	
Project Construction Time	24.00	months	
Working Days per Month	22.00	days (assume 22 if unknown)	
Predominant Soil/Site Type: Enter 1, 2, or 3 <small>(for project within "Sacramento County"; follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)</small>	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs State or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)	
Project Length	1.40	miles	
Total Project Area	33.11	acres	
Maximum Area Disturbed/Day	2.00	acres	
Water Trucks Used?	1	1. Yes 2. No	
<b>Material Hauling Quantity Input</b>			
Material Type	Phase	Haul Truck Capacity (yd <sup>3</sup> ) (assume 20 if unknown)	Import Volume (yd <sup>3</sup> /day)
Soil	Grubbing/Land Clearing		
	Grading/Excavation	10.00	114.00
	Drainage/Utilities/Sub-Grade		
	Paving		
Asphalt	Grubbing/Land Clearing		
	Grading/Excavation	10.00	328.00
	Drainage/Utilities/Sub-Grade		
	Paving		
<b>Mitigation Options</b>			
On-road Fleet Emissions Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer		
Off-road Equipment Emissions Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure ( <a href="http://www.airquality.org/ceqa/mitigation.shtml">http://www.airquality.org/ceqa/mitigation.shtml</a> ). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard		

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		2.40		1/1/2021
Grading/Excavation		10.80		3/15/2021
Drainage/Utilities/Sub-Grade		7.20		2/7/2022
Paving		3.60		9/14/2022
Totals (Months)		24		

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated				
User Input	Miles/Round Trip	Miles/Round Trip	Round Trips/Day	Round Trips/Day	Daily VMT					
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00					
Miles/round trip: Grading/Excavation		30.00		12	360.00					
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00					
Miles/round trip: Paving		30.00		0	0.00					
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Grading/Excavation (grams/mile)	0.07	0.37	1.42	0.10	0.04	0.01	1,558.33	0.00	0.05	1,573.68
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Paving (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.59	0.00	0.05	1,563.85
Hauling Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.05	0.29	1.13	0.08	0.03	0.01	1,236.79	0.00	0.04	1,248.98
Tons per const. Period - Grading/Excavation	0.01	0.03	0.13	0.01	0.00	0.00	146.93	0.00	0.00	148.38
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.01	0.03	0.13	0.01	0.00	0.00	146.93	0.00	0.00	148.38

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
User Input						
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00	
Miles/round trip: Grading/Excavation		30.00		33	990.00	
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00	
Miles/round trip: Paving		30.00		0	0.00	

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Grading/Excavation (grams/mile)	0.07	0.37	1.42	0.10	0.04	0.01	1,558.33	0.00	0.05	1,573.68
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Paving (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.59	0.00	0.05	1,563.85
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.15	0.81	3.11	0.22	0.09	0.03	3,401.17	0.01	0.11	3,434.69
Tons per const. Period - Grading/Excavation	0.02	0.10	0.37	0.03	0.01	0.00	404.06	0.00	0.01	408.04
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.02	0.10	0.37	0.03	0.01	0.00	404.06	0.00	0.01	408.04



Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values							
User Input											
Miles/ one-way trip				20				Calculated		Calculated	
One-way trips/day				2				Daily Trips		Daily VMT	
No. of employees: Grubbing/Lanc Clearing				8				16		320.00	
No. of employees: Grading/Excavation				23				46		920.00	
No. of employees: Drainage/Utilities/Sub-Grade				17				34		680.00	
No. of employees: Paving				13				26		520.00	
Emission Rates		ROG		CO		NOx		PM10		PM2.5	
Grubbing/Land Clearing (grams/mile)		0.02		0.99		0.10		0.05		0.02	
Grading/Excavation (grams/mile)		0.02		0.98		0.10		0.05		0.02	
Draining/Utilities/Sub-Grade (grams/mile)		0.02		0.92		0.09		0.05		0.02	
Paving (grams/mile)		0.02		0.92		0.09		0.05		0.02	
Grubbing/Land Clearing (grams/trip)		0.93		2.28		0.18		0.00		0.00	
Grading/Excavation (grams/trip)		0.92		2.26		0.17		0.00		0.00	
Draining/Utilities/Sub-Grade (grams/trip)		0.87		2.06		0.16		0.00		0.00	
Paving (grams/trip)		0.87		2.05		0.16		0.00		0.00	
Emissions		ROG		CO		NOx		PM10		PM2.5	
Pounds per day - Grubbing/Land Clearing		0.05		0.78		0.08		0.03		0.01	
Tons per const. Period - Grubbing/Land Clearing		0.00		0.02		0.00		0.00		0.00	
Pounds per day - Grading/Excavation		0.13		2.22		0.22		0.09		0.04	
Tons per const. Period - Grading/Excavation		0.02		0.26		0.03		0.01		0.00	
Pounds per day - Drainage/Utilities/Sub-Grade		0.09		1.53		0.15		0.07		0.03	
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.01		0.12		0.01		0.01		0.00	
Pounds per day - Paving		0.07		1.17		0.11		0.05		0.02	
Tons per const. Period - Paving		0.00		0.05		0.00		0.00		0.00	
Total tons per construction project		0.03		0.45		0.04		0.02		0.01	

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions										
User Input	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Vehicle/Day	Default Values Miles Traveled/Vehicle/Day	Calculated Daily VMT					
Grubbing/Land Clearing - Exhaust	1	1		40.00	40.00					
Grading/Excavation - Exhaust	1	1		40.00	40.00					
Drainage/Utilities/Subgrade	0	1		40.00	0.00					
Paving	0	1		40.00	0.00					
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Grading/Excavation (grams/mile)	0.07	0.37	1.42	0.10	0.04	0.01	1,558.33	0.00	0.05	1,573.68
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Paving (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.59	0.00	0.05	1,563.85
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.01	0.03	0.13	0.01	0.00	0.00	137.53	0.00	0.00	138.89
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	3.63	0.00	0.00	3.67
Pounds per day - Grading/Excavation	0.01	0.03	0.13	0.01	0.00	0.00	137.42	0.00	0.00	138.78
Tons per const. Period - Grading/Excavation	0.00	0.00	0.01	0.00	0.00	0.00	16.33	0.00	0.00	16.49
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.02	0.00	0.00	0.00	19.96	0.00	0.00	20.15

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust		User Override of Max Acreage Disturbed/Day		Default Maximum Acreage/Day		PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing				2.00		20.00	0.53	4.16	0.11
Fugitive Dust - Grading/Excavation				2.00		20.00	2.38	4.16	0.49
Fugitive Dust - Drainage/Utilities/Subgrade				2.00		40.00	3.17	8.32	0.66

Off-Road Equipment Emissions														
Grubbing/Land Clearing	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Override of	Default										
			Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)											
Override of Default Number of Vehicles	Program-estimate		Equipment: Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Crawler Tractors	0.54	2.39	6.84	0.26	0.24	0.01	746.02	0.24	0.01	754.06
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Excavators	0.47	6.75	4.44	0.22	0.20	0.01	1,032.04	0.33	0.01	1,043.17
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rubber Tired Dozers	0.89	7.27	9.14	0.42	0.38	0.01	861.68	0.28	0.01	870.94
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Scrapers	0.92	6.91	10.56	0.41	0.38	0.02	1,447.91	0.47	0.01	1,463.52
2.00		3	Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
1.00			Model Default Tier	Skid Steer Loaders	0.08	1.39	1.00	0.04	0.04	0.00	200.20	0.06	0.00	202.36
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.28	1.92	0.11	0.10	0.00	304.00	0.10	0.00	307.27
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment														
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab														
Number of Vehicles		Equipment Tier		Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
					3.20	27.59	34.61	1.48	1.37	0.05	4,690.49	1.50	0.04	4,740.46
					0.08	0.73	0.91	0.04	0.04	0.00	123.83	0.04	0.00	125.15

Grading/Excavation	Default	Mitigation Option	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default Equipment Tier (applicable											
		Default Equipment Tier (applicable	only when "Tier 4 Mitigation" Option											
	Override of Default Number of Vehicles	Program-estimate	Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
				Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1			Model Default Tier	Crawler Tractors	0.53	2.38	6.73	0.25	0.23	0.01	745.87	0.24	0.01
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00		3		Model Default Tier	Excavators	0.23	3.37	2.18	0.11	0.10	0.01	516.00	0.17	0.00
				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00		2		Model Default Tier	Graders	0.63	4.49	6.02	0.34	0.31	0.01	605.56	0.20	0.01
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00				Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		2		Model Default Tier	Rollers	0.38	3.80	3.85	0.23	0.22	0.01	514.53	0.17	0.00
				Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00		1		Model Default Tier	Rubber Tired Loaders	0.33	1.57	3.71	0.12	0.11	0.01	596.33	0.19	0.01
		2		Model Default Tier	Scrapers	1.81	13.68	20.72	0.81	0.74	0.03	2,896.36	0.94	0.03
2.00		3		Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00		4		Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.28	1.89	0.11	0.10	0.00	304.04	0.10	0.00
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment														
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab														
	Number of Vehicles		Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Drainage/Utilities/Subgrade		Default	Mitigation Option	Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles		Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)		Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles		Program-estimate	Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Air Compressors	0.27	2.42	1.88	0.11	0.11	0.00	375.26	0.02	0.00	376.72
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Generator Sets	0.33	3.68	2.93	0.15	0.15	0.01	623.04	0.03	0.00	625.17
1.00	1		Model Default Tier	Graders	0.56	4.42	5.22	0.29	0.27	0.01	605.60	0.20	0.01	612.11
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1		Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	1		Model Default Tier	Pumps	0.35	3.73	2.97	0.16	0.16	0.01	623.04	0.03	0.00	625.23
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Rough Terrain Forklifts	0.11	2.29	1.48	0.05	0.05	0.00	333.75	0.11	0.00	337.35
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Scrapers	0.81	6.29	8.82	0.34	0.32	0.02	1,450.26	0.47	0.01	1,465.90
2.00	3		Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	99.13
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Tractors/Loaders/Backhoes	0.50	6.78	5.08	0.27	0.25	0.01	913.03	0.30	0.01	922.86
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment					If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab									
Number of Vehicles		Equipment Tier		Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
					pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Drainage/Utilities/Sub-Grade		pounds per day	3.09	30.42	29.35	1.41	1.33	0.05	5,057.10	1.17	0.04	5,099.12
		Drainage/Utilities/Sub-Grade		tons per phase	0.24	2.41	2.32	0.11	0.11	0.00	400.52	0.09	0.00	403.85



Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of	Default												
		Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)													
Override of Default Number of Vehicles		Program-estimate		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
				Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.00			Model Default Tier	Air Compressors	0.27	2.42	1.88	0.11	0.11	0.00	375.26	0.02	0.00	
	1.00			Model Default Tier	Bore/Drill Rigs	0.21	1.90	2.11	0.07	0.06	0.01	851.58	0.28	0.01	
	1.00			Model Default Tier	Cement and Mortar Mixers	0.06	0.31	0.37	0.01	0.01	0.00	50.52	0.01	0.00	
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.00			Model Default Tier	Cranes	0.36	1.85	4.09	0.17	0.16	0.01	546.73	0.18	0.00	
				Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.00			Model Default Tier	Excavators	0.21	3.36	1.83	0.09	0.08	0.01	515.84	0.17	0.00	
				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		1		Model Default Tier	Pavers	0.20	2.80	2.03	0.10	0.09	0.00	441.25	0.14	0.00	
		1		Model Default Tier	Paving Equipment:	0.18	2.53	1.72	0.08	0.08	0.00	391.48	0.13	0.00	
				Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.00			Model Default Tier	Pumps	0.35	3.73	2.97	0.16	0.16	0.01	623.04	0.03	0.00	
	1.00	2		Model Default Tier	Rollers	0.17	1.88	1.75	0.10	0.09	0.00	257.28	0.08	0.00	
				Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2.00	3		Model Default Tier	Signal Boards	0.11	0.60	0.72	0.03	0.03	0.00	98.63	0.01	0.00	
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.00			Model Default Tier	Surfacing Equipment	0.18	1.56	2.09	0.08	0.07	0.01	632.35	0.20	0.01	
	1.00			Model Default Tier	Sweepers/Scrubbers	0.19	1.92	1.80	0.12	0.11	0.00	246.18	0.08	0.00	
		3		Model Default Tier	Tractors/Loaders/Backhoes	0.50	6.78	5.07	0.27	0.25	0.01	913.05	0.30	0.01	
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.00			Model Default Tier	Welders	0.28	1.70	1.46	0.06	0.06	0.00	207.48	0.02	0.00	
User-Defined Off-road Equipment															
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab						ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles			Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00			N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00			N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Paving		pounds per day	3.27	33.33	29.89	1.45	1.36	0.06	6,150.66	1.65	0.05		6,207.91
		Paving		tons per phase	0.13	1.32	1.18	0.06	0.05	0.00	243.57	0.07	0.00		245.83
Total Emissions all Phases (tons per construction period) ==>					0.96	8.30	9.89	0.45	0.42	0.02	1,517.76	0.44	0.01		1,532.67

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET