Appendix C

Air Quality Supporting Information

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Appendix C1

Amicus Briefs:

Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno and Friant Ranch, L.P.

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S219783

IN THE SUPREME COURT OF C ALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,

Plaintiffs and Appellants,

v.

COUNTY OF FRESNO,

Defendant and Respondent,

and,

FRIANT RANCH, L.P.,

Real Party in Interest and Respondent.

After a Published Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726
Honorable Rosendo A. Pena, Jr.

APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*

Kurt R. Wiese, General Counsel (SBN 127251)
*Barbara Baird, Chief Deputy Counsel (SBN 81507)
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, CA 91765
Telephone: 909-396-2302; Facsimile: 909-396-2961
Email: bbaird@aqmd.gov
Counsel for [Proposed] Amicus Curiae,
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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TO THE HONORABLE CHIEF JUSTICE AND JUSTICES OF THE SUPREME COURT:

APPLICATION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF

Pursuant to Rule 8.520(f) of the California Rules of Court, the South Coast Air Quality Management District (SCAQMD) respectfully requests leave to file the attached *amicus curiae* brief. Because SCAQMD's position differs from that of either party, we request leave to submit this amicus brief in support of neither party.

HOW THIS BRIEF WILL ASSIST THE COURT

SCAQMD's proposed amicus brief takes a position on two of the issues in this case. In both instances, its position differs from that of either party. The issues are:

1) Does the California Environmental Quality Act (CEQA) require an environmental impact report (EIR) to correlate a project's air pollution emissions with specific levels of health impacts?
2) What is the proper standard of review for determining whether an EIR provides sufficient information on the health impacts caused by a project's emission of air pollutants?

This brief will assist the Court by discussing the practical realities of correlating identified air quality impacts with specific health outcomes. In short, CEQA requires agencies to provide detailed information about a project's air quality impacts that is sufficient for the public and decisionmakers to adequately evaluate the project and meaningfully understand its impacts. However, the level of analysis is governed by a rule of reason; CEQA only requires agencies to conduct analysis if it is reasonably feasible to do so.

With regard to health-related air quality impacts, an analysis that correlates a project's air pollution emissions with specific levels of health impacts will be feasible in some cases but not others. Whether it is feasible depends on a variety of factors, including the nature of the project and the nature of the analysis under consideration. The feasibility of analysis may also change over time as air districts and others develop new tools for measuring projects' air quality related health impacts. Because SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, it is uniquely situated to express an opinion on the extent to which the Court should hold that CEQA requires lead agencies to correlate air quality impacts with specific health outcomes.

SCAQMD can also offer a unique perspective on the question of the appropriate standard of review. SCAQMD submits that the proper standard of review for determining whether an EIR is sufficient as an informational document is more nuanced than argued by either party. In our view, this is a mixed question of fact and law. It includes determining whether additional analysis is feasible, which is primarily a factual question that should be reviewed under the substantial evidence standard. However, it also involves determining whether the omission of a particular analysis renders an EIR insufficient to serve CEQA's purpose as a meaningful, informational document. If a lead agency has not determined that a requested analysis is infeasible, it is the court's role to determine whether the EIR nevertheless meets CEQA's purposes, and courts should not defer to the lead agency's conclusions regarding the legal sufficiency of an EIR's analysis. The ultimate question of whether an EIR's analysis is "sufficient" to serve CEQA's informational purposes is predominately a question of law that courts should review de novo.

This brief will explain the rationale for these arguments and may assist the Court in reaching a conclusion that accords proper respect to a lead agency's factual conclusions while maintaining judicial authority over the ultimate question of what level of analysis CEQA requires.

STATEMENT OF INTEREST OF *AMICUS CURIAE*

The SCAQMD is the regional agency primarily responsible for air pollution control in the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of the Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410; Cal. Code Regs., tit. 17, § 60104.) The SCAQMD participates in the CEQA process in several ways. Sometimes it acts as a lead agency that prepares CEQA documents for projects. Other times it acts as a responsible agency when it has permit authority over some part of a project that is undergoing CEQA review by a different lead agency. Finally, SCAQMD also acts as a commenting agency for CEQA documents that it receives because it is a public agency with jurisdiction by law over natural resources affected by the project.

In all of these capacities, SCAQMD will be affected by the decision in this case. SCAQMD sometimes submits comments requesting that a lead agency perform an additional type of air quality or health impacts analysis. On the other hand, SCAQMD sometimes determines that a particular type of health impact analysis is not feasible or would not produce reliable and informative results. Thus, SCAQMD will be affected by the Court's resolution of the extent to which CEQA requires EIRs to correlate emissions and health impacts, and its resolution of the proper standard of review.

CERTIFICATION REGARDING AUTHORSHIP AND FUNDING

No party or counsel in the pending case authored the proposed amicus curiae brief in whole or in part, or made any monetary contribution intended to fund the preparation or submission of the brief. No person or entity other than the proposed *Amicus Curiae* made any monetary contribution intended to fund the preparation or submission of the brief.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
BARBARA BAIRD, CHIEF DEPUTY COUNSEL

By: Barbara Baird
Barbara Baird
Attorneys for [proposed] Amicus Curiae
SOUTH COAST AIR QUALITY
MANAGEMENT DISTICT

BRIEF OF AMICUS CURIAE

SUMMARY OF ARGUMENT

The South Coast Air Quality Management District (SCAQMD) submits that this Court should not try to establish a hard-and-fast rule concerning whether lead agencies are required to correlate emissions of air pollutants with specific health consequences in their environmental impact reports (EIR). The level of detail required in EIRs is governed by a few, core CEQA (California Environmental Quality Act) principles. As this Court has stated, "[a]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." (*Laurel Heights Improvement Assn. v. Regents of the Univ of Cal.* (1988) 47 Cal.3d 376, 405 ["*Laurel Heights I*"]) Accordingly, "an agency must use its best efforts to find out and disclose all that it reasonably can." (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (quoting CEQA Guidelines § 15144)[1].). However, "[a]nalysis of environmental effects need not be exhaustive, but will be judged in light of what is reasonably feasible." (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal.App.4th 1383, 1390; CEQA Guidelines §§ 15151, 15204(a).)

With regard to analysis of air quality related health impacts, EIRs must generally quantify a project's pollutant emissions, but in some cases it is not feasible to correlate these emissions to specific, quantifiable health impacts (e.g., premature mortality; hospital admissions). In such cases, a general description of the adverse health impacts resulting from the pollutants at issue may be sufficient. In other cases, due to the magnitude

[1] The CEQA Guidelines are found at Cal. Code Regs., tit. 14 §§ 15000, *et seq*.

or nature of the pollution emissions, as well as the specificity of the project involved, it may be feasible to quantify health impacts. Or there may be a less exacting, but still meaningful analysis of health impacts that can feasibly be performed. In these instances, agencies should disclose those impacts.

SCAQMD also submits that whether or not an EIR complies with CEQA's informational mandates by providing sufficient, feasible analysis is a mixed question of fact and law. Pertinent here, the question of whether an EIR's discussion of health impacts from air pollution is sufficient to allow the public to understand and consider meaningfully the issues involves two inquiries: (1) Is it feasible to provide the information or analysis that a commenter is requesting or a petitioner is arguing should be required?; and (2) Even if it is feasible, is the agency relying on other policy or legal considerations to justify not preparing the requested analysis? The first question of whether an analysis is feasible is primarily a question of fact that should be judged by the substantial evidence standard. The second inquiry involves evaluating CEQA's information disclosure purposes against the asserted reasons to not perform the requested analysis. For example, an agency might believe that its EIR meets CEQA's informational disclosure standards even without a particular analysis, and therefore choose not to conduct that analysis. SCAQMD submits that this is more of a legal question, which should be reviewed de novo as a question of law.

ARGUMENT

I. RELEVANT FACTUAL AND LEGAL FRAMEWORK.

A. Air Quality Regulatory Background

The South Coast Air Quality Management District (SCAQMD) is one of the local and regional air pollution control districts and air quality management districts in California. The SCAQMD is the regional air pollution agency for the South Coast Air Basin, which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. (Health & Saf. Code § 40410, 17 Cal. Code Reg. § 60104.) The SCAQMD also includes the Coachella Valley in Riverside County (Palm Springs area to the Salton Sea). (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "chapter 7" hyperlink; pp 7-1, 7-3 (last visited Apr. 1, 2015).) The SCAQMD's jurisdiction includes over 16 million residents and has the worst or nearly the worst air pollution levels in the country for ozone and fine particulate matter. (SCAQMD, *Final 2012 AQMP (Feb. 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Executive Summary" hyperlink p. ES-1 (last visited Apr. 1, 2015).)

Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. (Health & Saf. Code § 40000.) The California Air Resources Board (CARB), part of the California Environmental Protection Agency, is primarily responsible for controlling pollution from motor vehicles. (*Id.*) The air districts must adopt rules to achieve and maintain the state and federal ambient air quality standards within their jurisdictions. (Health & Saf. Code § 40001.)

The federal Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to identify pollutants that are widely distributed and pose a threat to human health, developing a so-called "criteria" document. (42 U.S.C. § 7408; CAA § 108.) These pollutants are frequently called "criteria pollutants." EPA must then establish "national ambient air quality standards" at levels "requisite to protect public health", allowing "an adequate margin of safety." (42 U.S.C. § 7409; CAA § 109.) EPA has set standards for six identified pollutants: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM), and lead. (U.S. EPA, National Ambient Air Quality Standards (NAAQS), http://www.epa.gov/air/criteria.html (last updated Oct. 21, 2014).)[2]

Under the Clean Air Act, EPA sets emission standards for motor vehicles and "nonroad engines" (mobile farm and construction equipment, marine vessels, locomotives, aircraft, etc.). (42 U.S.C. §§ 7521, 7547; CAA §§ 202, 213.) California is the only state allowed to establish emission standards for motor vehicles and most nonroad sources; however, it may only do so with EPA's approval. (42 U.S.C. §§ 7543(b), 7543(e); CAA §§ 209(b), 209(c).) Sources such as manufacturing facilities, power plants and refineries that are not mobile are often referred to as "stationary sources." The Clean Air Act charges state and local agencies with the primary responsibility to attain the national ambient air quality standards. (42 U.S.C. § 7401(a)(3); CAA § 101(a)(3).) Each state must adopt and implement a plan including enforceable measures to achieve and maintain the national ambient air quality standards. (42 U.S.C. § 7410; CAA § 110.) The SCAQMD and CARB jointly prepare portion of the plan for the South Coast Air Basin and submit it for approval by EPA. (Health & Saf. Code §§ 40460, et seq.)

The Clean Air Act also requires state and local agencies to adopt a permit program requiring, among other things, that new or modified "major" stationary sources use technology to achieve the "lowest achievable emission rate," and to control minor stationary sources as

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[2] Particulate matter (PM) is further divided into two categories: fine particulate or $PM_{2.5}$ (particles with a diameter of less than or equal to 2.5 microns) and coarse particulate (PM_{10}) (particles with a diameter of 10 microns or less). (U.S. EPA, Particulate Matter (PM), http://www.epa.gov/airquality/particlepollution/ (last visited Apr. 1, 2015).)

needed to help attain the standards. (42 U.S.C. §§ 7502(c)(5), 7503(a)(2), 7410(a)(2)(C); CAA §§ 172(c)(5), 173(a)(2), 110(a)(2)(C).) The air districts implement these permit programs in California. (Health & Saf. Code §§ 42300, et seq.)

The Clean Air Act also sets out a regulatory structure for over 100 so-called "hazardous air pollutants" calling for EPA to establish "maximum achievable control technology" (MACT) for sources of these pollutants. (42 U.S.C. § 7412(d)(2); CAA § 112(d)(2).) California refers to these pollutants as "toxic air contaminants" (TACs) which are subject to two state-required programs. The first program requires "air toxics control measures" for specific categories of sources. (Health & Saf. Code § 39666.) The other program requires larger stationary sources and sources identified by air districts to prepare "health risk assessments" for impacts of toxic air contaminants. (Health & Saf. Code §§ 44320(b), 44322, 44360.) If the health risk exceeds levels identified by the district as "significant," the facility must implement a "risk reduction plan" to bring its risk levels below "significant" levels. Air districts may adopt additional more stringent requirements than those required by state law, including requirements for toxic air contaminants. (Health & Saf. Code § 41508; *Western Oil & Gas Assn. v. Monterey Bay Unified APCD* (1989) 49 Cal.3d 408, 414.) For example, SCAQMD has adopted a rule requiring new or modified sources to keep their risks below specified levels and use best available control technology (BACT) for toxics. (SCAQMD, *Rule 1401-New Source Review of Toxic Air Contaminants*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiv; then follow "Rule 1401" hyperlink (last visited Apr. 1, 2015).)

B. The SCAQMD's Role Under CEQA

The California Environmental Quality Act (CEQA) requires public agencies to perform an environmental review and appropriate analysis for projects that they implement or approve. (Pub. Resources Code § 21080(a).) The agency with primary approval authority for a particular project is generally the "lead agency" that prepares the appropriate CEQA document. (CEQA Guidelines §§ 15050, 15051.) Other agencies having a subsequent approval authority over all or part of a project are called "responsible" agencies that must determine whether the CEQA document is adequate for their use. (CEQA Guidelines §§ 15096(c), 15381.) Lead agencies must also consult with and circulate their environmental impact reports to "trustee agencies" and agencies "with jurisdiction by law" including "authority over resources which may be affected by the project." (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines §§ 15086(a)(3), 15073(c).) The SCAQMD has a role in all these aspects of CEQA.

Fulfilling its responsibilities to implement its air quality plan and adopt rules to attain the national ambient air quality standards, SCAQMD adopts a dozen or more rules each year to require pollution reductions from a wide variety of sources. The SCAQMD staff evaluates each rule for any adverse environmental impact and prepares the appropriate CEQA document. Although most rules reduce air emissions, they may have secondary environmental impacts such as use of water or energy or disposal of waste—e.g., spent catalyst from control equipment.[3]

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[3] The SCAQMD's CEQA program for its rules is a "Certified Regulatory Program" under which it prepares a "functionally equivalent" document in lieu of a negative declaration or EIR. (Pub. Resources Code § 21080.5, CEQA Guidelines § 15251(l).)

The SCAQMD also approves a large number of permits every year to construct new, modified, or replacement facilities that emit regulated air pollutants. The majority of these air pollutant sources have already been included in an earlier CEQA evaluation for a larger project, are currently being evaluated by a local government as lead agency, or qualify for an exemption. However, the SCAQMD sometimes acts as lead agency for major projects where the local government does not have a discretionary approval. In such cases, SCAQMD prepares and certifies a negative declaration or environmental impact report (EIR) as appropriate.[4] SCAQMD evaluates perhaps a dozen such permit projects under CEQA each year. SCAQMD is often also a "responsible agency" for many projects since it must issue a permit for part of the projects (e.g., a boiler used to provide heat in a commercial building). For permit projects evaluated by another lead agency under CEQA, SCAQMD has the right to determine that the CEQA document is inadequate for its purposes as a responsible agency, but it may not do so because its permit program already requires all permitted sources to use the best available air pollution control technology. (SCAQMD, *Rule 1303(a)(1) – Requirements*, http://www.aqmd.gov/home/regulations/rules/scaqmd-rule-book/regulation-xiii; then follow "Rule 1303" hyperlink (last visited Apr. 1, 2015).)

Finally, SCAQMD receives as many as 60 or more CEQA documents each month (around 500 per year) in its role as commenting agency or an agency with "jurisdiction by law" over air quality—a natural resource affected by the project. (Pub. Resources Code §§ 21104(a), 21153; CEQA Guidelines § 15366(a)(3).) The SCAQMD staff provides comments on as many as 25 or 30 such documents each month.

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[4] The SCAQMD's permit projects are not included in its Certified Regulatory Program, and are evaluated under the traditional local government CEQA analysis. (Pub. Resources Code §§ 21150-21154.)

(SCAQMD Governing Board Agenda, Apr. 3, 2015, Agenda Item 16, Attachment A, http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-april-3-2015; then follow "16. Lead Agency Projects and Environmental Documents Received by SCAQMD" hyperlink (last visited Apr. 1, 2015).) Of course, SCAQMD focuses its commenting efforts on the more significant projects.

Typically, SCAQMD comments on the adequacy of air quality analysis, appropriateness of assumptions and methodology, and completeness of the recommended air quality mitigation measures. Staff may comment on the need to prepare a health risk assessment detailing the projected cancer and noncancer risks from toxic air contaminants resulting from the project, particularly the impacts of diesel particulate matter, which CARB has identified as a toxic air contaminant based on its carcinogenic effects. (California Air Resources Board, Resolution 98-35, Aug. 27, 1998, http://www.arb.ca.gov/regact/diesltac/diesltac.htm; then follow Resolution 98-35 hyperlink (last visited Apr. 1, 2015).) Because SCAQMD already requires new or modified stationary sources of toxic air contaminants to use the best available control technology for toxics and to keep their risks below specified levels, (SCAQMD Rule 1401, supra, note 15), the greatest opportunity to further mitigate toxic impacts through the CEQA process is by reducing emissions—particularly diesel emissions—from vehicles.

II. THIS COURT SHOULD NOT SET A HARD-AND-FAST RULE CONCERNING THE EXTENT TO WHICH AN EIR MUST CORRELATE A PROJECT'S EMISSION OF POLLUTANTS WITH RESULTING HEALTH IMPACTS.

Numerous cases hold that courts do not review the correctness of an EIR's conclusions but rather its sufficiency as an informative document. (*Laurel Heights 1*, *supra*, 47 Cal.3d at p. 392; *Citizens of Goleta Valley v.*

Bd. of Supervisors (1990) 52 Cal.3d 553, 569; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1197.)

As stated by the Court of Appeal in this case, where an EIR has addressed a topic, but the petitioner claims that the information provided about that topic is insufficient, courts must "draw[] a line that divides *sufficient* discussions from those that are *insufficient*." (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) The Court of Appeal readily admitted that "[t]he terms themselves – sufficient and insufficient – provide little, if any, guidance as to where the line should be drawn. They are simply labels applied once the court has completed its analysis." (*Id.*)

The CEQA Guidelines, however, provide guidance regarding what constitutes a sufficient discussion of impacts. Section 15151 states that "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." Case law reflects this: "Analysis of environmental effects need not be exhaustive, but will be judged in light of what was reasonably feasible." (*Association of Irritated Residents v. County of Madera, supra,* 107 Cal.App.4th at p. 1390; see also CEQA Guidelines § 15204(a).)

Applying this test, this Court cannot realistically establish a hard-and-fast rule that an analysis correlating air pollution impacts of a project to quantified resulting health impacts is always required, or indeed that it is never required. Simply put, in some cases such an analysis will be "feasible"; in some cases it will not.

For example, air pollution control districts often require a proposed new source of toxic air contaminants to prepare a "health risk assessment" before issuing a permit to construct. District rules often limit the allowable cancer risk the new source may cause to the "maximally exposed individual" (worker and residence exposures). (*See, e.g.*, SCAQMD Rule 1401(c)(8); 1401(d)(1), *supra* note 15.) In order to perform this analysis, it is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). (SCAQMD, *Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588), pp. 11-16*; (last visited Apr. 1, 2015) http://www.aqmd.gov/home/library/documents-support-material; "Guidelines" hyperlink; AB2588; then follow AB2588 Risk Assessment Guidelines hyperlink.)

Thus, it is feasible to determine the health risk posed by a new gas station locating at an intersection in a mixed use area, where receptor locations are known. On the other hand, it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk—it does not necessarily mean anyone will contract cancer as a result of the project.

In order to find the "cancer burden" or expected additional cases of cancer resulting from the project, it is also necessary to know the numbers and location of individuals living within the "zone of impact" of the project: i.e., those living in areas where the projected cancer risk from the project exceeds one in a million. (SCAQMD, Health Risk Assessment Summary form, http://www.aqmd.gov/home/forms ; filter by "AB2588" category; then "Health Risk Assessment" hyperlink (last visited Apr. 1, 2015).) The affected population is divided into bands of those exposed to at least 1 in a million risk, those exposed to at least 10 in a million risk, etc. up to those exposed at the highest levels. (*Id.*) This data allows agencies to calculate an approximate number of additional cancer cases expected from the project. However, it is not possible to predict which particular individuals will be affected.

For the so-called criteria pollutants[5], such as ozone, it may be more difficult to quantify health impacts. Ozone is formed in the atmosphere from the chemical reaction of the nitrogen oxides (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. (U.S. EPA, Ground Level Ozone, http://www.epa.gov/airquality/ozonepollution/ (last updated Mar. 25, 2015).) It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. (U.S. EPA, *Guideline on Ozone Monitoring Site Selection* (Aug. 1998) EPA-454/R-98-002 § 5.1.2, http://www.epa.gov/ttnamti1/archive/cpreldoc.html (last visited Apr. 1, 2015).) NO_x and VOC are known as "precursors" of ozone.

Scientifically, health effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes. (U.S. EPA, *Health Effects of Ozone in the General Population,* Figure 9, http://www.epa.gov/apti/ozonehealth/population.html#levels (last visited Apr. 1, 2015).) However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP showed that reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. (South Coast Air Quality Management District, *Final 2012 AQMP (February 2013)*, http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan; then follow "Appendix V: Modeling & Attainment Demonstrations" hyperlink,

[5] See discussion of types of pollutants, supra, Part I.A.

pp. v-4-2, v-7-4, v-7-24.) SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_x or VOC emissions from relatively small projects.

On the other hand, this type of analysis may be feasible for projects on a regional scale with very high emissions of NO_x and VOCs, where impacts are regional. For example, in 2011 the SCAQMD performed a health impact analysis in its CEQA document for proposed Rule 1315, which authorized various newly-permitted sources to use offsets from the districts "internal bank" of emission reductions. This CEQA analysis accounted for essentially *all* the increases in emissions due to new or modified sources in the District between 2010 and 2030.[6] The SCAQMD was able to correlate this very large emissions increase (e.g., 6,620 pounds per day NO_x (1,208 tons per year), 89,180 pounds per day VOC (16,275 tons per year)) to expected health outcomes from ozone and particulate matter (e.g., 20 premature deaths per year and 89,947 school absences in the year 2030 due to ozone).[7] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System* (see hyperlink in fn 6*)* at p. 4.1-35, Table 4.1-29.)

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[6] (SCAQMD Governing Board Agenda, February 4, 2011, Agenda Item 26, Attachment G, *Assessment for: Re-adoption of Proposed Rule 1315 – Federal New Source Review Tracking System, Vol. 1, p.4.0-6,* http://www.aqmd.gov/home/library/meeting-agendas-minutes/agenda?title=governing-board-meeting-agenda-february-4-2011; the follow "26. Adopt Proposed Rule 1315 – Federal New Source Review Tracking System" (last visited April 1, 2015).)

[7] The SCAQMD was able to establish the location of future NO_x and VOC emissions by assuming that new projects would be built in the same locations and proportions as existing stationary sources. This CEQA document was upheld by the Los Angeles County Superior Court in *Natural Res. Def. Council v SCAQMD*, Los Angeles Superior Court No. BS110792).

However, a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models that are currently used to determine ozone levels. Thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone. This is in part because ozone formation is not linearly related to emissions. Ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology and seasonal impacts, and because ozone is formed some time later and downwind from the actual emission. (EPA Guideline on Ozone Monitoring Site Selection (Aug. 1998) EPA-454/R-98-002, § 5.1.2; https://www.epa.gov/ttnamti1/archive/cpreldoc.html; then search "Guideline on Ozone Monitoring Site Selection" click on pdf) (last viewed Apr. 1, 2015).)

SCAQMD has set its CEQA "significance" threshold for NO_x and VOC at 10 tons per year (expressed as 55 lb/day). (SCAQMD, *Air Quality Analysis Handbook*, http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook; then follow "SCAQMD Air Quality Significance Thresholds" hyperlink (last visited Apr. 1, 2015).) This is because the federal Clean Air Act defines a "major" stationary source for "extreme" ozone nonattainment areas such as SCAQMD as one emitting 10 tons/year. (42 U.S.C. §§ 7511a(e), 7511a(f); CAA §§ 182(e), 182(f).) Under the Clean Air Act, such sources are subject to enhanced control requirements (42 U.S.C. §§ 7502(c)(5), 7503; CAA §§ 172(c)(5), 173), so SCAQMD decided this was an appropriate threshold for making a CEQA "significance" finding and requiring feasible mitigation. Essentially, SCAQMD takes the position that a source that emits 10 tons/year of NO_x or VOC would contribute cumulatively to ozone formation. Therefore, lead agencies that use SCAQMD's thresholds of significance may determine that many projects have "significant" air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program.

In the case of particulate matter ($PM_{2.5}$)[8], another "criteria" pollutant, SCAQMD staff is aware of two possible methods of analysis. SCAQMD used regional modeling to predict expected health impacts from its proposed Rule 1315, as mentioned above. Also, the California Air Resources Board (CARB) has developed a methodology that can predict expected mortality (premature deaths) from large amounts of $PM_{2.5.}$ (California Air Resources Board, *Health Impacts Analysis: PM Premature Death Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort_arch.htm (last reviewed Jan. 19, 2012).) SCAQMD used the CARB methodology to predict impacts from three very large power plants (e.g., 731-1837 lbs/day). (Final Environmental Assessment for Rule 1315, *supra*, pp 4.0-12, 4.1-13, 4.1-37 (e.g., 125 premature deaths in the entire SCAQMD in 2030), 4.1-39 (0.05 to 1.77 annual premature deaths from power plants.) Again, this project involved large amounts of additional $PM_{2.5}$ in the District, up to 2.82 tons/day (5,650 lbs/day of $PM_{2.5}$, or, or 1029 tons/year. (*Id.* at table 4.1-4, p. 4.1-10.)

However, the primary author of the CARB methodology has reported that this $PM_{2.5}$ health impact methodology is not suited for small projects and may yield unreliable results due to various uncertainties. [9] (SCAQMD, *Final Subsequent Mitigated Negative Declaration for: Warren*

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[8] SCAQMD has not attained the latest annual or 24-hour national ambient air quality standards for "$PM_{2.5}$" or particulate matter less than 2.5 microns in diameter.

[9] Among these uncertainties are the representativeness of the population used in the methodology, and the specific source of PM and the corresponding health impacts. (*Id.* at p. 2-24.)

E&P, Inc. WTU Central Facility, New Equipment Project (certified July 19, 2011), http://www.aqmd.gov/home/library/documents-support-material/lead-agency-permit-projects/permit-project-documents---year-2011; then follow "Final Subsequent Mitigated Negative Declaration for Warren E&P Inc. WTU Central Facility, New Equipment Project" hyperlink, pp. 2-22, 2-23 (last visited Apr. 1, 2015).) Therefore, when SCAQMD prepared a CEQA document for the expansion of an existing oil production facility, with very small $PM_{2.5}$ increases (3.8 lb/day) and a very small affected population, staff elected not to use the CARB methodology for using estimated $PM_{2.5}$ emissions to derive a projected premature mortality number and explained why it would be inappropriate to do so. (*Id.* at pp 2-22 to 2-24.) SCAQMD staff concluded that use of this methodology for such a small source could result in unreliable findings and would not provide meaningful information. (*Id.* at pp. 2-23, 2-25.) This CEQA document was not challenged in court.

In the above case, while it may have been technically possible to plug the data into the methodology, the results would not have been reliable or meaningful. SCAQMD believes that an agency should not be required to perform analyses that do not produce reliable or meaningful results. This Court has already held that an agency may decline to use even the "normal" "existing conditions" CEQA baseline where to do so would be misleading or without informational value. (*Neighbors for Smart Rail v. Exposition Metro Line* (2013) 57 Cal.4th 439, 448, 457.) The same should be true for a decision that a particular study or analysis would not provide reliable or meaningful results.[10]

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[10] Whether a particular study would result in "informational value" is a part of deciding whether it is "feasible." CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and

Therefore, it is not possible to set a hard-and-fast rule on whether a correlation of air quality impacts with specific quantifiable health impacts is required in all cases. Instead, the result turns on whether such an analysis is reasonably feasible in the particular case.[11] Moreover, what is reasonably feasible may change over time as scientists and regulatory agencies continually seek to improve their ability to predict health impacts. For example, CARB staff has been directed by its Governing Board to reassess and improve the methodology for estimating premature deaths. (California Air Resources Board, *Health Impacts Analysis: PM Mortality Relationship*, http://www.arb.ca.gov/research/health/pm-mort/pm-mort.htm (last reviewed Dec. 29, 2010).) This factor also counsels against setting any hard-and-fast rule in this case.

III. THE QUESTION OF WHETHER AN EIR CONTAINS SUFFICIENT ANALYSIS TO MEET CEQA'S REQUIREMENTS IS A MIXED QUESTION OF FACT AND LAW GOVERNED BY TWO DIFFERENT STANDARDS OF REVIEW.

A. Standard of Review for Feasibility Determination and Sufficiency as an Informative Document

A second issue in this case is whether courts should review an EIR's informational sufficiency under the "substantial evidence" test as argued by Friant Ranch or the "independent judgment" test as argued by Sierra Club.

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technological factors." (Pub. Resources Code § 21061.1.) A study cannot be "accomplished in a *successful* manner" if it produces unreliable or misleading results.

[11] In this case, the lead agency did not have an opportunity to determine whether the requested analysis was feasible because the comment was non-specific. Therefore, SCAQMD suggests that this Court, after resolving the legal issues in the case, direct the Court of Appeal to remand the case to the lead agency for a determination of whether the requested analysis is feasible. Because Fresno County, the lead agency, did not seek review in this Court, it seems likely that the County has concluded that at least some level of correlation of air pollution with health impacts is feasible.

As this Court has explained, "a reviewing court must adjust its scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 435.) For questions regarding compliance with proper procedure or other legal questions, courts review an agency's action de novo under the "independent judgment" test. (*Id.*) On the other hand, courts review factual disputes only for substantial evidence, thereby "accord[ing] greater deference to the agency's substantive factual conclusions." (*Id.*)

Here, Friant Ranch and Sierra Club agree that the case involves the question of whether an EIR includes sufficient information regarding a project's impacts. However, they disagree on the proper standard of review for answering this question: Sierra Club contends that courts use the independent judgment standard to determine whether an EIR's analysis is sufficient to meet CEQA's informational purposes,[12] while Friant Ranch contends that the substantial evidence standard applies to this question.

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[12] Sierra Club acknowledges that courts use the substantial evidence standard when reviewing predicate factual issues, but argues that courts ultimately decide as a matter of law what CEQA requires. (Answering Brief, pp. 14, 23.)

SCAQMD submits that the issue is more nuanced than either party contends. We submit that, whether a CEQA document includes sufficient analysis to satisfy CEQA's informational mandates is a mixed question of fact and law,[13] containing two levels of inquiry that should be judged by different standards.[14]

The state CEQA Guidelines set forth standards for the adequacy of environmental analysis. Guidelines Section 15151 states:

> An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good-faith effort at full disclosure.

In this case, the basic question is whether the underlying analysis of air quality impacts made the EIR "sufficient" as an informative document. However, whether the EIR's analysis was sufficient is judged in light of what was reasonably feasible. This represents a mixed question of fact and law that is governed by two different standards of review.

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[13] Friant Ranch actually states that the claim that an EIR lacks sufficient relevant information is, "most properly thought of as raising mixed questions of fact and law." (Opening Brief, p. 27.) However, the remainder of its argument claims that the court should apply the substantial evidence standard of review to all aspects of the issue.

[14] Mixed questions of fact and law issues may implicate predominantly factual subordinate questions that are reviewed under the substantial evidence test even though the ultimate question may be reviewed by the independent judgment test. *Crocker National Bank v. City and County of San Francisco* (1989) 49 Cal.3d 881, 888-889.

SCAQMD submits that an EIR's sufficiency as an informational document is ultimately a legal question that courts should determine using their independent judgment. This Court's language in *Laurel Heights I* supports this position. As this Court explained: "The court does not pass upon the correctness of the EIR's environmental conclusions, but only upon its *sufficiency as an informative document*." (*Laurel Heights I, supra*, 47 Cal.3d at 392-393) (emphasis added.) As described above, the Court in *Vineyard Area Citizens v. City of Rancho Cordova, supra,* 40 Cal.4th at 431, also used its independent judgment to determine what level of analysis CEQA requires for water supply impacts. The Court did not defer to the lead agency's opinion regarding the law's requirements; rather, it determined for itself what level of analysis was necessary to meet "[t]he law's informational demands." (*Id.* at p. 432.) Further, existing case law also holds that where an agency fails to comply with CEQA's information disclosure requirements, the agency has "failed to proceed in the manner required by law." (*Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 118.)

However, whether an EIR satisfies CEQA's requirements depends in part on whether it was reasonably feasible for an agency to conduct additional or more thorough analysis. EIRs must contain "a detailed statement" of a project's impacts (Pub. Res. Code § 21061), and an agency must "use its best efforts to find out and disclose all that it reasonably can." (CEQA Guidelines § 15144.) Nevertheless, "the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible." (CEQA Guidelines § 15151.)

SCAQMD submits that the question of whether additional analysis or a particular study suggested by a commenter is "feasible" is generally a question of fact. Courts have already held that whether a particular alternative is "feasible" is reviewed by the substantial evidence test.

(*Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 598-99; *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.) Thus, if a lead agency determines that a particular study or analysis is infeasible, that decision should generally be judged by the substantial evidence standard. However, SCAQMD urges this Court to hold that lead agencies must explain the basis of any determination that a particular analysis is infeasible in the EIR itself. An EIR must discuss information, including issues related to the feasibility of particular analyses "in sufficient detail to enable meaningful participation and criticism by the public. '[W]hatever is required to be considered in an EIR must be in that formal report; what any official might have known from other writings or oral presentations cannot supply what is lacking in the report.'" (*Laurel Heights I*, *supra*, 47 Cal.3d at p. 405 (quoting *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831) (discussing analysis of alternatives).) The evidence on which the determination is based should also be summarized in the EIR itself, with appropriate citations to reference materials if necessary. Otherwise commenting agencies such as SCAQMD would be forced to guess where the lead agency's evidence might be located, thus thwarting effective public participation.

Moreover, if a lead agency determines that a particular study or analysis would not result in reliable or useful information and for that reason is not feasible, that determination should be judged by the substantial evidence test. (See *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority*, *supra*, 57 Cal.4th 439, 448, 457:

whether "existing conditions" baseline would be misleading or uninformative judged by substantial evidence standard.[15])

If the lead agency's determination that a particular analysis or study is not feasible is supported by substantial evidence, then the agency has not violated CEQA's information disclosure provisions, since it would be infeasible to provide additional information. This Court's decisions provide precedent for such a result. For example, this Court determined that the issue of whether the EIR should have included a more detailed discussion of future herbicide use was resolved because substantial evidence supported the agency's finding that "the precise parameters of future herbicide use could not be predicted." *Ebbetts Pass Forest Watch v. California Dept. of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 955.

Of course, SCAQMD expects that courts will continue to hold lead agencies to their obligations to consult with, and not to ignore or misrepresent, the views of sister agencies having special expertise in the area of air quality. (*Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2007) 91 Cal.App.4th 1344, 1364 n.11.) In some cases, information provided by such expert agencies may establish that the purported evidence relied on by the lead agency is not in fact "substantial". (*Id.* at pp. 1369-1371.)

In sum, courts retain ultimate responsibility to determine what CEQA requires. However, the law does not require exhaustive analysis, but only what is reasonably feasible. Agencies deserve deference for their factual determinations regarding what type of analysis is reasonably feasible. On the other hand, if a commenter requests more information, and the lead agency declines to provide it but does *not* determine that the

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[15] The substantial evidence standard recognizes that the courts "have neither the resources nor the scientific expertise" to weigh conflicting evidence on technical issues. (*Laurel Heights I, supra,* 47 Cal.3d 376, 393.)

requested study or analysis would be infeasible, misleading or uninformative, the question becomes whether the omission of that analysis renders the EIR inadequate to satisfy CEQA's informational purposes. (*Id.* at pp. 1370-71.) Again, this is predominantly a question of law and should be judged by the de novo or independent judgment standard of review. Of course, this Court has recognized that a "project opponent or reviewing court can always imagine some additional study or analysis that might provide helpful information. It is not for them to design the EIR. That further study...might be helpful does not make it necessary." (*Laurel Heights I, supra,* 47 Cal.3d 376, 415 – see also CEQA Guidelines § 15204(a) [CEQA "does not require a lead agency to conduct every test. . . recommended or demanded by commenters."].) Courts, then, must adjudicate whether an omission of particular information renders an EIR inadequate to serve CEQA's informational purposes.[16]

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[16] We recognize that there is case law stating that the substantial evidence standard applies to "challenges to the scope of an EIR's analysis of a topic" as well as the methodology used and the accuracy of the data relied on in the document "because these types of challenges involve factual questions." (*Bakersfield Citizens for Local Control v. City of Bakersfield, supra,* 124 Cal.App.4th 1184, 1198, and cases relied on therein.) However, we interpret this language to refer to situations where the question of the scope of the analysis really is factual—that is, where it involves whether further analysis is feasible, as discussed above. This interpretation is supported by the fact that the *Bakersfield* court expressly rejected an argument that a claimed "omission of information from the EIR should be treated as inquiries whether there is substantial evidence supporting the decision approving the project. " *Bakersfield, supra,* 124 Cal.App.4th at p. 1208. And the *Bakersfield* court ultimately decided that the lead agency must analyze the connection between the identified air pollution impacts and resulting health impacts, even though the EIR already included some discussion of air-pollution-related respiratory illnesses. *Bakersfield, supra,* 124 Cal.App.4th at p. 1220. Therefore, the court must not have interpreted this question as one of the "scope of the analysis" to be judged by the substantial evidence standard.

B. Friant Ranch's Rationale for Rejecting the Independent Judgment Standard of Review is Unsupported by Case Law.

In its brief, Friant Ranch makes a distinction between cases where a required CEQA topic is not discussed at all (to be reviewed by independent judgment as a failure to proceed in the manner required by law) and cases where a topic is discussed, but the commenter claims the information provided is insufficient (to be judged by the substantial evidence test). (Opening Brief, pp. 13-17.) The Court of Appeal recognized these two types of cases, but concluded that both raised questions of law. (*Sierra Club v. County of Fresno* (2014) 226 Cal.App.4th 704 (superseded by grant of review) 172 Cal.Rptr.3d 271, 290.) We believe the distinction drawn by Friant Ranch is unduly narrow, and inconsistent with cases which have concluded that CEQA documents are insufficient. In many instances, CEQA's requirements are stated broadly, and the courts must interpret the law to determine what level of analysis satisfies CEQA's mandate for providing meaningful information, even though the EIR discusses the issue to some extent.

For example, the CEQA Guidelines require discussion of the existing environmental baseline. In *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 954-955, the lead agency had discussed the environmental baseline by describing historic month-end water levels in the affected lakes. However, the court held that this was not an adequate baseline discussion because it failed to discuss the timing and amounts of past actual water releases, to allow comparison with the proposed project. The court evidently applied the independent judgment test to its decision, even though the agency discussed the issue to some extent.

Likewise, in *Vineyard Area Citizens* (2007) 40 Cal.4th 412, this Court addressed the question of whether an EIR's analysis of water supply impacts complied with CEQA. The parties agreed that the EIR was required to analyze the effects of providing water to the development project, "and that in order to do so the EIR had, in some manner, to identify the planned sources of that water." (*Vineyard Area Citizens, supra,* at p. 428.) However, the parties disagreed as to the level of detail required for this analysis and "what level of uncertainty regarding the availability of water supplies can be tolerated in an EIR . . . ." (*Id.*) In other words, the EIR had analyzed water supply impacts for the project, but the petitioner claimed that the analysis was insufficient.

This Court noted that neither CEQA's statutory language or the CEQA Guidelines specifically addressed the question of how precisely an EIR must discuss water supply impacts. (*Id.*) However, it explained that CEQA "states that '[w]hile foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.'" (*Id.*, [Guidelines § 15144].) The Court used this general principle, along with prior precedent, to elucidate four "principles for analytical adequacy" that are necessary in order to satisfy "CEQA's informational purposes." (*Vineyard Area Citizens, supra,* at p. 430.) The Court did not defer to the agency's determination that the EIR's analysis of water supply impacts was sufficient. Rather, this Court used its independent judgment to determine for itself the level of analysis required to satisfy CEQA's fundamental purposes. (*Vineyard Area Citizens, supra*, at p. 441: an EIR does not serve its purposes where it neglects to explain likely sources of water and "... leaves long term water supply considerations to later stages of the project.")

Similarly, the CEQA Guidelines require an analysis of noise impacts of the project. (Appendix G, "Environmental Checklist Form."[17]) In *Gray v. County of Madera* (2008) 167 Cal.App.4th 1099, 1123, the court held that the lead agency's noise impact analysis was inadequate even though it had addressed the issue and concluded that the increase would not be noticeable. If the court had been using the substantial evidence standard, it likely would have upheld this discussion.

Therefore, we do not agree that the issue can be resolved on the basis suggested by Friant Ranch, which would apply the substantial evidence standard to *every* challenge to an analysis that addresses a required CEQA topic. This interpretation would subvert the courts' proper role in interpreting CEQA and determining what the law requires.

Nor do we agree that the Court of Appeal in this case violated CEQA's prohibition on courts interpreting its provisions "in a manner which imposes procedural or substantive requirements beyond those explicitly stated in this division or in the state guidelines." (Pub. Resources Code § 21083.1.) CEQA requires an EIR to describe *all* significant impacts of the project on the environment. (Pub. Resources Code § 21100(b)(2); *Vineyard Area Citizens, supra,* at p. 428.) Human beings are part of the environment, so CEQA requires EIRs to discuss a project's significant impacts on human health. However, except in certain particular circumstances,[18] neither the CEQA statute nor Guidelines specify the precise level of analysis that agencies must undertake to satisfy the law's requirements. (see, e.g., CEQA Guidelines § 15126.2(a) [EIRs must describe "health and safety problems caused by {a project's} physical changes"].) Accordingly, courts must interpret CEQA as a whole to

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[17] Association of Environmental Professionals, 2015 CEQA Statute and Guidelines (2015) p.287.

[18] E.g., Pub. Resources Code § 21151.8(C)(3)(B)(iii) (requiring specific type of health risk analysis for siting schools).

determine whether a particular EIR is sufficient as an informational document. A court determining whether an EIR's discussion of human health impacts is legally sufficient does not constitute imposing a new substantive requirement.[19] Under Friant Ranch's theory, the above-referenced cases holding a CEQA analysis inadequate would have violated the law. This is not a reasonable interpretation.

IV. COURTS MUST SCRUPULOUSLY ENFORCE THE REQUIREMENTS THAT LEAD AGENCIES CONSULT WITH AND OBTAIN COMMENTS FROM AIR DISTRICTS

Courts must "scrupulously enforce" CEQA's legislatively mandated requirements. (*Vineyard Area Citizens, supra*, 40 Cal.4th 412, 435.) Case law has firmly established that lead agencies must consult with the relevant air pollution control district before conducting an initial study, and must provide the districts with notice of the intention to adopt a negative declaration (or EIR). (*Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 958.) As *Schenck* held, neither publishing the notice nor providing it to the State Clearinghouse was a sufficient substitute for sending notice directly to the air district. (*Id.*) Rather, courts "must be satisfied that [administrative] agencies have fully complied with the procedural requirements of CEQA, since only in this way can the important public purposes of CEQA be protected from subversion." *Schenck,* 198 Cal.App.4th at p. 959 (citations omitted).[20]

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[19] We submit that Public Resources Code Section 21083.1 was intended to prevent courts from, for example, holding that an agency must analyze economic impacts of a project where there are no resulting environmental impacts (see CEQA Guidelines § 15131) , or imposing new procedural requirements, such as imposing additional public notice requirements not set forth in CEQA or the Guidelines.

[20] Lead agencies must consult air districts, as public agencies with jurisdiction by law over resources affected by the project, *before* releasing an EIR. (Pub. Resources Code §§ 21104(a); 21153.) Moreover, air

Lead agencies should be aware, therefore, that failure to properly seek and consider input from the relevant air district constitutes legal error which may jeopardize their project approvals. For example, the court in *Fall River Wild Trout Foundation v. County of Shasta,* (1999) 70 Cal.App.4th 482, 492 held that the failure to give notice to a trustee agency (Department of Fish and Game) was prejudicial error requiring reversal. The court explained that the lack of notice prevented the Department from providing any response to the CEQA document. (*Id.* at p. 492.) It therefore prevented relevant information from being presented to the lead agency, which was prejudicial error because it precluded informed decision-making. (*Id.*)[21]

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districts should be considered "state agencies" for purposes of the requirement to consult with "trustee agencies" as set forth in Public Resources Code § 20180.3(a). This Court has long ago held that the districts are not mere "local agencies" whose regulations are superseded by those of a state agency regarding matters of statewide concern, but rather have concurrent jurisdiction over such issues. (*Orange County Air Pollution Control District v. Public Util. Com.* (1971) 4 Cal.3d 945, 951, 954.) Since air pollution is a matter of statewide concern, *Id* at 952, air districts should be entitled to trustee agency status in order to ensure that this vital concern is adequately protected during the CEQA process.

[21] In *Schenck,* the court concluded that failure to give notice to the air district was not prejudicial, but this was partly because the trial court had already corrected the error before the case arrived at the Court of Appeal. The trial court issued a writ of mandate requiring the lead agency to give notice to the air district. The air district responded by concurring with the lead agency that air impacts were not significant. (*Schenck,* 198 Cal.App.4th 949, 960.) We disagree with the *Schenck* court that the failure to give notice to the air district would not have been prejudicial (even in the absence of the trial court writ) merely because the lead agency purported to follow the air district's published CEQA guidelines for significance. (*Id.*, 198 Cal.App.4th at p. 960.) In the first place, absent notice to the air district, it is uncertain whether the lead agency properly followed those guidelines. Moreover, it is not realistic to expect that an air district's published guidelines would necessarily fully address all possible air-quality related issues that can arise with a CEQA project, or that those

Similarly, lead agencies must obtain additional information requested by expert agencies, including those with jurisdiction by law, if that information is necessary to determine a project's impacts. (*Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236-37.) Approving a project without obtaining that information constitutes a failure to proceed in the manner prescribed by CEQA. (*Id.* at p. 1236.)

Moreover, a lead agency can save significant time and money by consulting with the air district early in the process. For example, the lead agency can learn what the air district recommends as an appropriate analysis on the facts of its case, including what kinds of health impacts analysis may be available, and what models are appropriate for use. This saves the lead agency from the need to do its analysis all over again and possibly needing to recirculate the document after errors are corrected, if new significant impacts are identified. (CEQA Guidelines § 15088.5(a).) At the same time, the air district's expert input can help the lead agency properly determine whether another commenter's request for additional analysis or studies is reasonable or feasible. Finally, the air district can provide input on what mitigation measures would be feasible and effective.

Therefore, we suggest that this Court provide guidance to lead agencies reminding them of the importance of consulting with the relevant air districts regarding these issues. Otherwise, their feasibility decisions may be vulnerable to air district evidence that establishes that there is no substantial evidence to support the lead agency decision not to provide specific analysis. (*See Berkeley Keep Jets Over the Bay*, *supra*, 91 Cal.App.4th 1344, 1369-1371.)

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guidelines would necessarily be continually modified to reflect new developments. Therefore we believe that, had the trial court not already ordered the lead agency to obtain the air district's views, the failure to give notice would have been prejudicial, as in *Fall River, supra,* 70 Cal.App.4th 482, 492.

CONCLUSION

The SCAQMD respectfully requests this Court *not* to establish a hard-and-fast rule concerning whether CEQA requires a lead agency to correlate identified air quality impacts of a project with resulting health outcomes. Moreover, the question of whether an EIR is "sufficient as an informational document" is a mixed question of fact and law containing two levels of inquiry. Whether a particular proposed analysis is feasible is predominantly a question of fact to be judged by the substantial evidence standard of review. Where the requested analysis is feasible, but the lead agency relies on legal or policy reasons not to provide it, the question of whether the EIR is nevertheless sufficient as an informational document is predominantly a question of law to be judged by the independent judgment standard of review.

Respectfully submitted,

DATED: April 3, 2015

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
KURT R. WIESE, GENERAL COUNSEL
BARBARA BAIRD, CHIEF DEPUTY COUNSEL

By: Barbara Baird

Barbara Baird
Attorneys for Amicus Curiae
SOUTH COAST AIR QUALITY MANAGEMENT DISTICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.520(c)(1) of the California Rules of Court, I hereby certify that this brief contains 8,476 words, including footnotes, but excluding the Application, Table of Contents, Table of Authorities, Certificate of Service, this Certificate of Word Count, and signature blocks. I have relied on the word count of the Microsoft Word Vista program used to prepare this Certificate.

DATED: April 3, 2015 Respectfully submitted,

Barbara Baird

Barbara Baird

PROOF OF SERVICE

I am employed in the County of Los Angeles, California. I am over the age of 18 years and not a party to the within action. My business address is 21865 Copley Drive, Diamond Bar, California 91765.

On April 3, 2015 I served true copies of the following document(s) described as **APPLICATION OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT FOR LEAVE TO FILE BRIEF OF *AMICUS CURIAE* IN SUPPORT OF NEITHER PARTY AND *[PROPOSED]* BRIEF OF *AMICUS CURIAE*** by placing a true copy of the foregoing document(s) in a sealed envelope addressed as set forth on the attached service list as follows:

BY MAIL: I enclosed the document(s) in a sealed envelope or package addressed to the persons at the addresses listed in the Service List and placed the envelope for collection and mailing following our ordinary business practices. I am readily familiar with this District's practice for collection and processing of correspondence for mailing. Under that practice, the correspondence would be deposited with the United States Postal Service, with postage thereon fully prepaid at Diamond Bar, California, in the ordinary course of business. I am aware that on motion of the party served, service is presumed invalid if postal cancellation date or postage meter date is more than one day after date of deposit for mailing in affidavit.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on April 3, 2015 at Diamond Bar, California.

Patricia Anderson

Patricia Anderson

SERVICE LIST

James G. Moose, Tiffany K. Wright, Laura M. Harris REMY MOOSE MANLEY, LLP 555 Capitol Mall, Suite 800 Sacramento, CA 95814	Attorneys for Real Party in Interest and Respondent *Friant Ranch, L.P.*
Bryan N. Wagner WAGNER & WAGNER 7110 N. Fresno St, Suite 340 Fresno, CA 93720	Attorney for Real Party in Interest and Respondent *Friant Ranch, L.P.*
Sara Hedgpeth-Harris LAW OFFICE OF SARA HEDGPETH-HARRIS 5445 E. Lane Avenue Fresno, CA 93727	Attorney for Plaintiffs and Appellants *Sierra Club, et al*
Daniel C. Cederborg Bruce B. Johnson, Jr. Zachary Stephen Redmond OFFICE OF THE FRESNO COUNTY COUNSEL 2220 Tulare Street, Suite 500 Fresno, CA 93721	Attorneys for Respondents *County of Fresno*
Clerk of the Court California Court of Appeal Fifth Appellate District 2424 Ventura Street Fresno, CA 93721 *(via U.S. Mail & Electronic Transmission)*	
Clerk of the Court Superior Court of California County of Fresno 1130 O Street Fresno, CA 93721	

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO AND REAL PARTY IN INTEREST AND RESPONDENT, FRIANT RANCH, L.P.

CATHERINE T. REDMOND (State Bar No. 226957)
261 High Street
Duxbury, Massachusetts 02332
Tel. (339) 236-5720
Catherinetredmond22@gmail.com

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT
Annette Ballatore-Williamson, District Counsel (State Bar. No. 192176)
1990 E. Gettysburg Avenue
Fresno, California 93726
Tel. (559) 230-6033
Annette.Ballatore-Williamson@valleyair.org

Counsel for San Joaquin Valley Unified Air Pollution Control District

CASE NO. S219783

IN THE SUPREME COURT OF CALIFORNIA

SIERRA CLUB, REVIVE THE SAN JOAQUIN, and
LEAGUE OF WOMEN VOTERS OF FRESNO,
Plaintiffs and Appellants

v.

COUNTY OF FRESNO,
Defendant and Respondent

FRIANT RANCH, L.P.,
Real Party in Interest and Respondent

After a Decision by the Court of Appeal, filed May 27, 2014
Fifth Appellate District Case No. F066798

Appeal from the Superior Court of California, County of Fresno
Case No. 11CECG00726

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1990 E. Gettysburg Avenue
Fresno, California 93726
Tel. (559) 230-6033
Annette.Ballatore-Williamson@valleyair.org

Counsel for San Joaquin Valley Unified Air Pollution Control District

APPLICATION

Pursuant to California Rules of Court 8.520(f)(1), proposed Amicus Curiae San Joaquin Valley Unified Air Pollution Control District hereby requests permission from the Chief Justice to file an amicus brief in support of Defendant and Respondent, County of Fresno, and Defendant and Real Parties in Interest Friant Ranch, L.P. Pursuant to Rule 8.520(f)(5) of the California Rules of Court, the proposed amicus curiae brief is combined with this Application. The brief addresses the following issue certified by this Court for review:

> Is an EIR adequate when it identifies the health impacts of air pollution and quantifies a project's expected emissions, or does CEQA further require the EIR to *correlate* a project's air quality emissions to specific health impacts?

As of the date of this filing, the deadline for the final reply brief on the merits was March 5, 2015. Accordingly, under Rule 8.520(f)(2), this application and brief are timely.

1. Background and Interest of San Joaquin Valley Unified Air Pollution Control District

The San Joaquin Valley Unified Air Pollution Control District ("Air District") regulates air quality in the eight counties comprising the San Joaquin Valley ("Central Valley"): Kern, Tulare, Madera, Fresno, Merced, San Joaquin, Stanislaus, and Kings, and is primarily responsible for attaining air quality standards within its jurisdiction. After billions of dollars of investment by Central Valley businesses, pioneering air quality regulations, and consistent efforts by residents, the Central Valley air basin has made historic improvements in air quality.

The Central Valley's geographical, topographical and meteorological features create exceptionally challenging air quality conditions. For example, it receives air pollution transported from the San Francisco Bay Area and northern Central Valley communities, and the southern portion of the Central Valley includes three mountain ranges (Sierra, Tehachapi, and Coastal) that, under some meteorological conditions, effectively trap air pollution. Central Valley air pollution is only a fraction of what the Bay Area and Los Angeles produce, but these natural conditions result in air quality conditions that are only marginally better than Los Angeles, even though about ten times more pollution is emitted in the Los Angeles region. Bay Area air quality is much better than the Central Valley's, even though the Bay Area produces about six times more pollution. The Central Valley also receives air pollution transported from the Bay Area and northern counties in the Central Valley, including Sacramento, and transboundary anthropogenic ozone from as far away as China.

Notwithstanding these challenges, the Central Valley has reduced emissions at the same or better rate than other areas in California and has achieved unparalleled milestones in protecting public health and the environment:

- In the last decade, the Central Valley became the first air basin classified by the federal government under the Clean Air Act as a "serious nonattainment" area to come into attainment of health-based National Ambient Air Quality Standard ("NAAQS") for coarse particulate matter (PM10), an achievement made even more notable given the Valley's extensive agricultural sector. Unhealthy levels of particulate matter can cause and exacerbate a range of chronic and acute illnesses.
- In 2013, the Central Valley became the first air basin in the country to improve from a federal designation of "extreme" nonattainment to

actually attain (and quality for an attainment designation) of the 1-hour ozone NAAQS; ozone creates "smog" and, like PM10, causes adverse health impacts.

- The Central Valley also is in full attainment of federal standards for lead, nitrogen dioxide, sulfur dioxide, and carbon monoxide.
- The Central Valley continues to make progress toward compliance with its last two attainment standards, with the number of exceedences for the 8-hour ozone NAAQS reduced by 74% (for the 1997 standard) and 38% (for the 2008 standard) since 1991, and for the small particulate matter (PM2.5) NAAQS reduced by 85% (for the 1997 standard) and 61% (for the 2006 standard).

Sustained improvement in Central Valley air quality requires a rigorous and comprehensive regulatory framework that includes prohibitions (e.g., on wood-burning fireplaces in new residences), mandates (e.g., requiring the installation of best available pollution reduction technologies on new and modified equipment and industrial operations), innovations (e.g., fees assessed against residential development to fund pollution reduction actions to "offset" vehicular emissions associated with new residences), incentive programs (e.g., funding replacements of older, more polluting heavy duty trucks and school buses)[1], ongoing planning for continued air quality improvements, and enforcement of Air District permits and regulations.

The Air District is also an expert air quality agency for the eight counties and cities in the San Joaquin Valley. In that capacity, the Air District has developed air quality emission guidelines for use by the Central

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1 San Joaquin's incentive program has been so successful that through 2012, it has awarded over $ 432 million in incentive funds and has achieved 93,349 tons of lifetime emissions reductions. *See* SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 2012 PM2.5 PLAN, 6-6 (2012) *available at* http://www.valleyair.org/Workshops/postings/2012/12-20-12PM25/FinalVersion/06%20Chapter%206%20Incentives.pdf.

Valley counties and cities that implement the California Environment Quality Act (CEQA).[2] In its guidance, the Air District has distinguished between toxic air contaminants and criteria air pollutants.[3] Recognizing this distinction, the Air District's CEQA Guidance has adopted distinct thresholds of significance for *criteria* pollutants (i.e., ozone, PM2.5 and their respective precursor pollutants) based upon scientific and factual data which demonstrates the level that can be accommodated on a cumulative basis in the San Joaquin Valley without affecting the attainment of the applicable NAAQS.[4] For *toxic air* pollutants, the District has adopted different thresholds of significance which scientific and factual data demonstrates has the potential to expose sensitive receptors (i.e., children, the elderly) to levels which may result in localized health impacts.[5]

The Air District's CEQA Guidance was followed by the County of Fresno in its environment review of the Friant Ranch project, for which the Air District also served as a commenting agency. The Court of Appeal's holding, however, requiring correlation between the project's criteria

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[2] *See, e.g.*, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, PLANNING DIVISION, GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS (2015), *available at* http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf ("CEQA Guidance").

[3] Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from toxic air contaminants and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of toxic air contaminants occurs solely under section 112 of the Act. Compare 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 with 42 U.S.C. § 7411.

[4] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 64-66, 80.

[5] See, e.g., CEQA Guidance at http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf, pp. 66, 99-101.

pollutants and local health impacts, departs from the Air District's Guidance and approved methodology for assessing criteria pollutants. A close reading of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants (for which a local health risk assessment is feasible and routinely performed) and criteria air pollutants (for which a local health risk assessment is not feasible and would result in speculative results).[6] The Air District has a direct interest in ensuring the lawfulness and consistent application of its CEQA Guidance, and will explain how the Court of Appeal departed from the Air District's long-standing CEQA Guidance in addressing criteria pollutants and toxic air contaminants in this amicus brief.

2. How the Proposed Amicus Curiae Brief Will Assist the Court

As counsel for the proposed amicus curiae, we have reviewed the briefs filed in this action. In addition to serving as a "commentary agency" for CEQA purposes over the Friant Ranch project, the Air District has a strong interest in assuring that CEQA is used for its intended purpose, and believes that this Court would benefit from additional briefing explaining the distinction between criteria pollutants and toxic air contaminants and the different methodologies employed by local air pollution control agencies such as the Air District to analyze these two categories of air pollutants under CEQA. The Air District will also explain how the Court of Appeal's opinion is based upon a fundamental misunderstanding of these two different approaches by requiring the County of Fresno to correlate the project's *criteria* pollution emissions with *local* health impacts. In doing

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[6] CEQA does not require speculation. *See, e.g.*, *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 6 Cal. 4th 1112, 1137 (1993) (upholding EIR that failed to evaluate cumulative toxic air emission increases given absence of any acceptable means for doing so).

so, the Air District will provide helpful analysis to support its position that at least insofar as criteria pollutants are concerned, CEQA does not require an EIR to correlate a project's air quality emissions to specific health impacts, because such an analysis is not reasonably feasible.

Rule 8.520 Disclosure

Pursuant to Cal. R. 8.520(f)(4), neither the Plaintiffs nor the Defendant or Real Party In Interest or their respective counsel authored this brief in whole or in part. Neither the Plaintiffs nor the Defendant or Real Party in Interest or their respective counsel made any monetary contribution towards or in support of the preparation of this brief.

CONCLUSION

On behalf of the San Joaquin Valley Unified Air Pollution Control District, we respectfully request that this Court accept the filing of the attached brief.

Dated: April 2, 2015

Annette A. Ballatore-Williamson
District Counsel
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY UNIFIED
AIR POLLUTION CONTROL
DISTRICT

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Annette.Ballatore-Williamson@valleyair.org
Counsel for San Joaquin Valley Unified Air Pollution Control District

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I. INTRODUCTION.

The San Joaquin Valley Unified Air Pollution Control District ("Air District") respectfully submits that the Court of Appeal erred when it held that the air quality analysis contained in the Environmental Impact Report ("EIR") for the Friant Ranch development project was inadequate under the California Environmental Quality Act ("CEQA") because it did not include an analysis of the correlation between the project's criteria air pollutants and the potential adverse human health impacts. A close reading of the portion of the administrative record that gave rise to this issue demonstrates that the Court's holding is based on a misunderstanding of the distinction between toxic air contaminants and criteria air pollutants.

Toxic air contaminants, also known as hazardous air pollutants, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as birth defects. There are currently 189 toxic air contaminants (hereinafter referred to as "TACs") regulated by the United States Environmental Protection Agency ("EPA") and the states pursuant to the Clean Air Act. 42 U.S.C. § 7412. Common TACs include benzene, perchloroethylene and asbestos. *Id.* at 7412(b).

In contrast, there are only six (6) criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead. Although criteria air pollutants can also be harmful to human health, they are distinguishable from TACs and are regulated separately. For instance, while criteria pollutants are regulated by numerous sections throughout Title I of the Clean Air Act, the regulation of TACs occurs solely under section 112 of the Act. *Compare* 42 U.S.C. §§ 7407 – 7411 & 7501 – 7515 *with* 42 U.S.C. § 7411.

The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants. Instead, the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the national ambient air quality standard ("NAAQS") for each criteria pollutant. 42 U.S.C. § 7409(b)(1). The health impact of a particular criteria pollutant is analyzed on a regional and not a facility level based on how close the area is to complying with (attaining) the NAAQS. Accordingly, while the type of individual facility / health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.

It is clear from a reading of both the administrative record and the Court of Appeal's decision that the Court did not have the expertise to fully appreciate the difference between TACs and criteria air pollutants. As a result, the Court has ordered the County of Fresno to conduct an analysis that is not practicable and not likely yield valid information. The Air District respectfully requests that this portion of the Court of Appeal's decision be reversed.

II. THE COURT OF APPEAL ERRED IN FINDING THE FRIANT RANCH EIR INADEQUATE FOR FAILING TO ANALYZE THE SPECIFIC HUMAN HEALTH IMPACTS ASSOCIATED CRITERIA AIR POLLUTANTS.

Although the Air District does not take lightly the amount of air emissions at issue in this case, it submits that the Court of Appeal got it wrong when it required Fresno County to revise the Friant Ranch EIR to include an analysis correlating the criteria air pollutant emissions associated with the project with specific, localized health-impacts. The type of analysis the Court of Appeal has required will not yield reliable information because currently available modeling tools are not well suited for this task. Further, in reviewing this issue de novo, the Court of Appeal failed to appreciate that it lacked the scientific expertise to appreciate the significant differences between a health risk assessment commonly performed for toxic air contaminants and a similar type of analysis it felt should have been conducted for criteria air pollutants.

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A. Currently Available Modeling Tools are not Equipped to Provide a Meaningful Analysis of the Correlation between an Individual Development Project's Air Emissions and Specific Human Health Impacts.

In order to appreciate the problematic nature of the Court of Appeals' decision requiring a health risk type analysis for criteria air pollutants, it is important to understand how the relevant criteria pollutants (ozone and particulate matter) are formed, dispersed and regulated.

Ground level ozone (smog) is not directly emitted into the air, but is formed when precursor pollutants such as oxides of nitrogen (NOx) and volatile organic compounds (VOCs) are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.[1] Once formed, ozone can be transported long distances by wind.[2] Because of the complexity of ozone formation, a specific tonnage amount of NOx or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area. In fact, even rural areas that have relatively low tonnages of emissions of NOx or VOCs can have high levels of ozone concentration simply due to wind transport.[3] Conversely, the San Francisco Bay Area has six times more NOx and VOC emissions per square mile than the San Joaquin Valley, but experiences lower

[1] *See* United States Environmental Protection Agency, *Ground-level Ozone: Basic Information*, available at: http://www.epa.gov/airquality/ozonepollution/basic.html (visited March 10, 2015).
[2] *Id.*
[3] *Id.*

concentrations of ozone (and better air quality) simply because sea breezes disperse the emissions.[4]

Particulate matter ("PM") can be divided into two categories: directly emitted PM and secondary PM.[5] While directly emitted PM can have a localized impact, the tonnage emitted does not always equate to the local PM concentration because it can be transported long distances by wind.[6] Secondary PM, like ozone, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SOx) and NOx.[7] Because of the complexity of secondary PM formation, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area.

The disconnect between the *tonnage* of precursor pollutants (NOx, SOx and VOCs) and the *concentration* of ozone or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting ozone or PM. Indeed, the national ambient air quality standards ("NAAQS"), which are statutorily required to be set by the United States Environmental Protection

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[4] *San Joaquin Valley Air Pollution Control District 2007 Ozone Plan*, Executive Summary p. ES-6, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/03%20Executive%20Summary.pdf (visited March 10, 2015).
[5] United States Environmental Protection Agency, *Particulate Matter: Basic Information*, available at: http://www.epa.gov/airquality/particlepollution/basic.html (visited March 10, 2015).
[6] *Id.*
[7] *Id.*

Agency ("EPA") at levels that are "requisite to protect the public health," 42 U.S.C. § 7409(b)(1), are established as concentrations of ozone or particulate matter and not as tonnages of their precursor pollutants.[8]

Attainment of a particular NAAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region. For example, the San Joaquin Valley attained the 1-hour ozone NAAQS when ozone concentrations remained at or below 0.124 parts per million Valley-wide on 3 or fewer days over a 3-year period.[9] Because the NAAQS are focused on achieving a particular concentration of pollution region-wide, the Air District's tools and plans for attaining the NAAQS are regional in nature.

For instance, the computer models used to simulate and predict an attainment date for the ozone or particulate matter NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NOx, SOx and VOCs) and the atmospheric chemistry and meteorology of the Valley.[10] At a very basic level, the models simulate future ozone or PM levels based on predicted changes in precursor

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[8] See, e.g., United States Environmental Protection Agency, *Table of National Ambient Air Quality Standards*, available at: http://www.epa.gov/air/criteria.html#3 (visited March 10, 2015).
[9] *San Joaquin Valley Unified Air Pollution Control District 2013 Plan for the Revoked 1-Hour Ozone Standard*, Ch. 2 p. 2-16, available at: http://www.valleyair.org/Air_Quality_Plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf (visited March 10, 2015).
[10] *Id.* at Ch. 2 p. 2-19 (visited March 12, 2015); *San Joaquin Valley Unified Air Pollution Control District 2008 PM2.5 Plan*, Appendix F, pp. F-2 – F-5, available at: http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Final_Adopted_PM2.5/20%20Appendix%20F.pdf
(visited March 19, 2015).

emissions Valley wide.[11] Because the NAAQS are set levels necessary to protect human health, the closer a region is to attaining a particular NAAQS, the lower the human health impact is from that pollutant.

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the Valley attains the NAAQS. Rather, the Air District's modeling and planning strategy is regional in nature and based on the extent to which *all* of the emission-generating sources in the Valley (current and future) must be controlled in order to reach attainment.[12]

Accordingly, the Air District has based its thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the Valley can accommodate without affecting the attainment date for the NAAQS.[13] The Air District has tied its CEQA significance thresholds to the level at which stationary pollution sources permitted by the Air District must "offset" their emissions.[14] This "offset"

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[11] *Id.*

[12] Although the Air District does have a dispersion modeling tool used during its air permitting process that is used to predict whether a particular project's directly emitted PM will either cause an exceedance of the PM NAAQS or contribute to an existing exceedance, this model bases the prediction on a worst case scenario of emissions and meteorology and has no provision for predicting any associated human health impacts. Further, this analysis is only performed for stationary sources (factories, oil refineries, etc.) that are required to obtain a New Source Review permit from the Air District and not for development projects such as Friant Ranch over which the Air District has no preconstruction permitting authority. *See* San Joaquin Valley Unified Air Pollution Control District Rule 2201 §§ 2.0; 3.3.9; 4.14.1, available at: http://www.valleyair.org/rules/currntrules/Rule2201041l.pdf (visited March 19, 2015).

[13] *San Joaquin Valley Unified Air Pollution Control District Guide to Assessing and Mitigating Air Quality Impacts*, (March 19, 2015) p. 22, available at: http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf (visited March 30, 2015).

[14] *Id.* at pp. 22, 25.

level allows for growth while keeping the cumulative effects of all new sources at a level that will not impede attainment of the NAAQS.[15] In the Valley, these thresholds are 15 tons per year of PM, and 10 tons of NOx or VOC per year. *Sierra Club, supra*, 172 Cal.Rptr.3d at 303; AR 4554. Thus, the CEQA air quality analysis for criteria pollutants is not really a localized, project-level impact analysis but one of regional, "cumulative impacts."

Accordingly, the significance thresholds applied in the Friant Ranch EIR (15 tons per year of PM and 10 tons of NOx or VOCs) are not intended to be indicative of any localized human health impact that the project may have. While the health effects of air pollution are of primary concern to the Air District (indeed, the NAAQS are established to protect human health), the Air District is simply not equipped to analyze whether and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area. This is true even for projects with relatively high levels of emissions of criteria pollutant precursor emissions.

For instance, according to the EIR, the Friant Ranch project is estimated to emit 109.52 tons per year of ROG (VOC), 102.19 tons per year of NOx, and 117.38 tons per year of PM. Although these levels well

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[15] [15] *San Joaquin Valley Unified Air Pollution Control District Environmental Review Guidelines* (Aug. 2000) p. 4-11, available at: http://www.valleyair.org/transportation/CEQA%20Rules/ERG%20Adopted%20_August%202000_.pdf (visited March 12, 2015).

exceed the Air District's CEQA significance thresholds, this does not mean that one can easily determine the concentration of ozone or PM that will be created at or near the Friant Ranch site on a particular day or month of the year, or what specific health impacts will occur. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone or PM. This is especially true for a project like Friant Ranch where most of the criteria pollutant emissions derive not from a single "point source," but from area wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from and around the site.

In addition, it would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have. As discussed above, the currently available modeling tools are equipped to model the impact of *all* emission sources in the Valley on attainment. According to the most recent EPA-approved emission inventory, the NOx inventory for the Valley is for the year 2014 is 458.2 tons per day, or 167,243 tons per year and the VOC (or ROG) inventory is 361.7 tons per day, or 132,020.5 tons per year.[16] Running the photochemical grid model used for predicting ozone attainment with the

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[16] *San Joaquin Valley Unified Air Pollution Control District 2007 Ozone Plan*, Appendix B pp. B-6, B-9,
available at:
http://www.valleyair.org/Air_Quality_Plans/docs/AQ_Ozone_2007_Adopted/19%20Appendix%20B%20April%202007.pdf (visited March 12, 2015).

emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NOx and VOC in the Valley) is not likely to yield valid information given the relative scale involved.

Finally, even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like ozone and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact. The reason is the same: such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level.

For these reasons, it is not the norm for CEQA practitioners, including the Air District, to conduct an analysis of the localized health impacts associated with a project's criteria air pollutant emissions as part of the EIR process. When the accepted scientific method precludes a certain type of analysis, "the court cannot impose a legal standard to the contrary." *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 717 n. 8. However, that is exactly what the Court of Appeal has done in this case. Its decision upends the way CEQA air quality analysis of criteria pollutants occurs and should be reversed.

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B. The Court of Appeal Improperly Extrapolated a Request for a Health Risk Assessment for Toxic Air Contaminants into a Requirement that the EIR contain an Analysis of Localized Health Impacts Associated with Criteria Air Pollutants.

The Court of Appeal's error in requiring the new health impact analysis for criteria air pollutants clearly stems from a misunderstanding of terms of art commonly used in the air pollution field. More specifically, the Court of Appeal (and Appellants Sierra Club et al.) appear to have confused the health risk analysis ("HRA") performed to determine the health impacts associated with a project's toxic air contaminants ("TACs"), with an analysis correlating a project's criteria air pollutants (ozone, PM and the like) with specific localized health impacts.

The first type of analysis, the HRA, is commonly performed during the Air District's stationary source permitting process for projects that emit TACs and is, thus, incorporated into the CEQA review process. An HRA is a comprehensive analysis to evaluate and predict the dispersion of TACs emitted by a project and the potential for exposure of human populations. It also assesses and quantifies both the individual and population-wide health risks associated with those levels of exposure. There is no similar analysis conducted for criteria air pollutants. Thus, the second type of analysis (required by the Court of Appeal), is not currently part of the Air District's process because, as outlined above, the health risks associated with exposure to criteria pollutants are evaluated on a regional level based on the region's attainment of the NAAQS.

The root of this confusion between the types of analyses conducted for TACs versus criteria air pollutants appears to stem from a comment that was presented to Fresno County by the City of Fresno during the administrative process.

In its comments on the draft EIR, the City of Fresno (the only party to raise this issue) stated:

> [t]he EIR must disclose the human health related effects of the Project's air pollution impacts. (CEQA Guidelines section 15126.2(a).) The EIR fails completely in this area. The EIR should be revised to disclose and determine the significance of TAC impacts, and of human health risks due to exposure to Project-related air emissions.

(AR 4602.)

In determining that the issue regarding the correlation between the Friant Ranch project's criteria air pollutants and adverse health impacts was adequately exhausted at the administrative level, the Court of Appeal improperly read the first two sentences of the City of Fresno's comment in isolation rather than in the context of the entire comment. *See Sierra Club v. County of Fresno* (2014) 172 Cal.Rptr.3d 271, 306. Although the comment first speaks generally in terms of "human health related effects" and "air pollution," it requests only that the EIR be revised to disclose "the significance of TACs" and the "human health risks due to exposure."

The language of this request in the third sentence of the comment is significant because, to an air pollution practitioner, the language would only have indicated only that a HRA for TACs was requested, and not a separate analysis of the health impacts associated with the project's criteria air pollutants. Fresno County clearly read the comment as a request to perform an HRA for TACs and limited its response accordingly. (AR 4602.)[17] The Air District submits that it would have read the City's comment in the same manner as the County because the City's use of the terms "human health risks" and "TACs" signal that an HRA for TACs is being requested. Indeed, the Air District was also concerned that an HRA be conducted, but understood that it was not possible to conduct such an analysis until the project entered the phase where detailed site specific information, such as the types of emission sources and the proximity of the sources to sensitive receptors became available. (AR 4553.)[18] The City of Fresno was apparently satisfied with the County's discussion of human health risks, as it did not raise the issue again when it commented on the final EIR. (AR 8944 – 8960.)

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[17] Appellants do not challenge the manner in which the County addressed TACs in the EIR. (Appellants' Answer Brief p. 28 fn. 7.)

[18] Appellants rely on the testimony of Air District employee, Dan Barber, as support for their position that the County should have conducted an analysis correlating the project's criteria air pollutant emissions with localized health impacts. (Appellants Answer Brief pp. 10-11; 28.) However, Mr. Barber's testimony simply reinforces the Air District's concern that a risk assessment (HRA) be conducted once the actual details of the project become available. (AR 8863.) As to criteria air pollutants, Mr. Barber's comments are aimed at the Air District's concern about the amount of emissions and the fact that the emissions will make it "more difficult for Fresno County and the Valley to reach attainment which means that the health of Valley residents maybe [sic] adversely impacted." Mr. Barber says nothing about conducting a separate analysis of the localized health impacts the project's emissions may have.

The Court of Appeal's holding, which incorrectly extrapolates a request for an HRA for TACs into a new analysis of the localized health impacts of the project's criteria air pollutants, highlights two additional errors in the Court's decision.

First, the Court of Appeal's holding illustrates why the Court should have applied the deferential substantial evidence standard of review to the issue of whether the EIR's air quality analysis was sufficient. The regulation of air pollution is a technical and complex field and the Court of Appeal lacked the expertise to fully appreciate the difference between TACs and criteria air pollutants and tools available for analyzing each type of pollutant.

Second, it illustrates that the Court likely got it wrong when it held that the issue regarding the criteria pollutant / localized health impact analysis was properly exhausted during the administrative process. In order to preserve an issue for the court, '[t]he "exact issue" must have been presented to the administrative agency....' [Citation.] *Citizens for Responsible Equitable Environmental Development v. City of San Diego*, (2011) 196 Cal.App.4th 515, 527 129 Cal.Rptr.3d 512, 521; *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 535, 78 Cal.Rptr.3d 1, 13. "'[T]he objections must be sufficiently specific so that the agency has the opportunity to evaluate and respond to them.' [Citation.]" *Sierra Club v. City of Orange*,163 Cal.App.4th at 536.[19]

As discussed above, the City's comment, while specific enough to request a commonly performed HRA for TACs, provided the County with no notice that it should perform a new type of analysis correlating criteria pollutant tonnages to specific human health effects. Although the parties have not directly addressed the issue of failure to exhaust administrative remedies in their briefs, the Air District submits that the Court should consider how it affects the issues briefed by the parties since "[e]xhaustion of administrative remedies is a jurisdictional prerequisite to maintenance of a CEQA action." *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1199, 22 Cal.Rptr.3d 203.

III. CONCLUSION

For all of the foregoing reasons, the Air District respectfully requests that the portion of the Court of Appeal's decision requiring an analysis correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

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[19] *Sierra Club v. City of Orange*, is illustrative here. In that case, the plaintiffs challenged an EIR approved for a large planned community on the basis that the EIR improperly broke up the various environmental impacts by separate project components or "piecemealed" the analysis in violation of CEQA. In evaluating the defense that the plaintiffs had failed to adequately raise the issue at the administrative level, the Court held that comments such as *"the use of a single document for both a project-level and a program-level EIR [is] 'confusing',"* and *"[t]he lead agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project,"* were too vague to fairly raise the argument of piecemealing before the agency. *Sierra Club v. City of Orange*, 163 Cal.App.4th at 537.

correlating the localized human health impacts associated with an individual project's criteria air pollutant emissions be reversed.

Respectfully submitted,

Dated: April 2, 2015

Catherine T. Redmond
Attorney for Proposed Amicus Curiae

SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT

CERTIFICATE OF WORD COUNT

Pursuant to Rule 8.204 of the California Rules of Court, I hereby certify that this document, based on the Word County feature of the Microsoft Word software program used to compose and print this document, contains, exclusive of caption, tables, certificate of word count, signature block and certificate of service, 3806 words.

Dated: April 2, 2015

Annette A. Ballatore-Williamson
District Counsel (SBN 192176)

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

PROOF OF SERVICE

I am over the age of 18 years and not a p[arty to the above-captioned action; that my business address is San Joaquin Valley Unified Air Pollution Control District located at 1990 E. Gettysburg Avenue, Fresno, California 93726.

On April 2, 2015, I served the document described below:

APPLICATION FOR LEAVE TO FILE AMICUS CURIAE BRIEF OF SAN JOAQUIN VALLEY UNIFIED AIR POLLUTION CONTROL DISTRICT IN SUPPORT OF DEFENDANT AND RESPONDENT, COUNTY OF FRESNO

On all parties to this action at the following addresses and in the following manner:

PLEASE SEE ATTACHED SERVICE LIST

(XX) **(BY MAIL)** I caused a true copy of each document(s) to be laced in a sealed envelope with first-class postage affixed and placed the envelope for collection. Mail is collected daily at my office and placed in a United State Postal Service collection box for pick-up and delivery that same day.

( ) **(BY ELECTRONIC MAIL)** I caused a true and correct scanned image (.PDF file) copy to be transmitted via electronic mail transfer system in place at the San Joaquin Valley Unified Air Pollution Control District ("District"), originating from the undersigned at 1990 E. Gettysburg Avenue, Fresno, CA, to the address(es) indicated below.

( ) **(BY OVERNIGHT MAIL)** I caused a true and correct copy to be delivered via Federal Express to the following person(s) or their representative at the address(es) listed below.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that I executed this document on April 2, 2015, at Fresno, California.

Esthela Soto

SERVICE LIST

Sierra Club et al, v. County of Fresno, et al
Supreme Court of California Case No.: S219783
Fifth District Court of Appeal Case No.: F066798
Fresno County Superior Court Case No.: 11CECG00726

Sara Hedgpeth-Harris, Esq. LAW OFFICE OF SARA HEDGPETH-HARRIS 2125 Kern Street, Suite 301 Fresno, California 93721 Telephone: (559) 233-0907 Facsimile: (559) 272-6046 Email: sara.hedgpethharris@shh-law.com	Attorney for Plaintiffs and Appellants, Sierra Club, et al
Daniel C. Cederborg, Esq. Bruce B. Johnson, Jr., Esq. OFFICE OF THE FRESNO COUNTY COUNSEL 2220 Tulare Street, Suite 500 Fresno, California 93721 Telephone: (559) 600-3479 Facsimile: (559) 600-3480 Email: bjohnson@co.fresno.ca.us	Attorneys for Defendant and Respondent, County of Fresno
Bryan N. Wagner, Esq. WAGNER & WAGNER 7110 N. Fresno Street, Suite 340 Fresno, California 93720 Telephone: (559) 224-0871 Facsimile: (559) 224-0885 Email: bryan@wagnerandwagner.com	Attorneys for Real Party in Interest/Respondent Friant Ranch, L.P.
Clerk of the Court Superior Court of California County of Fresno 1130 'O' Street Fresno, California 93721 Telephone: (559) 457-1900	
Clerk of the Court Fifth District Court of Appeal 2424 Ventura Street Fresno, California 93721 Telephone: (559) 445-5491	

R. Tyson Sohagim, Esq. THE SOHAGI LAW GROUP 11999 San Vicente Blvd., Suite 150 Los Angeles, California 90049 Telephone: (310) 475-5700 Facsimile: (310) 475-5707 Email: tsohagi@sohagi.com	Attorney for Amici Curiae; League of California Cities, and the California State Association of Counties
Marcia L. Scully, Esq. General Counsel METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA Post Office Box 54153 Los Angeles, California 90054 Telephone: (213) 217-6115	Attorney for Amicus Curiae, The Metropolitan Water District of Southern CA
Amy Minteer, Esq. CHATEN-BROWN & CARSTENS LLP 2200 Pacific Coast Highway, Suite 318 Hermosa Beach, California 90254 Telephone: (310) 798-2400 Facsimile: (310) 798-2402 Email: ACM@CBCEarthlaw.com	Attorney for Amici Curiae, Association of Irritated Residents, Medical Advocates for Healthy Air, and Coalition for Clean Air
Shanda M. Beltran, Esq. General Counsel BUILDING INDUSTRY LEGAL DEFENSE FOUNDATION 17744 Sky Park Cr., Suite 170 Irvine, California 92614 Telephone: (949) 553-9500 Facsimile: (949) 769-8943 Email: sbeltran@biasc.org	Attorney for Amicus Curiae, Building Industry Legal Defense Foundation
Gene Talmadge, President CALIFORNIA ASSOCIATION OF ENVIRONMENTAL PROFESSIONALS 40747 Baranda Court Palm Desert, California 92260 Telephone: (760) 340-4499 Facsimile: (760) 674-2479	Attorney for Amicus Curiae, California Association of Environmental Professionals
Jennifer L. Hernandez, Esq. HOLLAND & KNIGHT LLP 50 California Street, Suite 2800 San Francisco, California 94111	On behalf of Amicus Curiae, CEQA Research Council

Telephone: (415) 743-6927 Facsimile: (415) 743-6910 Email: Jennifer.hernandez@hklaw.com	

Appendix C2

CalEEMod Results

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19-07846 Long Range Development Plan EIR - Construction 2022

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	171.90	1000sqft	3.95	171,896.00	0
Research & Development	82.64	1000sqft	1.90	82,644.00	0
Health Club	12.50	1000sqft	0.29	12,498.00	0
Apartments Mid Rise	432.96	Dwelling Unit	11.39	432,963.00	1238

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	15			**Operational Year**	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 700k SF in first year

Trips and VMT -

Demolition -

Grading -

Architectural Coating -

Woodstoves -

Area Coating -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - 75% of construction equipment would be Tier 4

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
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
tblConstructionPhase	NumDays	30.00	35.00
tblConstructionPhase	NumDays	300.00	155.00
tblGrading	MaterialExported	0.00	64,815.00
tblGrading	MaterialImported	0.00	64,815.00
tblLandUse	LandUseSquareFeet	171,900.00	171,896.00
tblLandUse	LandUseSquareFeet	82,640.00	82,644.00
tblLandUse	LandUseSquareFeet	12,500.00	12,498.00
tblLandUse	LandUseSquareFeet	432,960.00	432,963.00

2.0 Emissions Summary

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					
2022	3.0351	4.7714	3.8088	0.0141	0.8117	0.1266	0.9383	0.2595	0.1182	0.3777	0.0000	1,307.3466	1,307.3466	0.1468	0.0000	1,311.0164
Maximum	**3.0351**	**4.7714**	**3.8088**	**0.0141**	**0.8117**	**0.1266**	**0.9383**	**0.2595**	**0.1182**	**0.3777**	**0.0000**	**1,307.3466**	**1,307.3466**	**0.1468**	**0.0000**	**1,311.0164**

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					
2022	2.9530	3.8248	3.8840	0.0141	0.6479	0.0764	0.7243	0.1930	0.0722	0.2652	0.0000	1,307.3462	1,307.3462	0.1468	0.0000	1,311.0160
Maximum	**2.9530**	**3.8248**	**3.8840**	**0.0141**	**0.6479**	**0.0764**	**0.7243**	**0.1930**	**0.0722**	**0.2652**	**0.0000**	**1,307.3462**	**1,307.3462**	**0.1468**	**0.0000**	**1,311.0160**

	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	N20	CO2e
Percent Reduction	**2.71**	**19.84**	**-1.97**	**0.00**	**20.18**	**39.64**	**22.81**	**25.65**	**38.88**	**29.79**	**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	**1-3-2022**	**4-2-2022**	2.6891	2.1379
2	**4-3-2022**	**7-2-2022**	0.9085	0.7493
3	**7-3-2022**	**9-30-2022**	0.9085	0.7493
		Highest	2.6891	2.1379

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	4.3418	0.1638	7.2219	7.2600e-003		0.4382	0.4382		0.4382	0.4382	45.9929	95.6753	141.6682	0.1442	3.1200e-003	146.2032
Energy	0.0544	0.4759	0.2774	2.9700e-003		0.0376	0.0376		0.0376	0.0376	0.0000	3,292.4364	3,292.4364	0.0706	0.0223	3,300.8574
Mobile	1.3571	6.6166	18.4951	0.0737	6.3857	0.0523	6.4380	1.7111	0.0486	1.7597	0.0000	6,817.4108	6,817.4108	0.3083	0.0000	6,825.1181
Waste						0.0000	0.0000		0.0000	0.0000	88.6177	0.0000	88.6177	5.2372	0.0000	219.5467
Water						0.0000	0.0000		0.0000	0.0000	31.7680	1,030.9409	1,062.7089	3.2854	0.0817	1,169.1943
Total	**5.7533**	**7.2563**	**25.9945**	**0.0839**	**6.3857**	**0.5280**	**6.9137**	**1.7111**	**0.5244**	**2.2355**	**166.3786**	**11,236.4635**	**11,402.8421**	**9.0456**	**0.1072**	**11,660.9196**

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	4.3418	0.1638	7.2219	7.2600e-003		0.4382	0.4382		0.4382	0.4382	45.9929	95.6753	141.6682	0.1442	3.1200e-003	146.2032
Energy	0.0544	0.4759	0.2774	2.9700e-003		0.0376	0.0376		0.0376	0.0376	0.0000	3,292.4364	3,292.4364	0.0706	0.0223	3,300.8574
Mobile	1.3571	6.6166	18.4951	0.0737	6.3857	0.0523	6.4380	1.7111	0.0486	1.7597	0.0000	6,817.4108	6,817.4108	0.3083	0.0000	6,825.1181
Waste						0.0000	0.0000		0.0000	0.0000	88.6177	0.0000	88.6177	5.2372	0.0000	219.5467
Water						0.0000	0.0000		0.0000	0.0000	31.7680	1,030.9409	1,062.7089	3.2854	0.0817	1,169.1943
Total	**5.7533**	**7.2563**	**25.9945**	**0.0839**	**6.3857**	**0.5280**	**6.9137**	**1.7111**	**0.5244**	**2.2355**	**166.3786**	**11,236.4635**	**11,402.8421**	**9.0456**	**0.1072**	**11,660.9196**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	1/28/2022	5	20	
2	Site Preparation	Site Preparation	1/31/2022	2/11/2022	5	10	
3	Grading	Grading	2/14/2022	4/1/2022	5	35	
4	Building Construction	Building Construction	4/4/2022	11/4/2022	5	155	
5	Paving	Paving	11/7/2022	12/2/2022	5	20	
6	Architectural Coating	Architectural Coating	12/5/2022	12/30/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 876,750; Residential Outdoor: 292,250; Non-Residential Indoor: 400,557; Non-Residential Outdoor: 133,519; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	6	15.00	0.00	515.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	12,817.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	398.00	90.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	80.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

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					
Fugitive Dust					0.0557	0.0000	0.0557	8.4400e-003	0.0000	8.4400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	**0.0264**	**0.2572**	**0.2059**	**3.9000e-004**	**0.0557**	**0.0124**	**0.0681**	**8.4400e-003**	**0.0116**	**0.0200**	**0.0000**	**33.9902**	**33.9902**	**9.5500e-003**	**0.0000**	**34.2289**

3.2 Demolition - 2022

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	1.8000e-003	0.0619	0.0141	1.9000e-004	4.4300e-003	1.7000e-004	4.6000e-003	1.2200e-003	1.7000e-004	1.3800e-003	0.0000	18.9995	18.9995	1.2900e-003	0.0000	19.0318
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	5.9000e-004	4.2000e-004	4.8300e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3821	1.3821	3.0000e-005	0.0000	1.3830
Total	**2.3900e-003**	**0.0624**	**0.0189**	**2.1000e-004**	**6.0800e-003**	**1.8000e-004**	**6.2600e-003**	**1.6600e-003**	**1.8000e-004**	**1.8300e-003**	**0.0000**	**20.3816**	**20.3816**	**1.3200e-003**	**0.0000**	**20.4147**

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					
Fugitive Dust					0.0251	0.0000	0.0251	3.8000e-003	0.0000	3.8000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0142	0.1201	0.2212	3.9000e-004		5.7100e-003	5.7100e-003		5.4000e-003	5.4000e-003	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	**0.0142**	**0.1201**	**0.2212**	**3.9000e-004**	**0.0251**	**5.7100e-003**	**0.0308**	**3.8000e-003**	**5.4000e-003**	**9.2000e-003**	**0.0000**	**33.9902**	**33.9902**	**9.5500e-003**	**0.0000**	**34.2289**

3.2 Demolition - 2022

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	1.8000e-003	0.0619	0.0141	1.9000e-004	4.4300e-003	1.7000e-004	4.6000e-003	1.2200e-003	1.7000e-004	1.3800e-003	0.0000	18.9995	18.9995	1.2900e-003	0.0000	19.0318
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	5.9000e-004	4.2000e-004	4.8300e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3821	1.3821	3.0000e-005	0.0000	1.3830
Total	**2.3900e-003**	**0.0624**	**0.0189**	**2.1000e-004**	**6.0800e-003**	**1.8000e-004**	**6.2600e-003**	**1.6600e-003**	**1.8000e-004**	**1.8300e-003**	**0.0000**	**20.3816**	**20.3816**	**1.3200e-003**	**0.0000**	**20.4147**

3.3 Site Preparation - 2022

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					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0903**	**8.0600e-003**	**0.0984**	**0.0497**	**7.4200e-003**	**0.0571**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.3 Site Preparation - 2022

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	0.0000	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
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	3.5000e-004	2.5000e-004	2.9000e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8293	0.8293	2.0000e-005	0.0000	0.8298
Total	**3.5000e-004**	**2.5000e-004**	**2.9000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**9.9000e-004**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8293**	**0.8293**	**2.0000e-005**	**0.0000**	**0.8298**

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					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9300e-003	0.0629	0.1024	1.9000e-004		2.9500e-003	2.9500e-003		2.7300e-003	2.7300e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**6.9300e-003**	**0.0629**	**0.1024**	**1.9000e-004**	**0.0407**	**2.9500e-003**	**0.0436**	**0.0223**	**2.7300e-003**	**0.0251**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.3 Site Preparation - 2022

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	0.0000	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
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	3.5000e-004	2.5000e-004	2.9000e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8293	0.8293	2.0000e-005	0.0000	0.8298
Total	**3.5000e-004**	**2.5000e-004**	**2.9000e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**9.9000e-004**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8293**	**0.8293**	**2.0000e-005**	**0.0000**	**0.8298**

3.4 Grading - 2022

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					
Fugitive Dust					0.1518	0.0000	0.1518	0.0629	0.0000	0.0629	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0634	0.6798	0.5082	1.0900e-003		0.0286	0.0286		0.0263	0.0263	0.0000	95.4356	95.4356	0.0309	0.0000	96.2072
Total	**0.0634**	**0.6798**	**0.5082**	**1.0900e-003**	**0.1518**	**0.0286**	**0.1804**	**0.0629**	**0.0263**	**0.0893**	**0.0000**	**95.4356**	**95.4356**	**0.0309**	**0.0000**	**96.2072**

3.4 Grading - 2022

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	0.0447	1.5415	0.3498	4.8100e-003	0.1102	4.3500e-003	0.1145	0.0303	4.1600e-003	0.0344	0.0000	472.8466	472.8466	0.0322	0.0000	473.6504
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	1.3700e-003	9.7000e-004	0.0113	4.0000e-005	3.8400e-003	3.0000e-005	3.8700e-003	1.0200e-003	3.0000e-005	1.0500e-003	0.0000	3.2249	3.2249	8.0000e-005	0.0000	3.2269
Total	**0.0461**	**1.5425**	**0.3611**	**4.8500e-003**	**0.1140**	**4.3800e-003**	**0.1184**	**0.0313**	**4.1900e-003**	**0.0355**	**0.0000**	**476.0714**	**476.0714**	**0.0322**	**0.0000**	**476.8773**

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					
Fugitive Dust					0.0683	0.0000	0.0683	0.0283	0.0000	0.0283	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0381	0.3746	0.5355	1.0900e-003		0.0147	0.0147		0.0136	0.0136	0.0000	95.4354	95.4354	0.0309	0.0000	96.2071
Total	**0.0381**	**0.3746**	**0.5355**	**1.0900e-003**	**0.0683**	**0.0147**	**0.0830**	**0.0283**	**0.0136**	**0.0419**	**0.0000**	**95.4354**	**95.4354**	**0.0309**	**0.0000**	**96.2071**

3.4 Grading - 2022

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	0.0447	1.5415	0.3498	4.8100e-003	0.1102	4.3500e-003	0.1145	0.0303	4.1600e-003	0.0344	0.0000	472.8466	472.8466	0.0322	0.0000	473.6504
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	1.3700e-003	9.7000e-004	0.0113	4.0000e-005	3.8400e-003	3.0000e-005	3.8700e-003	1.0200e-003	3.0000e-005	1.0500e-003	0.0000	3.2249	3.2249	8.0000e-005	0.0000	3.2269
Total	**0.0461**	**1.5425**	**0.3611**	**4.8500e-003**	**0.1140**	**4.3800e-003**	**0.1184**	**0.0313**	**4.1900e-003**	**0.0355**	**0.0000**	**476.0714**	**476.0714**	**0.0322**	**0.0000**	**476.8773**

3.5 Building Construction - 2022

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	0.1322	1.2102	1.2682	2.0900e-003		0.0627	0.0627		0.0590	0.0590	0.0000	179.5871	179.5871	0.0430	0.0000	180.6627
Total	**0.1322**	**1.2102**	**1.2682**	**2.0900e-003**		**0.0627**	**0.0627**		**0.0590**	**0.0590**	**0.0000**	**179.5871**	**179.5871**	**0.0430**	**0.0000**	**180.6627**

3.5 Building Construction - 2022

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	0.0000	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
Vendor	0.0186	0.6399	0.1582	1.7400e-003	0.0440	1.1800e-003	0.0451	0.0127	1.1300e-003	0.0138	0.0000	168.7929	168.7929	0.0104	0.0000	169.0519
Worker	0.1207	0.0858	0.9925	3.1400e-003	0.3384	2.4700e-003	0.3409	0.0899	2.2700e-003	0.0921	0.0000	284.2049	284.2049	7.1400e-003	0.0000	284.3834
Total	**0.1393**	**0.7258**	**1.1507**	**4.8800e-003**	**0.3824**	**3.6500e-003**	**0.3860**	**0.1026**	**3.4000e-003**	**0.1060**	**0.0000**	**452.9977**	**452.9977**	**0.0175**	**0.0000**	**453.4353**

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	0.1007	0.8580	1.2833	2.0900e-003		0.0409	0.0409		0.0391	0.0391	0.0000	179.5869	179.5869	0.0430	0.0000	180.6625
Total	**0.1007**	**0.8580**	**1.2833**	**2.0900e-003**		**0.0409**	**0.0409**		**0.0391**	**0.0391**	**0.0000**	**179.5869**	**179.5869**	**0.0430**	**0.0000**	**180.6625**

3.5 Building Construction - 2022

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	0.0000	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
Vendor	0.0186	0.6399	0.1582	1.7400e-003	0.0440	1.1800e-003	0.0451	0.0127	1.1300e-003	0.0138	0.0000	168.7929	168.7929	0.0104	0.0000	169.0519
Worker	0.1207	0.0858	0.9925	3.1400e-003	0.3384	2.4700e-003	0.3409	0.0899	2.2700e-003	0.0921	0.0000	284.2049	284.2049	7.1400e-003	0.0000	284.3834
Total	**0.1393**	**0.7258**	**1.1507**	**4.8800e-003**	**0.3824**	**3.6500e-003**	**0.3860**	**0.1026**	**3.4000e-003**	**0.1060**	**0.0000**	**452.9977**	**452.9977**	**0.0175**	**0.0000**	**453.4353**

3.6 Paving - 2022

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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0110**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

3.6 Paving - 2022

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	0.0000	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
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	5.9000e-004	4.2000e-004	4.8300e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3821	1.3821	3.0000e-005	0.0000	1.3830
Total	**5.9000e-004**	**4.2000e-004**	**4.8300e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3821**	**1.3821**	**3.0000e-005**	**0.0000**	**1.3830**

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	6.9200e-003	0.0617	0.1594	2.3000e-004		3.0300e-003	3.0300e-003		2.8000e-003	2.8000e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.9200e-003**	**0.0617**	**0.1594**	**2.3000e-004**		**3.0300e-003**	**3.0300e-003**		**2.8000e-003**	**2.8000e-003**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

3.6 Paving - 2022

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	0.0000	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
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	5.9000e-004	4.2000e-004	4.8300e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3821	1.3821	3.0000e-005	0.0000	1.3830
Total	**5.9000e-004**	**4.2000e-004**	**4.8300e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3821**	**1.3821**	**3.0000e-005**	**0.0000**	**1.3830**

3.7 Architectural Coating - 2022

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					
Archit. Coating	2.5923					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**2.5944**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.7 Architectural Coating - 2022

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	0.0000	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
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	3.1300e-003	2.2300e-003	0.0257	8.0000e-005	8.7800e-003	6.0000e-005	8.8400e-003	2.3300e-003	6.0000e-005	2.3900e-003	0.0000	7.3712	7.3712	1.9000e-004	0.0000	7.3758
Total	**3.1300e-003**	**2.2300e-003**	**0.0257**	**8.0000e-005**	**8.7800e-003**	**6.0000e-005**	**8.8400e-003**	**2.3300e-003**	**6.0000e-005**	**2.3900e-003**	**0.0000**	**7.3712**	**7.3712**	**1.9000e-004**	**0.0000**	**7.3758**

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					
Archit. Coating	2.5923					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**2.5944**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.7 Architectural Coating - 2022

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	0.0000	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
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	3.1300e-003	2.2300e-003	0.0257	8.0000e-005	8.7800e-003	6.0000e-005	8.8400e-003	2.3300e-003	6.0000e-005	2.3900e-003	0.0000	7.3712	7.3712	1.9000e-004	0.0000	7.3758
Total	**3.1300e-003**	**2.2300e-003**	**0.0257**	**8.0000e-005**	**8.7800e-003**	**6.0000e-005**	**8.8400e-003**	**2.3300e-003**	**6.0000e-005**	**2.3900e-003**	**0.0000**	**7.3712**	**7.3712**	**1.9000e-004**	**0.0000**	**7.3758**

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	1.3571	6.6166	18.4951	0.0737	6.3857	0.0523	6.4380	1.7111	0.0486	1.7597	0.0000	6,817.4108	6,817.4108	0.3083	0.0000	6,825.1181
Unmitigated	1.3571	6.6166	18.4951	0.0737	6.3857	0.0523	6.4380	1.7111	0.0486	1.7597	0.0000	6,817.4108	6,817.4108	0.3083	0.0000	6,825.1181

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,879.18	2,766.61	2537.15	9,616,686	9,616,686
General Office Building	1,896.06	422.87	180.50	4,640,585	4,640,585
Health Club	411.63	260.88	334.13	810,632	810,632
Research & Development	670.21	157.02	91.73	1,737,494	1,737,494
Total	5,857.08	3,607.38	3,143.50	16,805,398	16,805,398

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Research & Development	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
General Office Building	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Health Club	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Research & Development	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868

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	2,753.8415	2,753.8415	0.0602	0.0125	2,759.0619
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,753.8415	2,753.8415	0.0602	0.0125	2,759.0619
NaturalGas Mitigated	0.0544	0.4759	0.2774	2.9700e-003		0.0376	0.0376		0.0376	0.0376	0.0000	538.5949	538.5949	0.0103	9.8700e-003	541.7955
NaturalGas Unmitigated	0.0544	0.4759	0.2774	2.9700e-003		0.0376	0.0376		0.0376	0.0376	0.0000	538.5949	538.5949	0.0103	9.8700e-003	541.7955

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					
Apartments Mid Rise	6.40524e+006	0.0345	0.2951	0.1256	1.8800e-003		0.0239	0.0239		0.0239	0.0239	0.0000	341.8083	341.8083	6.5500e-003	6.2700e-003	343.8395
General Office Building	596479	3.2200e-003	0.0292	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003	0.0000	31.8304	31.8304	6.1000e-004	5.8000e-004	32.0196
Health Club	406060	2.1900e-003	0.0199	0.0167	1.2000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	21.6689	21.6689	4.2000e-004	4.0000e-004	21.7977
Research & Development	2.6851e+006	0.0145	0.1316	0.1106	7.9000e-004		0.0100	0.0100		0.0100	0.0100	0.0000	143.2874	143.2874	2.7500e-003	2.6300e-003	144.1388
Total		**0.0544**	**0.4759**	**0.2774**	**2.9700e-003**		**0.0376**	**0.0376**		**0.0376**	**0.0376**	**0.0000**	**538.5949**	**538.5949**	**0.0103**	**9.8800e-003**	**541.7955**

5.2 Energy by Land Use - NaturalGas

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					
Apartments Mid Rise	6.40524e+006	0.0345	0.2951	0.1256	1.8800e-003		0.0239	0.0239		0.0239	0.0239	0.0000	341.8083	341.8083	6.5500e-003	6.2700e-003	343.8395
General Office Building	596479	3.2200e-003	0.0292	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003	0.0000	31.8304	31.8304	6.1000e-004	5.8000e-004	32.0196
Health Club	406060	2.1900e-003	0.0199	0.0167	1.2000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	21.6689	21.6689	4.2000e-004	4.0000e-004	21.7977
Research & Development	2.6851e+006	0.0145	0.1316	0.1106	7.9000e-004		0.0100	0.0100		0.0100	0.0100	0.0000	143.2874	143.2874	2.7500e-003	2.6300e-003	144.1388
Total		**0.0544**	**0.4759**	**0.2774**	**2.9700e-003**		**0.0376**	**0.0376**		**0.0376**	**0.0376**	**0.0000**	**538.5949**	**538.5949**	**0.0103**	**9.8800e-003**	**541.7955**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.97764e+006	1,189.1617	0.0260	5.3800e-003	1,191.4160
General Office Building	1.63645e+006	984.0051	0.0215	4.4500e-003	985.8704
Health Club	126855	76.2783	1.6700e-003	3.5000e-004	76.4229
Research & Development	838837	504.3964	0.0110	2.2800e-003	505.3526
Total		**2,753.8415**	**0.0602**	**0.0125**	**2,759.0619**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.97764e +006	1,189.161 7	0.0260	5.3800e-003	1,191.416 0
General Office Building	1.63645e +006	984.0051	0.0215	4.4500e-003	985.8704
Health Club	126855	76.2783	1.6700e-003	3.5000e-004	76.4229
Research & Development	838837	504.3964	0.0110	2.2800e-003	505.3526
Total		**2,753.841 5**	**0.0602**	**0.0125**	**2,759.061 9**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	4.3418	0.1638	7.2219	7.2600e-003		0.4382	0.4382		0.4382	0.4382	45.9929	95.6753	141.6682	0.1442	3.1200e-003	146.2032
Unmitigated	4.3418	0.1638	7.2219	7.2600e-003		0.4382	0.4382		0.4382	0.4382	45.9929	95.6753	141.6682	0.1442	3.1200e-003	146.2032

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	0.2592					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.5295					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4183	0.1123	2.7525	7.0200e-003		0.4135	0.4135		0.4135	0.4135	45.9929	88.3753	134.3681	0.1372	3.1200e-003	138.7273
Landscaping	0.1349	0.0515	4.4694	2.4000e-004		0.0247	0.0247		0.0247	0.0247	0.0000	7.3001	7.3001	7.0300e-003	0.0000	7.4759
Total	**4.3418**	**0.1638**	**7.2219**	**7.2600e-003**		**0.4382**	**0.4382**		**0.4382**	**0.4382**	**45.9929**	**95.6754**	**141.6682**	**0.1442**	**3.1200e-003**	**146.2032**

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	0.2592					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.5295					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4183	0.1123	2.7525	7.0200e-003		0.4135	0.4135		0.4135	0.4135	45.9929	88.3753	134.3681	0.1372	3.1200e-003	138.7273
Landscaping	0.1349	0.0515	4.4694	2.4000e-004		0.0247	0.0247		0.0247	0.0247	0.0000	7.3001	7.3001	7.0300e-003	0.0000	7.4759
Total	**4.3418**	**0.1638**	**7.2219**	**7.2600e-003**		**0.4382**	**0.4382**		**0.4382**	**0.4382**	**45.9929**	**95.6754**	**141.6682**	**0.1442**	**3.1200e-003**	**146.2032**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,062.708 9	3.2854	0.0817	1,169.194 3
Unmitigated	1,062.708 9	3.2854	0.0817	1,169.194 3

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	28.2091 / 17.784	348.6209	0.9266	0.0232	378.7124
General Office Building	30.5524 / 18.7257	374.0027	1.0035	0.0252	406.5872
Health Club	0.739289 / 0.453113	9.0499	0.0243	6.1000e-004	9.8384
Research & Development	40.6336 / 0	331.0355	1.3310	0.0327	374.0563
Total		**1,062.708 9**	**3.2854**	**0.0817**	**1,169.194 3**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	28.2091 / 17.784	348.6209	0.9266	0.0232	378.7124
General Office Building	30.5524 / 18.7257	374.0027	1.0035	0.0252	406.5872
Health Club	0.739289 / 0.453113	9.0499	0.0243	6.1000e-004	9.8384
Research & Development	40.6336 / 0	331.0355	1.3310	0.0327	374.0563
Total		**1,062.7089**	**3.2854**	**0.0817**	**1,169.1943**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	88.6177	5.2372	0.0000	219.5467
Unmitigated	88.6177	5.2372	0.0000	219.5467

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	199.16	40.4277	2.3892	0.0000	100.1579
General Office Building	159.87	32.4522	1.9179	0.0000	80.3989
Health Club	71.25	14.4631	0.8548	0.0000	35.8317
Research & Development	6.28	1.2748	0.0753	0.0000	3.1582
Total		**88.6177**	**5.2372**	**0.0000**	**219.5467**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	199.16	40.4277	2.3892	0.0000	100.1579
General Office Building	159.87	32.4522	1.9179	0.0000	80.3989
Health Club	71.25	14.4631	0.8548	0.0000	35.8317
Research & Development	6.28	1.2748	0.0753	0.0000	3.1582
Total		**88.6177**	**5.2372**	**0.0000**	**219.5467**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

19-07846 Long Range Development Plan EIR - Construction 2022

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	171.90	1000sqft	3.95	171,896.00	0
Research & Development	82.64	1000sqft	1.90	82,644.00	0
Health Club	12.50	1000sqft	0.29	12,498.00	0
Apartments Mid Rise	432.96	Dwelling Unit	11.39	432,963.00	1238

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	15			**Operational Year**	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 700k SF in first year

Trips and VMT -

Demolition -

Grading -

Architectural Coating -

Woodstoves -

Area Coating -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - 75% of construction equipment would be Tier 4

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
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
tblConstructionPhase	NumDays	30.00	35.00
tblConstructionPhase	NumDays	300.00	155.00
tblGrading	MaterialExported	0.00	64,815.00
tblGrading	MaterialImported	0.00	64,815.00
tblLandUse	LandUseSquareFeet	171,900.00	171,896.00
tblLandUse	LandUseSquareFeet	82,640.00	82,644.00
tblLandUse	LandUseSquareFeet	12,500.00	12,498.00
tblLandUse	LandUseSquareFeet	432,960.00	432,963.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	259.7513	124.4954	49.1260	0.3412	18.2675	1.8834	19.8815	9.9840	1.7418	11.4689	0.0000	36,244.3816	36,244.3816	3.9395	0.0000	36,342.8702
Maximum	**259.7513**	**124.4954**	**49.1260**	**0.3412**	**18.2675**	**1.8834**	**19.8815**	**9.9840**	**1.7418**	**11.4689**	**0.0000**	**36,244.3816**	**36,244.3816**	**3.9395**	**0.0000**	**36,342.8702**

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	lb/day										lb/day					
2022	259.7513	107.0584	50.6844	0.3412	10.5254	1.0877	11.6131	4.5222	1.0138	5.0689	0.0000	36,244.3816	36,244.3816	3.9395	0.0000	36,342.8702
Maximum	**259.7513**	**107.0584**	**50.6844**	**0.3412**	**10.5254**	**1.0877**	**11.6131**	**4.5222**	**1.0138**	**5.0689**	**0.0000**	**36,244.3816**	**36,244.3816**	**3.9395**	**0.0000**	**36,342.8702**

	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	N20	CO2e
Percent Reduction	0.00	14.01	-3.17	0.00	42.38	42.25	41.59	54.71	41.80	55.80	0.00	0.00	0.00	0.00	0.00	0.00

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	lb/day										lb/day					
Area	129.8209	9.3956	255.9577	0.5636		33.2740	33.2740		33.2740	33.2740	4,055.875 7	7,857.740 4	11,913.61 60	12.1574	0.2753	12,299.58 21
Energy	0.2982	2.6077	1.5202	0.0163		0.2060	0.2060		0.2060	0.2060		3,253.146 7	3,253.146 7	0.0624	0.0596	3,272.478 5
Mobile	9.1450	39.8861	121.6955	0.4790	40.5953	0.3259	40.9212	10.8613	0.3031	11.1644		48,802.50 40	48,802.50 40	2.1382		48,855.95 79
Total	**139.2641**	**51.8895**	**379.1734**	**1.0589**	**40.5953**	**33.8059**	**74.4012**	**10.8613**	**33.7830**	**44.6443**	**4,055.875 7**	**59,913.39 10**	**63,969.26 67**	**14.3579**	**0.3349**	**64,428.01 85**

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	lb/day										lb/day					
Area	129.8209	9.3956	255.9577	0.5636		33.2740	33.2740		33.2740	33.2740	4,055.875 7	7,857.740 4	11,913.61 60	12.1574	0.2753	12,299.58 21
Energy	0.2982	2.6077	1.5202	0.0163		0.2060	0.2060		0.2060	0.2060		3,253.146 7	3,253.146 7	0.0624	0.0596	3,272.478 5
Mobile	9.1450	39.8861	121.6955	0.4790	40.5953	0.3259	40.9212	10.8613	0.3031	11.1644		48,802.50 40	48,802.50 40	2.1382		48,855.95 79
Total	**139.2641**	**51.8895**	**379.1734**	**1.0589**	**40.5953**	**33.8059**	**74.4012**	**10.8613**	**33.7830**	**44.6443**	**4,055.875 7**	**59,913.39 10**	**63,969.26 67**	**14.3579**	**0.3349**	**64,428.01 85**

	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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	1/28/2022	5	20	
2	Site Preparation	Site Preparation	1/31/2022	2/11/2022	5	10	
3	Grading	Grading	2/14/2022	4/1/2022	5	35	
4	Building Construction	Building Construction	4/4/2022	11/4/2022	5	155	
5	Paving	Paving	11/7/2022	12/2/2022	5	20	
6	Architectural Coating	Architectural Coating	12/5/2022	12/30/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 876,750; Residential Outdoor: 292,250; Non-Residential Indoor: 400,557; Non-Residential Outdoor: 133,519; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	6	15.00	0.00	515.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	12,817.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	398.00	90.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	80.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

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					lb/day									lb/day		
Fugitive Dust					5.5713	0.0000	5.5713	0.8435	0.0000	0.8435			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.781 2	3,746.781 2	1.0524		3,773.092 0
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**5.5713**	**1.2427**	**6.8140**	**0.8435**	**1.1553**	**1.9988**		**3,746.781 2**	**3,746.781 2**	**1.0524**		**3,773.092 0**

3.2 Demolition - 2022

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	lb/day										lb/day					
Hauling	0.1774	6.0193	1.3633	0.0195	0.4500	0.0174	0.4673	0.1233	0.0166	0.1399		2,110.8690	2,110.8690	0.1399		2,114.3672
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
Worker	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	**0.2368**	**6.0564**	**1.8858**	**0.0211**	**0.6176**	**0.0186**	**0.6362**	**0.1678**	**0.0177**	**0.1855**		**2,271.0276**	**2,271.0276**	**0.1440**		**2,274.6267**

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	lb/day										lb/day					
Fugitive Dust					2.5071	0.0000	2.5071	0.3796	0.0000	0.3796			0.0000			0.0000
Off-Road	1.4222	12.0068	22.1193	0.0388		0.5707	0.5707		0.5398	0.5398	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**1.4222**	**12.0068**	**22.1193**	**0.0388**	**2.5071**	**0.5707**	**3.0778**	**0.3796**	**0.5398**	**0.9194**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	lb/day										lb/day					
Hauling	0.1774	6.0193	1.3633	0.0195	0.4500	0.0174	0.4673	0.1233	0.0166	0.1399		2,110.869 0	2,110.869 0	0.1399		2,114.367 2
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
Worker	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	**0.2368**	**6.0564**	**1.8858**	**0.0211**	**0.6176**	**0.0186**	**0.6362**	**0.1678**	**0.0177**	**0.1855**		**2,271.027 6**	**2,271.027 6**	**0.1440**		**2,274.626 7**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.061 9	3,686.061 9	1.1922		3,715.865 5
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0663**	**1.6126**	**19.6788**	**9.9307**	**1.4836**	**11.4143**		**3,686.061 9**	**3,686.061 9**	**1.1922**		**3,715.865 5**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0713	0.0445	0.6270	1.9300e-003	0.2012	1.4400e-003	0.2026	0.0534	1.3200e-003	0.0547		192.1903	192.1903	4.8400e-003		192.3114
Total	**0.0713**	**0.0445**	**0.6270**	**1.9300e-003**	**0.2012**	**1.4400e-003**	**0.2026**	**0.0534**	**1.3200e-003**	**0.0547**		**192.1903**	**192.1903**	**4.8400e-003**		**192.3114**

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	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.3851	12.5799	20.4708	0.0380		0.5893	0.5893		0.5454	0.5454	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**1.3851**	**12.5799**	**20.4708**	**0.0380**	**8.1298**	**0.5893**	**8.7191**	**4.4688**	**0.5454**	**5.0142**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0713	0.0445	0.6270	1.9300e-003	0.2012	1.4400e-003	0.2026	0.0534	1.3200e-003	0.0547		192.1903	192.1903	4.8400e-003		192.3114
Total	**0.0713**	**0.0445**	**0.6270**	**1.9300e-003**	**0.2012**	**1.4400e-003**	**0.2026**	**0.0534**	**1.3200e-003**	**0.0547**		**192.1903**	**192.1903**	**4.8400e-003**		**192.3114**

3.4 Grading - 2022

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	lb/day										lb/day					
Hauling	2.5232	85.6025	19.3878	0.2770	6.3989	0.2469	6.6458	1.7536	0.2362	1.9898		30,019.4263	30,019.4263	1.9900		30,069.1750
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
Worker	0.0792	0.0495	0.6967	2.1400e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		213.5448	213.5448	5.3800e-003		213.6794
Total	**2.6024**	**85.6520**	**20.0845**	**0.2792**	**6.6224**	**0.2485**	**6.8709**	**1.8129**	**0.2377**	**2.0506**		**30,232.9711**	**30,232.9711**	**1.9953**		**30,282.8543**

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	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	2.1746	21.4064	30.5999	0.0621		0.8392	0.8392		0.7761	0.7761	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**2.1746**	**21.4064**	**30.5999**	**0.0621**	**3.9030**	**0.8392**	**4.7422**	**1.6184**	**0.7761**	**2.3945**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	lb/day										lb/day					
Hauling	2.5232	85.6025	19.3878	0.2770	6.3989	0.2469	6.6458	1.7536	0.2362	1.9898		30,019.4263	30,019.4263	1.9900		30,069.1750
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
Worker	0.0792	0.0495	0.6967	2.1400e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		213.5448	213.5448	5.3800e-003		213.6794
Total	**2.6024**	**85.6520**	**20.0845**	**0.2792**	**6.6224**	**0.2485**	**6.8709**	**1.8129**	**0.2377**	**2.0506**		**30,232.9711**	**30,232.9711**	**1.9953**		**30,282.8543**

3.5 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

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	lb/day										lb/day					
Hauling	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
Vendor	0.2349	8.1480	1.9251	0.0228	0.5760	0.0150	0.5910	0.1658	0.0143	0.1802		2,430.532 1	2,430.532 1	0.1428		2,434.101 8
Worker	1.5759	0.9843	13.8645	0.0426	4.4487	0.0318	4.4805	1.1798	0.0293	1.2091		4,249.541 3	4,249.541 3	0.1071		4,252.219 2
Total	**1.8107**	**9.1322**	**15.7895**	**0.0654**	**5.0247**	**0.0468**	**5.0715**	**1.3457**	**0.0436**	**1.3893**		**6,680.073 4**	**6,680.073 4**	**0.2499**		**6,686.321 0**

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	lb/day										lb/day					
Off-Road	1.2991	11.0706	16.5593	0.0269		0.5283	0.5283		0.5040	0.5040	0.0000	2,554.333 6	2,554.333 6	0.6120		2,569.632 2
Total	**1.2991**	**11.0706**	**16.5593**	**0.0269**		**0.5283**	**0.5283**		**0.5040**	**0.5040**	**0.0000**	**2,554.333 6**	**2,554.333 6**	**0.6120**		**2,569.632 2**

3.5 Building Construction - 2022

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	lb/day										lb/day					
Hauling	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
Vendor	0.2349	8.1480	1.9251	0.0228	0.5760	0.0150	0.5910	0.1658	0.0143	0.1802		2,430.5321	2,430.5321	0.1428		2,434.1018
Worker	1.5759	0.9843	13.8645	0.0426	4.4487	0.0318	4.4805	1.1798	0.0293	1.2091		4,249.5413	4,249.5413	0.1071		4,252.2192
Total	**1.8107**	**9.1322**	**15.7895**	**0.0654**	**5.0247**	**0.0468**	**5.0715**	**1.3457**	**0.0436**	**1.3893**		**6,680.0734**	**6,680.0734**	**0.2499**		**6,686.3210**

3.6 Paving - 2022

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	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.6 Paving - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	**0.0594**	**0.0371**	**0.5225**	**1.6100e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**160.1586**	**160.1586**	**4.0400e-003**		**160.2595**

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	lb/day										lb/day					
Off-Road	0.6916	6.1701	15.9381	0.0228		0.3027	0.3027		0.2799	0.2799	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6916**	**6.1701**	**15.9381**	**0.0228**		**0.3027**	**0.3027**		**0.2799**	**0.2799**	**0.0000**	**2,207.660 3**	**2,207.660 3**	**0.7140**		**2,225.510 4**

3.6 Paving - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	**0.0594**	**0.0371**	**0.5225**	**1.6100e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**160.1586**	**160.1586**	**4.0400e-003**		**160.2595**

3.7 Architectural Coating - 2022

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	lb/day										lb/day					
Archit. Coating	259.2300					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**259.4345**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.3168	0.1978	2.7868	8.5700e-003	0.8942	6.3900e-003	0.9006	0.2372	5.8900e-003	0.2430		854.1791	854.1791	0.0215		854.7174
Total	**0.3168**	**0.1978**	**2.7868**	**8.5700e-003**	**0.8942**	**6.3900e-003**	**0.9006**	**0.2372**	**5.8900e-003**	**0.2430**		**854.1791**	**854.1791**	**0.0215**		**854.7174**

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	lb/day										lb/day					
Archit. Coating	259.2300					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**259.4345**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.3168	0.1978	2.7868	8.5700e-003	0.8942	6.3900e-003	0.9006	0.2372	5.8900e-003	0.2430		854.1791	854.1791	0.0215		854.7174
Total	**0.3168**	**0.1978**	**2.7868**	**8.5700e-003**	**0.8942**	**6.3900e-003**	**0.9006**	**0.2372**	**5.8900e-003**	**0.2430**		**854.1791**	**854.1791**	**0.0215**		**854.7174**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	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
	lb/day										lb/day					
Mitigated	9.1450	39.8861	121.6955	0.4790	40.5953	0.3259	40.9212	10.8613	0.3031	11.1644		48,802.5040	48,802.5040	2.1382		48,855.9579
Unmitigated	9.1450	39.8861	121.6955	0.4790	40.5953	0.3259	40.9212	10.8613	0.3031	11.1644		48,802.5040	48,802.5040	2.1382		48,855.9579

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,879.18	2,766.61	2537.15	9,616,686	9,616,686
General Office Building	1,896.06	422.87	180.50	4,640,585	4,640,585
Health Club	411.63	260.88	334.13	810,632	810,632
Research & Development	670.21	157.02	91.73	1,737,494	1,737,494
Total	5,857.08	3,607.38	3,143.50	16,805,398	16,805,398

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Research & Development	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
General Office Building	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Health Club	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Research & Development	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868

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	lb/day										lb/day					
NaturalGas Mitigated	0.2982	2.6077	1.5202	0.0163		0.2060	0.2060		0.2060	0.2060		3,253.146 7	3,253.146 7	0.0624	0.0596	3,272.478 5
NaturalGas Unmitigated	0.2982	2.6077	1.5202	0.0163		0.2060	0.2060		0.2060	0.2060		3,253.146 7	3,253.146 7	0.0624	0.0596	3,272.478 5

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	lb/day										lb/day					
Apartments Mid Rise	17548.6	0.1893	1.6172	0.6882	0.0103		0.1308	0.1308		0.1308	0.1308		2,064.5431	2,064.5431	0.0396	0.0379	2,076.8116
General Office Building	1634.19	0.0176	0.1602	0.1346	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.2576	192.2576	3.6800e-003	3.5200e-003	193.4001
Health Club	1112.49	0.0120	0.1091	0.0916	6.5000e-004		8.2900e-003	8.2900e-003		8.2900e-003	8.2900e-003		130.8816	130.8816	2.5100e-003	2.4000e-003	131.6593
Research & Development	7356.45	0.0793	0.7212	0.6058	4.3300e-003		0.0548	0.0548		0.0548	0.0548		865.4645	865.4645	0.0166	0.0159	870.6075
Total		**0.2982**	**2.6077**	**1.5202**	**0.0163**		**0.2060**	**0.2060**		**0.2060**	**0.2060**		**3,253.1467**	**3,253.1467**	**0.0624**	**0.0596**	**3,272.4785**

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
Apartments Mid Rise	17.5486	0.1893	1.6172	0.6882	0.0103		0.1308	0.1308		0.1308	0.1308		2,064.5431	2,064.5431	0.0396	0.0379	2,076.8116
General Office Building	1.63419	0.0176	0.1602	0.1346	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.2576	192.2576	3.6800e-003	3.5200e-003	193.4001
Health Club	1.11249	0.0120	0.1091	0.0916	6.5000e-004		8.2900e-003	8.2900e-003		8.2900e-003	8.2900e-003		130.8816	130.8816	2.5100e-003	2.4000e-003	131.6593
Research & Development	7.35645	0.0793	0.7212	0.6058	4.3300e-003		0.0548	0.0548		0.0548	0.0548		865.4645	865.4645	0.0166	0.0159	870.6075
Total		**0.2982**	**2.6077**	**1.5202**	**0.0163**		**0.2060**	**0.2060**		**0.2060**	**0.2060**		**3,253.1467**	**3,253.1467**	**0.0624**	**0.0596**	**3,272.4785**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	lb/day										lb/day					
Mitigated	129.8209	9.3956	255.9577	0.5636		33.2740	33.2740		33.2740	33.2740	4,055.8757	7,857.7404	11,913.6160	12.1574	0.2753	12,299.5821
Unmitigated	129.8209	9.3956	255.9577	0.5636		33.2740	33.2740		33.2740	33.2740	4,055.8757	7,857.7404	11,913.6160	12.1574	0.2753	12,299.5821

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	lb/day										lb/day					
Architectural Coating	1.4204					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	13.8600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	113.4615	8.9835	220.2027	0.5618		33.0761	33.0761		33.0761	33.0761	4,055.8757	7,793.3647	11,849.2404	12.0954	0.2753	12,233.6564
Landscaping	1.0789	0.4121	35.7550	1.8900e-003		0.1979	0.1979		0.1979	0.1979		64.3756	64.3756	0.0620		65.9257
Total	**129.8209**	**9.3956**	**255.9577**	**0.5636**		**33.2740**	**33.2740**		**33.2740**	**33.2740**	**4,055.8757**	**7,857.7404**	**11,913.6160**	**12.1574**	**0.2753**	**12,299.5821**

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	lb/day										lb/day					
Architectural Coating	1.4204					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	13.8600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	113.4615	8.9835	220.2027	0.5618		33.0761	33.0761		33.0761	33.0761	4,055.8757	7,793.3647	11,849.2404	12.0954	0.2753	12,233.6564
Landscaping	1.0789	0.4121	35.7550	1.8900e-003		0.1979	0.1979		0.1979	0.1979		64.3756	64.3756	0.0620		65.9257
Total	**129.8209**	**9.3956**	**255.9577**	**0.5636**		**33.2740**	**33.2740**		**33.2740**	**33.2740**	**4,055.8757**	**7,857.7404**	**11,913.6160**	**12.1574**	**0.2753**	**12,299.5821**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

19-07846 Long Range Development Plan EIR - Construction 2022

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	171.90	1000sqft	3.95	171,896.00	0
Research & Development	82.64	1000sqft	1.90	82,644.00	0
Health Club	12.50	1000sqft	0.29	12,498.00	0
Apartments Mid Rise	432.96	Dwelling Unit	11.39	432,963.00	1238

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	15			**Operational Year**	2023
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 700k SF in first year

Trips and VMT -

Demolition -

Grading -

Architectural Coating -

Woodstoves -

Area Coating -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - 75% of construction equipment would be Tier 4

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
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
tblConstructionPhase	NumDays	30.00	35.00
tblConstructionPhase	NumDays	300.00	155.00
tblGrading	MaterialExported	0.00	64,815.00
tblGrading	MaterialImported	0.00	64,815.00
tblLandUse	LandUseSquareFeet	171,900.00	171,896.00
tblLandUse	LandUseSquareFeet	82,640.00	82,644.00
tblLandUse	LandUseSquareFeet	12,500.00	12,498.00
tblLandUse	LandUseSquareFeet	432,960.00	432,963.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	259.7815	125.4164	50.4284	0.3359	18.2675	1.8873	19.8815	9.9840	1.7455	11.4689	0.0000	35,670.5631	35,670.5631	4.0207	0.0000	35,771.0802
Maximum	**259.7815**	**125.4164**	**50.4284**	**0.3359**	**18.2675**	**1.8873**	**19.8815**	**9.9840**	**1.7455**	**11.4689**	**0.0000**	**35,670.5631**	**35,670.5631**	**4.0207**	**0.0000**	**35,771.0802**

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	lb/day										lb/day					
2022	259.7815	107.9793	51.9868	0.3359	10.5254	1.0916	11.6170	4.5222	1.0175	5.0689	0.0000	35,670.5631	35,670.5631	4.0207	0.0000	35,771.0802
Maximum	**259.7815**	**107.9793**	**51.9868**	**0.3359**	**10.5254**	**1.0916**	**11.6170**	**4.5222**	**1.0175**	**5.0689**	**0.0000**	**35,670.5631**	**35,670.5631**	**4.0207**	**0.0000**	**35,771.0802**

	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	N20	CO2e
Percent Reduction	0.00	13.90	-3.09	0.00	42.38	42.16	41.57	54.71	41.71	55.80	0.00	0.00	0.00	0.00	0.00	0.00

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	lb/day										lb/day					
Area	129.8209	9.3956	255.9577	0.5636		33.2740	33.2740		33.2740	33.2740	4,055.8757	7,857.7404	11,913.6160	12.1574	0.2753	12,299.5821
Energy	0.2982	2.6077	1.5202	0.0163		0.2060	0.2060		0.2060	0.2060		3,253.1467	3,253.1467	0.0624	0.0596	3,272.4785
Mobile	8.6578	40.6482	113.5299	0.4534	40.5953	0.3275	40.9228	10.8613	0.3045	11.1658		46,232.4233	46,232.4233	2.1339		46,285.7712
Total	**138.7769**	**52.6516**	**371.0078**	**1.0333**	**40.5953**	**33.8075**	**74.4027**	**10.8613**	**33.7845**	**44.6458**	**4,055.8757**	**57,343.3103**	**61,399.1860**	**14.3537**	**0.3349**	**61,857.8318**

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	lb/day										lb/day					
Area	129.8209	9.3956	255.9577	0.5636		33.2740	33.2740		33.2740	33.2740	4,055.8757	7,857.7404	11,913.6160	12.1574	0.2753	12,299.5821
Energy	0.2982	2.6077	1.5202	0.0163		0.2060	0.2060		0.2060	0.2060		3,253.1467	3,253.1467	0.0624	0.0596	3,272.4785
Mobile	8.6578	40.6482	113.5299	0.4534	40.5953	0.3275	40.9228	10.8613	0.3045	11.1658		46,232.4233	46,232.4233	2.1339		46,285.7712
Total	**138.7769**	**52.6516**	**371.0078**	**1.0333**	**40.5953**	**33.8075**	**74.4027**	**10.8613**	**33.7845**	**44.6458**	**4,055.8757**	**57,343.3103**	**61,399.1860**	**14.3537**	**0.3349**	**61,857.8318**

	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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	1/28/2022	5	20	
2	Site Preparation	Site Preparation	1/31/2022	2/11/2022	5	10	
3	Grading	Grading	2/14/2022	4/1/2022	5	35	
4	Building Construction	Building Construction	4/4/2022	11/4/2022	5	155	
5	Paving	Paving	11/7/2022	12/2/2022	5	20	
6	Architectural Coating	Architectural Coating	12/5/2022	12/30/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 876,750; Residential Outdoor: 292,250; Non-Residential Indoor: 400,557; Non-Residential Outdoor: 133,519; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	6	15.00	0.00	515.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	12,817.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	398.00	90.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	80.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

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	lb/day										lb/day					
Fugitive Dust					5.5713	0.0000	5.5713	0.8435	0.0000	0.8435			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**5.5713**	**1.2427**	**6.8140**	**0.8435**	**1.1553**	**1.9988**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	lb/day										lb/day					
Hauling	0.1825	6.0837	1.4599	0.0191	0.4500	0.0176	0.4676	0.1233	0.0169	0.1402		2,071.4929	2,071.4929	0.1457		2,075.1344
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
Worker	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	**0.2476**	**6.1243**	**1.9286**	**0.0206**	**0.6176**	**0.0188**	**0.6364**	**0.1678**	**0.0180**	**0.1858**		**2,221.2734**	**2,221.2734**	**0.1494**		**2,225.0089**

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	lb/day										lb/day					
Fugitive Dust					2.5071	0.0000	2.5071	0.3796	0.0000	0.3796			0.0000			0.0000
Off-Road	1.4222	12.0068	22.1193	0.0388		0.5707	0.5707		0.5398	0.5398	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**1.4222**	**12.0068**	**22.1193**	**0.0388**	**2.5071**	**0.5707**	**3.0778**	**0.3796**	**0.5398**	**0.9194**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	lb/day										lb/day					
Hauling	0.1825	6.0837	1.4599	0.0191	0.4500	0.0176	0.4676	0.1233	0.0169	0.1402		2,071.4929	2,071.4929	0.1457		2,075.1344
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
Worker	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	**0.2476**	**6.1243**	**1.9286**	**0.0206**	**0.6176**	**0.0188**	**0.6364**	**0.1678**	**0.0180**	**0.1858**		**2,221.2734**	**2,221.2734**	**0.1494**		**2,225.0089**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0663**	**1.6126**	**19.6788**	**9.9307**	**1.4836**	**11.4143**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0781	0.0487	0.5625	1.8000e-003	0.2012	1.4400e-003	0.2026	0.0534	1.3200e-003	0.0547		179.7366	179.7366	4.5100e-003		179.8494
Total	**0.0781**	**0.0487**	**0.5625**	**1.8000e-003**	**0.2012**	**1.4400e-003**	**0.2026**	**0.0534**	**1.3200e-003**	**0.0547**		**179.7366**	**179.7366**	**4.5100e-003**		**179.8494**

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	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.3851	12.5799	20.4708	0.0380		0.5893	0.5893		0.5454	0.5454	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**1.3851**	**12.5799**	**20.4708**	**0.0380**	**8.1298**	**0.5893**	**8.7191**	**4.4688**	**0.5454**	**5.0142**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0781	0.0487	0.5625	1.8000e-003	0.2012	1.4400e-003	0.2026	0.0534	1.3200e-003	0.0547		179.7366	179.7366	4.5100e-003		179.8494
Total	**0.0781**	**0.0487**	**0.5625**	**1.8000e-003**	**0.2012**	**1.4400e-003**	**0.2026**	**0.0534**	**1.3200e-003**	**0.0547**		**179.7366**	**179.7366**	**4.5100e-003**		**179.8494**

3.4 Grading - 2022

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	lb/day										lb/day					
Hauling	2.5955	86.5188	20.7620	0.2718	6.3989	0.2508	6.6497	1.7536	0.2400	1.9936		29,459.4452	29,459.4452	2.0715		29,511.2317
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
Worker	0.0868	0.0541	0.6250	2.0000e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		199.7073	199.7073	5.0100e-003		199.8326
Total	**2.6822**	**86.5729**	**21.3869**	**0.2738**	**6.6224**	**0.2524**	**6.8748**	**1.8129**	**0.2414**	**2.0543**		**29,659.1525**	**29,659.1525**	**2.0765**		**29,711.0643**

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	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	2.1746	21.4064	30.5999	0.0621		0.8392	0.8392		0.7761	0.7761	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**2.1746**	**21.4064**	**30.5999**	**0.0621**	**3.9030**	**0.8392**	**4.7422**	**1.6184**	**0.7761**	**2.3945**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	lb/day										lb/day					
Hauling	2.5955	86.5188	20.7620	0.2718	6.3989	0.2508	6.6497	1.7536	0.2400	1.9936		29,459.4452	29,459.4452	2.0715		29,511.2317
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
Worker	0.0868	0.0541	0.6250	2.0000e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		199.7073	199.7073	5.0100e-003		199.8326
Total	**2.6822**	**86.5729**	**21.3869**	**0.2738**	**6.6224**	**0.2524**	**6.8748**	**1.8129**	**0.2414**	**2.0543**		**29,659.1525**	**29,659.1525**	**2.0765**		**29,711.0643**

3.5 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

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	lb/day										lb/day					
Hauling	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
Vendor	0.2473	8.1154	2.1554	0.0221	0.5760	0.0155	0.5915	0.1658	0.0148	0.1806		2,359.7480	2,359.7480	0.1533		2,363.5793
Worker	1.7262	1.0771	12.4365	0.0399	4.4487	0.0318	4.4805	1.1798	0.0293	1.2091		3,974.1754	3,974.1754	0.0998		3,976.6693
Total	**1.9736**	**9.1926**	**14.5919**	**0.0620**	**5.0247**	**0.0473**	**5.0720**	**1.3457**	**0.0441**	**1.3897**		**6,333.9234**	**6,333.9234**	**0.2530**		**6,340.2487**

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	lb/day										lb/day					
Off-Road	1.2991	11.0706	16.5593	0.0269		0.5283	0.5283		0.5040	0.5040	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.2991**	**11.0706**	**16.5593**	**0.0269**		**0.5283**	**0.5283**		**0.5040**	**0.5040**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

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	lb/day										lb/day					
Hauling	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
Vendor	0.2473	8.1154	2.1554	0.0221	0.5760	0.0155	0.5915	0.1658	0.0148	0.1806		2,359.748 0	2,359.748 0	0.1533		2,363.579 3
Worker	1.7262	1.0771	12.4365	0.0399	4.4487	0.0318	4.4805	1.1798	0.0293	1.2091		3,974.175 4	3,974.175 4	0.0998		3,976.669 3
Total	**1.9736**	**9.1926**	**14.5919**	**0.0620**	**5.0247**	**0.0473**	**5.0720**	**1.3457**	**0.0441**	**1.3897**		**6,333.923 4**	**6,333.923 4**	**0.2530**		**6,340.248 7**

3.6 Paving - 2022

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	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1028**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.660 3**	**2,207.660 3**	**0.7140**		**2,225.510 4**

3.6 Paving - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	**0.0651**	**0.0406**	**0.4687**	**1.5000e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**149.7805**	**149.7805**	**3.7600e-003**		**149.8745**

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	lb/day										lb/day					
Off-Road	0.6916	6.1701	15.9381	0.0228		0.3027	0.3027		0.2799	0.2799	0.0000	2,207.660 3	2,207.660 3	0.7140		2,225.510 4
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6916**	**6.1701**	**15.9381**	**0.0228**		**0.3027**	**0.3027**		**0.2799**	**0.2799**	**0.0000**	**2,207.660 3**	**2,207.660 3**	**0.7140**		**2,225.510 4**

3.6 Paving - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	**0.0651**	**0.0406**	**0.4687**	**1.5000e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**149.7805**	**149.7805**	**3.7600e-003**		**149.8745**

3.7 Architectural Coating - 2022

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	lb/day										lb/day					
Archit. Coating	259.2300					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**259.4345**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.3470	0.2165	2.4998	8.0100e-003	0.8942	6.3900e-003	0.9006	0.2372	5.8900e-003	0.2430		798.8292	798.8292	0.0201		799.3305
Total	**0.3470**	**0.2165**	**2.4998**	**8.0100e-003**	**0.8942**	**6.3900e-003**	**0.9006**	**0.2372**	**5.8900e-003**	**0.2430**		**798.8292**	**798.8292**	**0.0201**		**799.3305**

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	lb/day										lb/day					
Archit. Coating	259.2300					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**259.4345**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.3470	0.2165	2.4998	8.0100e-003	0.8942	6.3900e-003	0.9006	0.2372	5.8900e-003	0.2430		798.8292	798.8292	0.0201		799.3305
Total	**0.3470**	**0.2165**	**2.4998**	**8.0100e-003**	**0.8942**	**6.3900e-003**	**0.9006**	**0.2372**	**5.8900e-003**	**0.2430**		**798.8292**	**798.8292**	**0.0201**		**799.3305**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	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
	lb/day										lb/day					
Mitigated	8.6578	40.6482	113.5299	0.4534	40.5953	0.3275	40.9228	10.8613	0.3045	11.1658		46,232.4233	46,232.4233	2.1339		46,285.7712
Unmitigated	8.6578	40.6482	113.5299	0.4534	40.5953	0.3275	40.9228	10.8613	0.3045	11.1658		46,232.4233	46,232.4233	2.1339		46,285.7712

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	2,879.18	2,766.61	2537.15	9,616,686	9,616,686
General Office Building	1,896.06	422.87	180.50	4,640,585	4,640,585
Health Club	411.63	260.88	334.13	810,632	810,632
Research & Development	670.21	157.02	91.73	1,737,494	1,737,494
Total	5,857.08	3,607.38	3,143.50	16,805,398	16,805,398

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Research & Development	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
General Office Building	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Health Club	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868
Research & Development	0.550151	0.042593	0.202457	0.116946	0.015037	0.005825	0.021699	0.034933	0.002123	0.001780	0.004876	0.000710	0.000868

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	lb/day										lb/day					
NaturalGas Mitigated	0.2982	2.6077	1.5202	0.0163		0.2060	0.2060		0.2060	0.2060		3,253.1467	3,253.1467	0.0624	0.0596	3,272.4785
NaturalGas Unmitigated	0.2982	2.6077	1.5202	0.0163		0.2060	0.2060		0.2060	0.2060		3,253.1467	3,253.1467	0.0624	0.0596	3,272.4785

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	lb/day										lb/day					
Apartments Mid Rise	17548.6	0.1893	1.6172	0.6882	0.0103		0.1308	0.1308		0.1308	0.1308		2,064.5431	2,064.5431	0.0396	0.0379	2,076.8116
General Office Building	1634.19	0.0176	0.1602	0.1346	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.2576	192.2576	3.6800e-003	3.5200e-003	193.4001
Health Club	1112.49	0.0120	0.1091	0.0916	6.5000e-004		8.2900e-003	8.2900e-003		8.2900e-003	8.2900e-003		130.8816	130.8816	2.5100e-003	2.4000e-003	131.6593
Research & Development	7356.45	0.0793	0.7212	0.6058	4.3300e-003		0.0548	0.0548		0.0548	0.0548		865.4645	865.4645	0.0166	0.0159	870.6075
Total		**0.2982**	**2.6077**	**1.5202**	**0.0163**		**0.2060**	**0.2060**		**0.2060**	**0.2060**		**3,253.1467**	**3,253.1467**	**0.0624**	**0.0596**	**3,272.4785**

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
Apartments Mid Rise	17.5486	0.1893	1.6172	0.6882	0.0103		0.1308	0.1308		0.1308	0.1308		2,064.5431	2,064.5431	0.0396	0.0379	2,076.8116
General Office Building	1.63419	0.0176	0.1602	0.1346	9.6000e-004		0.0122	0.0122		0.0122	0.0122		192.2576	192.2576	3.6800e-003	3.5200e-003	193.4001
Health Club	1.11249	0.0120	0.1091	0.0916	6.5000e-004		8.2900e-003	8.2900e-003		8.2900e-003	8.2900e-003		130.8816	130.8816	2.5100e-003	2.4000e-003	131.6593
Research & Development	7.35645	0.0793	0.7212	0.6058	4.3300e-003		0.0548	0.0548		0.0548	0.0548		865.4645	865.4645	0.0166	0.0159	870.6075
Total		**0.2982**	**2.6077**	**1.5202**	**0.0163**		**0.2060**	**0.2060**		**0.2060**	**0.2060**		**3,253.1467**	**3,253.1467**	**0.0624**	**0.0596**	**3,272.4785**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	lb/day										lb/day					
Mitigated	129.8209	9.3956	255.9577	0.5636		33.2740	33.2740		33.2740	33.2740	4,055.8757	7,857.7404	11,913.6160	12.1574	0.2753	12,299.5821
Unmitigated	129.8209	9.3956	255.9577	0.5636		33.2740	33.2740		33.2740	33.2740	4,055.8757	7,857.7404	11,913.6160	12.1574	0.2753	12,299.5821

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	lb/day										lb/day					
Architectural Coating	1.4204					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	13.8600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	113.4615	8.9835	220.2027	0.5618		33.0761	33.0761		33.0761	33.0761	4,055.8757	7,793.3647	11,849.2404	12.0954	0.2753	12,233.6564
Landscaping	1.0789	0.4121	35.7550	1.8900e-003		0.1979	0.1979		0.1979	0.1979		64.3756	64.3756	0.0620		65.9257
Total	**129.8209**	**9.3956**	**255.9577**	**0.5636**		**33.2740**	**33.2740**		**33.2740**	**33.2740**	**4,055.8757**	**7,857.7404**	**11,913.6160**	**12.1574**	**0.2753**	**12,299.5821**

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	lb/day										lb/day					
Architectural Coating	1.4204					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	13.8600					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	113.4615	8.9835	220.2027	0.5618		33.0761	33.0761		33.0761	33.0761	4,055.8757	7,793.3647	11,849.2404	12.0954	0.2753	12,233.6564
Landscaping	1.0789	0.4121	35.7550	1.8900e-003		0.1979	0.1979		0.1979	0.1979		64.3756	64.3756	0.0620		65.9257
Total	**129.8209**	**9.3956**	**255.9577**	**0.5636**		**33.2740**	**33.2740**		**33.2740**	**33.2740**	**4,055.8757**	**7,857.7404**	**11,913.6160**	**12.1574**	**0.2753**	**12,299.5821**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

19-07846 Long Range Development Plan EIR - Construction 2023-2035

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	90.19	1000sqft	2.07	90,188.00	0
Research & Development	43.36	1000sqft	1.00	43,361.00	0
Health Club	6.56	1000sqft	0.15	6,557.00	0
Apartments Mid Rise	192.00	Dwelling Unit	5.05	227,162.00	549

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	15			**Operational Year**	2024
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Approx 7% development per year 2023-2035

Demolition -

Grading -

Trips and VMT -

Architectural Coating -

Woodstoves -

Area Coating -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - 75% Tier 4

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
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
tblConstructionPhase	NumDays	20.00	35.00
tblConstructionPhase	NumDays	230.00	155.00
tblGrading	MaterialExported	0.00	34,006.00
tblGrading	MaterialImported	0.00	34,006.00
tblLandUse	LandUseSquareFeet	90,190.00	90,188.00
tblLandUse	LandUseSquareFeet	43,360.00	43,361.00
tblLandUse	LandUseSquareFeet	6,560.00	6,557.00
tblLandUse	LandUseSquareFeet	192,000.00	227,162.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

2.0 Emissions Summary

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	1.6678	2.9956	2.8976	8.8400e-003	0.5211	0.1037	0.6248	0.1844	0.0968	0.2811	0.0000	810.7723	810.7723	0.1188	0.0000	813.7417
Maximum	**1.6678**	**2.9956**	**2.8976**	**8.8400e-003**	**0.5211**	**0.1037**	**0.6248**	**0.1844**	**0.0968**	**0.2811**	**0.0000**	**810.7723**	**810.7723**	**0.1188**	**0.0000**	**813.7417**

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	1.5963	2.1704	2.9958	8.8400e-003	0.3719	0.0621	0.4339	0.1200	0.0587	0.1787	0.0000	810.7719	810.7719	0.1188	0.0000	813.7413
Maximum	**1.5963**	**2.1704**	**2.9958**	**8.8400e-003**	**0.3719**	**0.0621**	**0.4339**	**0.1200**	**0.0587**	**0.1787**	**0.0000**	**810.7719**	**810.7719**	**0.1188**	**0.0000**	**813.7413**

	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**	**N20**	**CO2e**
Percent Reduction	**4.28**	**27.55**	**-3.39**	**0.00**	**28.64**	**40.16**	**30.55**	**34.91**	**39.38**	**36.45**	**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	1-2-2023	4-1-2023	1.5135	1.0458
2	4-2-2023	7-1-2023	0.6455	0.5016
3	7-2-2023	9-30-2023	0.6526	0.5072
		Highest	1.5135	1.0458

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	2.1517	0.0726	3.2015	3.2200e-003		0.1943	0.1943		0.1943	0.1943	20.3941	42.4282	62.8223	0.0639	1.3800e-003	64.8330
Energy	0.0258	0.2257	0.1354	1.4000e-003		0.0178	0.0178		0.0178	0.0178	0.0000	1,603.1058	1,603.1058	0.0344	0.0108	1,607.1760
Mobile	0.6172	3.0873	8.3256	0.0344	3.0534	0.0246	3.0780	0.8181	0.0228	0.8410	0.0000	3,182.1057	3,182.1057	0.1406	0.0000	3,185.6218
Waste						0.0000	0.0000		0.0000	0.0000	43.2148	0.0000	43.2148	2.5539	0.0000	107.0627
Water						0.0000	0.0000		0.0000	0.0000	15.9411	513.3231	529.2642	1.6485	0.0410	582.6907
Total	**2.7947**	**3.3857**	**11.6624**	**0.0390**	**3.0534**	**0.2367**	**3.2901**	**0.8181**	**0.2349**	**1.0531**	**79.5499**	**5,340.9628**	**5,420.5127**	**4.4414**	**0.0531**	**5,547.3843**

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	2.1517	0.0726	3.2015	3.2200e-003		0.1943	0.1943		0.1943	0.1943	20.3941	42.4282	62.8223	0.0639	1.3800e-003	64.8330
Energy	0.0258	0.2257	0.1354	1.4000e-003		0.0178	0.0178		0.0178	0.0178	0.0000	1,603.1058	1,603.1058	0.0344	0.0108	1,607.1760
Mobile	0.6172	3.0873	8.3256	0.0344	3.0534	0.0246	3.0780	0.8181	0.0228	0.8410	0.0000	3,182.1057	3,182.1057	0.1406	0.0000	3,185.6218
Waste						0.0000	0.0000		0.0000	0.0000	43.2148	0.0000	43.2148	2.5539	0.0000	107.0627
Water						0.0000	0.0000		0.0000	0.0000	15.9411	513.3231	529.2642	1.6485	0.0410	582.6907
Total	**2.7947**	**3.3857**	**11.6624**	**0.0390**	**3.0534**	**0.2367**	**3.2901**	**0.8181**	**0.2349**	**1.0531**	**79.5499**	**5,340.9628**	**5,420.5127**	**4.4414**	**0.0531**	**5,547.3843**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

19-07846 Long Range Development Plan EIR - Construction 2023-2035 - South Coast AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2023	1/27/2023	5	20	
2	Site Preparation	Site Preparation	1/30/2023	2/10/2023	5	10	
3	Grading	Grading	2/13/2023	3/31/2023	5	35	
4	Building Construction	Building Construction	4/3/2023	11/3/2023	5	155	
5	Paving	Paving	11/6/2023	12/1/2023	5	20	
6	Architectural Coating	Architectural Coating	12/4/2023	12/29/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 460,003; Residential Outdoor: 153,334; Non-Residential Indoor: 210,159; Non-Residential Outdoor: 70,053; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	6	15.00	0.00	270.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	6,725.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	184.00	43.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 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					
Fugitive Dust					0.0292	0.0000	0.0292	4.4300e-003	0.0000	4.4300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0227	0.2148	0.1964	3.9000e-004		9.9800e-003	9.9800e-003		9.2800e-003	9.2800e-003	0.0000	33.9921	33.9921	9.5200e-003	0.0000	34.2301
Total	**0.0227**	**0.2148**	**0.1964**	**3.9000e-004**	**0.0292**	**9.9800e-003**	**0.0392**	**4.4300e-003**	**9.2800e-003**	**0.0137**	**0.0000**	**33.9921**	**33.9921**	**9.5200e-003**	**0.0000**	**34.2301**

3.2 Demolition - 2023

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	6.2000e-004	0.0209	6.6600e-003	1.0000e-004	2.3200e-003	4.0000e-005	2.3600e-003	6.4000e-004	4.0000e-005	6.7000e-004	0.0000	9.5663	9.5663	6.2000e-004	0.0000	9.5818
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	5.5000e-004	3.8000e-004	4.4500e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3306	1.3306	3.0000e-005	0.0000	1.3313
Total	**1.1700e-003**	**0.0213**	**0.0111**	**1.1000e-004**	**3.9700e-003**	**5.0000e-005**	**4.0200e-003**	**1.0800e-003**	**5.0000e-005**	**1.1200e-003**	**0.0000**	**10.8968**	**10.8968**	**6.5000e-004**	**0.0000**	**10.9132**

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					
Fugitive Dust					0.0132	0.0000	0.0132	1.9900e-003	0.0000	1.9900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0128	0.1038	0.2179	3.9000e-004		4.7100e-003	4.7100e-003		4.4600e-003	4.4600e-003	0.0000	33.9920	33.9920	9.5200e-003	0.0000	34.2300
Total	**0.0128**	**0.1038**	**0.2179**	**3.9000e-004**	**0.0132**	**4.7100e-003**	**0.0179**	**1.9900e-003**	**4.4600e-003**	**6.4500e-003**	**0.0000**	**33.9920**	**33.9920**	**9.5200e-003**	**0.0000**	**34.2300**

3.2 Demolition - 2023

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	6.2000e-004	0.0209	6.6600e-003	1.0000e-004	2.3200e-003	4.0000e-005	2.3600e-003	6.4000e-004	4.0000e-005	6.7000e-004	0.0000	9.5663	9.5663	6.2000e-004	0.0000	9.5818
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	5.5000e-004	3.8000e-004	4.4500e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3306	1.3306	3.0000e-005	0.0000	1.3313
Total	**1.1700e-003**	**0.0213**	**0.0111**	**1.1000e-004**	**3.9700e-003**	**5.0000e-005**	**4.0200e-003**	**1.0800e-003**	**5.0000e-005**	**1.1200e-003**	**0.0000**	**10.8968**	**10.8968**	**6.5000e-004**	**0.0000**	**10.9132**

3.3 Site Preparation - 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					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0133	0.1376	0.0912	1.9000e-004		6.3300e-003	6.3300e-003		5.8200e-003	5.8200e-003	0.0000	16.7254	16.7254	5.4100e-003	0.0000	16.8606
Total	**0.0133**	**0.1376**	**0.0912**	**1.9000e-004**	**0.0903**	**6.3300e-003**	**0.0967**	**0.0497**	**5.8200e-003**	**0.0555**	**0.0000**	**16.7254**	**16.7254**	**5.4100e-003**	**0.0000**	**16.8606**

3.3 Site Preparation - 2023

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	0.0000	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
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	3.3000e-004	2.3000e-004	2.6700e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7983	0.7983	2.0000e-005	0.0000	0.7988
Total	**3.3000e-004**	**2.3000e-004**	**2.6700e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**9.9000e-004**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.7983**	**0.7983**	**2.0000e-005**	**0.0000**	**0.7988**

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					
Fugitive Dust					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0600e-003	0.0535	0.0999	1.9000e-004		2.3600e-003	2.3600e-003		2.1800e-003	2.1800e-003	0.0000	16.7253	16.7253	5.4100e-003	0.0000	16.8606
Total	**6.0600e-003**	**0.0535**	**0.0999**	**1.9000e-004**	**0.0407**	**2.3600e-003**	**0.0430**	**0.0223**	**2.1800e-003**	**0.0245**	**0.0000**	**16.7253**	**16.7253**	**5.4100e-003**	**0.0000**	**16.8606**

3.3 Site Preparation - 2023

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	0.0000	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
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	3.3000e-004	2.3000e-004	2.6700e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.7983	0.7983	2.0000e-005	0.0000	0.7988
Total	**3.3000e-004**	**2.3000e-004**	**2.6700e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**9.9000e-004**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.7983**	**0.7983**	**2.0000e-005**	**0.0000**	**0.7988**

3.4 Grading - 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					
Fugitive Dust					0.1518	0.0000	0.1518	0.0629	0.0000	0.0629	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0581	0.6040	0.4909	1.0900e-003		0.0249	0.0249		0.0229	0.0229	0.0000	95.4366	95.4366	0.0309	0.0000	96.2083
Total	**0.0581**	**0.6040**	**0.4909**	**1.0900e-003**	**0.1518**	**0.0249**	**0.1767**	**0.0629**	**0.0229**	**0.0859**	**0.0000**	**95.4366**	**95.4366**	**0.0309**	**0.0000**	**96.2083**

3.4 Grading - 2023

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	0.0155	0.5197	0.1660	2.4200e-003	0.0578	9.5000e-004	0.0588	0.0159	9.1000e-004	0.0168	0.0000	238.2714	238.2714	0.0155	0.0000	238.6585
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	1.2900e-003	8.8000e-004	0.0104	3.0000e-005	3.8400e-003	3.0000e-005	3.8700e-003	1.0200e-003	3.0000e-005	1.0400e-003	0.0000	3.1046	3.1046	7.0000e-005	0.0000	3.1064
Total	**0.0168**	**0.5206**	**0.1763**	**2.4500e-003**	**0.0617**	**9.8000e-004**	**0.0626**	**0.0169**	**9.4000e-004**	**0.0178**	**0.0000**	**241.3760**	**241.3760**	**0.0156**	**0.0000**	**241.7650**

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					
Fugitive Dust					0.0683	0.0000	0.0683	0.0283	0.0000	0.0283	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0357	0.3377	0.5279	1.0900e-003		0.0131	0.0131		0.0121	0.0121	0.0000	95.4365	95.4365	0.0309	0.0000	96.2082
Total	**0.0357**	**0.3377**	**0.5279**	**1.0900e-003**	**0.0683**	**0.0131**	**0.0814**	**0.0283**	**0.0121**	**0.0404**	**0.0000**	**95.4365**	**95.4365**	**0.0309**	**0.0000**	**96.2082**

3.4 Grading - 2023

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	0.0155	0.5197	0.1660	2.4200e-003	0.0578	9.5000e-004	0.0588	0.0159	9.1000e-004	0.0168	0.0000	238.2714	238.2714	0.0155	0.0000	238.6585
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	1.2900e-003	8.8000e-004	0.0104	3.0000e-005	3.8400e-003	3.0000e-005	3.8700e-003	1.0200e-003	3.0000e-005	1.0400e-003	0.0000	3.1046	3.1046	7.0000e-005	0.0000	3.1064
Total	**0.0168**	**0.5206**	**0.1763**	**2.4500e-003**	**0.0617**	**9.8000e-004**	**0.0626**	**0.0169**	**9.4000e-004**	**0.0178**	**0.0000**	**241.3760**	**241.3760**	**0.0156**	**0.0000**	**241.7650**

3.5 Building Construction - 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	0.1219	1.1148	1.2589	2.0900e-003		0.0542	0.0542		0.0510	0.0510	0.0000	179.6487	179.6487	0.0427	0.0000	180.7171
Total	**0.1219**	**1.1148**	**1.2589**	**2.0900e-003**		**0.0542**	**0.0542**		**0.0510**	**0.0510**	**0.0000**	**179.6487**	**179.6487**	**0.0427**	**0.0000**	**180.7171**

3.5 Building Construction - 2023

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	0.0000	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
Vendor	6.6400e-003	0.2301	0.0676	8.1000e-004	0.0210	2.6000e-004	0.0213	6.0600e-003	2.5000e-004	6.3100e-003	0.0000	78.2146	78.2146	4.3000e-003	0.0000	78.3222
Worker	0.0526	0.0359	0.4231	1.4000e-003	0.1565	1.1100e-003	0.1576	0.0416	1.0200e-003	0.0426	0.0000	126.4911	126.4911	2.9700e-003	0.0000	126.5654
Total	**0.0592**	**0.2660**	**0.4906**	**2.2100e-003**	**0.1775**	**1.3700e-003**	**0.1788**	**0.0476**	**1.2700e-003**	**0.0489**	**0.0000**	**204.7057**	**204.7057**	**7.2700e-003**	**0.0000**	**204.8877**

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	0.0938	0.7960	1.2764	2.0900e-003		0.0360	0.0360		0.0344	0.0344	0.0000	179.6485	179.6485	0.0427	0.0000	180.7169
Total	**0.0938**	**0.7960**	**1.2764**	**2.0900e-003**		**0.0360**	**0.0360**		**0.0344**	**0.0344**	**0.0000**	**179.6485**	**179.6485**	**0.0427**	**0.0000**	**180.7169**

3.5 Building Construction - 2023

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	0.0000	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
Vendor	6.6400e-003	0.2301	0.0676	8.1000e-004	0.0210	2.6000e-004	0.0213	6.0600e-003	2.5000e-004	6.3100e-003	0.0000	78.2146	78.2146	4.3000e-003	0.0000	78.3222
Worker	0.0526	0.0359	0.4231	1.4000e-003	0.1565	1.1100e-003	0.1576	0.0416	1.0200e-003	0.0426	0.0000	126.4911	126.4911	2.9700e-003	0.0000	126.5654
Total	**0.0592**	**0.2660**	**0.4906**	**2.2100e-003**	**0.1775**	**1.3700e-003**	**0.1788**	**0.0476**	**1.2700e-003**	**0.0489**	**0.0000**	**204.7057**	**204.7057**	**7.2700e-003**	**0.0000**	**204.8877**

3.6 Paving - 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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

3.6 Paving - 2023

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	0.0000	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
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	5.5000e-004	3.8000e-004	4.4500e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3306	1.3306	3.0000e-005	0.0000	1.3313
Total	**5.5000e-004**	**3.8000e-004**	**4.4500e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3306**	**1.3306**	**3.0000e-005**	**0.0000**	**1.3313**

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	6.5700e-003	0.0570	0.1594	2.3000e-004		2.7400e-003	2.7400e-003		2.5300e-003	2.5300e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.5700e-003**	**0.0570**	**0.1594**	**2.3000e-004**		**2.7400e-003**	**2.7400e-003**		**2.5300e-003**	**2.5300e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

3.6 Paving - 2023

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	0.0000	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
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	5.5000e-004	3.8000e-004	4.4500e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3306	1.3306	3.0000e-005	0.0000	1.3313
Total	**5.5000e-004**	**3.8000e-004**	**4.4500e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3306**	**1.3306**	**3.0000e-005**	**0.0000**	**1.3313**

3.7 Architectural Coating - 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					
Archit. Coating	1.3601					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**1.3620**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.7 Architectural Coating - 2023

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	0.0000	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
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	1.3600e-003	9.3000e-004	0.0110	4.0000e-005	4.0600e-003	3.0000e-005	4.0900e-003	1.0800e-003	3.0000e-005	1.1000e-003	0.0000	3.2820	3.2820	8.0000e-005	0.0000	3.2840
Total	**1.3600e-003**	**9.3000e-004**	**0.0110**	**4.0000e-005**	**4.0600e-003**	**3.0000e-005**	**4.0900e-003**	**1.0800e-003**	**3.0000e-005**	**1.1000e-003**	**0.0000**	**3.2820**	**3.2820**	**8.0000e-005**	**0.0000**	**3.2840**

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					
Archit. Coating	1.3601					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**1.3620**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.7 Architectural Coating - 2023

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	0.0000	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
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	1.3600e-003	9.3000e-004	0.0110	4.0000e-005	4.0600e-003	3.0000e-005	4.0900e-003	1.0800e-003	3.0000e-005	1.1000e-003	0.0000	3.2820	3.2820	8.0000e-005	0.0000	3.2840
Total	**1.3600e-003**	**9.3000e-004**	**0.0110**	**4.0000e-005**	**4.0600e-003**	**3.0000e-005**	**4.0900e-003**	**1.0800e-003**	**3.0000e-005**	**1.1000e-003**	**0.0000**	**3.2820**	**3.2820**	**8.0000e-005**	**0.0000**	**3.2840**

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	0.6172	3.0873	8.3256	0.0344	3.0534	0.0246	3.0780	0.8181	0.0228	0.8410	0.0000	3,182.1057	3,182.1057	0.1406	0.0000	3,185.6218
Unmitigated	0.6172	3.0873	8.3256	0.0344	3.0534	0.0246	3.0780	0.8181	0.0228	0.8410	0.0000	3,182.1057	3,182.1057	0.1406	0.0000	3,185.6218

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,276.80	1,226.88	1125.12	4,264,606	4,264,606
General Office Building	994.80	221.87	94.70	2,434,755	2,434,755
Health Club	216.02	136.91	175.35	425,420	425,420
Research & Development	351.65	82.38	48.13	911,638	911,638
Total	2,839.27	1,668.04	1,443.30	8,036,418	8,036,418

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Research & Development	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845
General Office Building	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845
Health Club	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845
Research & Development	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845

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	1,348.2802	1,348.2802	0.0295	6.1000e-003	1,350.8361
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1,348.2802	1,348.2802	0.0295	6.1000e-003	1,350.8361
NaturalGas Mitigated	0.0258	0.2257	0.1354	1.4000e-003		0.0178	0.0178		0.0178	0.0178	0.0000	254.8256	254.8256	4.8800e-003	4.6700e-003	256.3399
NaturalGas Unmitigated	0.0258	0.2257	0.1354	1.4000e-003		0.0178	0.0178		0.0178	0.0178	0.0000	254.8256	254.8256	4.8800e-003	4.6700e-003	256.3399

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					
Apartments Mid Rise	2.84046e+006	0.0153	0.1309	0.0557	8.4000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	151.5779	151.5779	2.9100e-003	2.7800e-003	152.4787
General Office Building	312952	1.6900e-003	0.0153	0.0129	9.0000e-005		1.1700e-003	1.1700e-003		1.1700e-003	1.1700e-003	0.0000	16.7003	16.7003	3.2000e-004	3.1000e-004	16.7996
Health Club	213037	1.1500e-003	0.0104	8.7700e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	11.3685	11.3685	2.2000e-004	2.1000e-004	11.4360
Research & Development	1.4088e+006	7.6000e-003	0.0691	0.0580	4.1000e-004		5.2500e-003	5.2500e-003		5.2500e-003	5.2500e-003	0.0000	75.1789	75.1789	1.4400e-003	1.3800e-003	75.6256
Total		**0.0258**	**0.2257**	**0.1354**	**1.4000e-003**		**0.0178**	**0.0178**		**0.0178**	**0.0178**	**0.0000**	**254.8256**	**254.8256**	**4.8900e-003**	**4.6800e-003**	**256.3399**

5.2 Energy by Land Use - NaturalGas

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					
Apartments Mid Rise	2.84046e+006	0.0153	0.1309	0.0557	8.4000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	151.5779	151.5779	2.9100e-003	2.7800e-003	152.4787
General Office Building	312952	1.6900e-003	0.0153	0.0129	9.0000e-005		1.1700e-003	1.1700e-003		1.1700e-003	1.1700e-003	0.0000	16.7003	16.7003	3.2000e-004	3.1000e-004	16.7996
Health Club	213037	1.1500e-003	0.0104	8.7700e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	11.3685	11.3685	2.2000e-004	2.1000e-004	11.4360
Research & Development	1.4088e+006	7.6000e-003	0.0691	0.0580	4.1000e-004		5.2500e-003	5.2500e-003		5.2500e-003	5.2500e-003	0.0000	75.1789	75.1789	1.4400e-003	1.3800e-003	75.6256
Total		**0.0258**	**0.2257**	**0.1354**	**1.4000e-003**		**0.0178**	**0.0178**		**0.0178**	**0.0178**	**0.0000**	**254.8256**	**254.8256**	**4.8900e-003**	**4.6800e-003**	**256.3399**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	877000	527.3444	0.0115	2.3900e-003	528.3441
General Office Building	858590	516.2741	0.0113	2.3400e-003	517.2528
Health Club	66553.6	40.0190	8.8000e-004	1.8000e-004	40.0948
Research & Development	440114	264.6427	5.7900e-003	1.2000e-003	265.1444
Total		**1,348.2802**	**0.0295**	**6.1100e-003**	**1,350.8361**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	877000	527.3444	0.0115	2.3900e-003	528.3441
General Office Building	858590	516.2741	0.0113	2.3400e-003	517.2528
Health Club	66553.6	40.0190	8.8000e-004	1.8000e-004	40.0948
Research & Development	440114	264.6427	5.7900e-003	1.2000e-003	265.1444
Total		**1,348.2802**	**0.0295**	**6.1100e-003**	**1,350.8361**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	2.1517	0.0726	3.2015	3.2200e-003		0.1943	0.1943		0.1943	0.1943	20.3941	42.4282	62.8223	0.0639	1.3800e-003	64.8330
Unmitigated	2.1517	0.0726	3.2015	3.2200e-003		0.1943	0.1943		0.1943	0.1943	20.3941	42.4282	62.8223	0.0639	1.3800e-003	64.8330

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	0.1360					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3271					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.6289	0.0498	1.2205	3.1100e-003		0.1833	0.1833		0.1833	0.1833	20.3941	39.1904	59.5844	0.0608	1.3800e-003	61.5174
Landscaping	0.0597	0.0228	1.9810	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.2378	3.2378	3.1100e-003	0.0000	3.3156
Total	**2.1517**	**0.0726**	**3.2015**	**3.2100e-003**		**0.1943**	**0.1943**		**0.1943**	**0.1943**	**20.3941**	**42.4282**	**62.8223**	**0.0639**	**1.3800e-003**	**64.8330**

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	0.1360					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3271					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.6289	0.0498	1.2205	3.1100e-003		0.1833	0.1833		0.1833	0.1833	20.3941	39.1904	59.5844	0.0608	1.3800e-003	61.5174
Landscaping	0.0597	0.0228	1.9810	1.0000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	3.2378	3.2378	3.1100e-003	0.0000	3.3156
Total	**2.1517**	**0.0726**	**3.2015**	**3.2100e-003**		**0.1943**	**0.1943**		**0.1943**	**0.1943**	**20.3941**	**42.4282**	**62.8223**	**0.0639**	**1.3800e-003**	**64.8330**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	529.2642	1.6485	0.0410	582.6907
Unmitigated	529.2642	1.6485	0.0410	582.6907

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	12.5096 / 7.88647	154.5991	0.4109	0.0103	167.9434
General Office Building	16.0298 / 9.82472	196.2263	0.5265	0.0132	213.3223
Health Club	0.387979 / 0.237794	4.7494	0.0127	3.2000e-004	5.1632
Research & Development	21.3198 / 0	173.6895	0.6984	0.0172	196.2619
Total		**529.2642**	**1.6485**	**0.0410**	**582.6907**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	12.5096 / 7.88647	154.5991	0.4109	0.0103	167.9434
General Office Building	16.0298 / 9.82472	196.2263	0.5265	0.0132	213.3223
Health Club	0.387979 / 0.237794	4.7494	0.0127	3.2000e-004	5.1632
Research & Development	21.3198 / 0	173.6895	0.6984	0.0172	196.2619
Total		**529.2642**	**1.6485**	**0.0410**	**582.6907**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	43.2148	2.5539	0.0000	107.0627
Unmitigated	43.2148	2.5539	0.0000	107.0627

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	88.32	17.9282	1.0595	0.0000	44.4163
General Office Building	83.88	17.0269	1.0063	0.0000	42.1834
Health Club	37.39	7.5898	0.4486	0.0000	18.8035
Research & Development	3.3	0.6699	0.0396	0.0000	1.6596
Total		**43.2147**	**2.5539**	**0.0000**	**107.0627**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	88.32	17.9282	1.0595	0.0000	44.4163
General Office Building	83.88	17.0269	1.0063	0.0000	42.1834
Health Club	37.39	7.5898	0.4486	0.0000	18.8035
Research & Development	3.3	0.6699	0.0396	0.0000	1.6596
Total		**43.2147**	**2.5539**	**0.0000**	**107.0627**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

19-07846 Long Range Development Plan EIR - Construction 2023-2035

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	90.19	1000sqft	2.07	90,188.00	0
Research & Development	43.36	1000sqft	1.00	43,361.00	0
Health Club	6.56	1000sqft	0.15	6,557.00	0
Apartments Mid Rise	192.00	Dwelling Unit	5.05	227,162.00	549

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	15			**Operational Year**	2024
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Approx 7% development per year 2023-2035

Demolition -

Grading -

Trips and VMT -

Architectural Coating -

Woodstoves -

Area Coating -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - 75% Tier 4

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
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
tblConstructionPhase	NumDays	20.00	35.00
tblConstructionPhase	NumDays	230.00	155.00
tblGrading	MaterialExported	0.00	34,006.00
tblGrading	MaterialImported	0.00	34,006.00
tblLandUse	LandUseSquareFeet	90,190.00	90,188.00
tblLandUse	LandUseSquareFeet	43,360.00	43,361.00
tblLandUse	LandUseSquareFeet	6,560.00	6,557.00
tblLandUse	LandUseSquareFeet	192,000.00	227,162.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2023	136.3390	63.6170	37.9622	0.2034	18.2675	1.4799	19.5349	9.9840	1.3635	11.1501	0.0000	21,343.2713	21,343.2713	2.9100	0.0000	21,416.0225
Maximum	**136.3390**	**63.6170**	**37.9622**	**0.2034**	**18.2675**	**1.4799**	**19.5349**	**9.9840**	**1.3635**	**11.1501**	**0.0000**	**21,343.2713**	**21,343.2713**	**2.9100**	**0.0000**	**21,416.0225**

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	lb/day										lb/day					
2023	136.3390	48.3987	40.0789	0.2034	8.3310	0.8032	8.8038	4.5222	0.7450	4.9604	0.0000	21,343.2713	21,343.2713	2.9100	0.0000	21,416.0225
Maximum	**136.3390**	**48.3987**	**40.0789**	**0.2034**	**8.3310**	**0.8032**	**8.8038**	**4.5222**	**0.7450**	**4.9604**	**0.0000**	**21,343.2713**	**21,343.2713**	**2.9100**	**0.0000**	**21,416.0225**

	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**	**N20**	**CO2e**
Percent Reduction	**0.00**	**23.92**	**-5.58**	**0.00**	**54.39**	**45.73**	**54.93**	**54.71**	**45.36**	**55.51**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	lb/day										lb/day					
Area	58.8055	4.1662	113.4898	0.2499		14.7544	14.7544		14.7544	14.7544	1,798.4483	3,484.5527	5,283.0010	5.3908	0.1221	5,454.1459
Energy	0.1411	1.2369	0.7417	7.7000e-003		0.0975	0.0975		0.0975	0.0975		1,539.1625	1,539.1625	0.0295	0.0282	1,548.3089
Mobile	4.1993	18.8210	55.3386	0.2255	19.5989	0.1548	19.7537	5.2434	0.1439	5.3873		22,993.4916	22,993.4916	0.9842		23,018.0954
Total	**63.1459**	**24.2241**	**169.5701**	**0.4831**	**19.5989**	**15.0067**	**34.6056**	**5.2434**	**14.9957**	**20.2391**	**1,798.4483**	**28,017.2068**	**29,815.6551**	**6.4044**	**0.1503**	**30,020.5502**

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	lb/day										lb/day					
Area	58.8055	4.1662	113.4898	0.2499		14.7544	14.7544		14.7544	14.7544	1,798.4483	3,484.5527	5,283.0010	5.3908	0.1221	5,454.1459
Energy	0.1411	1.2369	0.7417	7.7000e-003		0.0975	0.0975		0.0975	0.0975		1,539.1625	1,539.1625	0.0295	0.0282	1,548.3089
Mobile	4.1993	18.8210	55.3386	0.2255	19.5989	0.1548	19.7537	5.2434	0.1439	5.3873		22,993.4916	22,993.4916	0.9842		23,018.0954
Total	**63.1459**	**24.2241**	**169.5701**	**0.4831**	**19.5989**	**15.0067**	**34.6056**	**5.2434**	**14.9957**	**20.2391**	**1,798.4483**	**28,017.2068**	**29,815.6551**	**6.4044**	**0.1503**	**30,020.5502**

	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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2023	1/27/2023	5	20	
2	Site Preparation	Site Preparation	1/30/2023	2/10/2023	5	10	
3	Grading	Grading	2/13/2023	3/31/2023	5	35	
4	Building Construction	Building Construction	4/3/2023	11/3/2023	5	155	
5	Paving	Paving	11/6/2023	12/1/2023	5	20	
6	Architectural Coating	Architectural Coating	12/4/2023	12/29/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 460,003; Residential Outdoor: 153,334; Non-Residential Indoor: 210,159; Non-Residential Outdoor: 70,053; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	6	15.00	0.00	270.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	6,725.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	184.00	43.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 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	lb/day										lb/day					
Fugitive Dust					2.9230	0.0000	2.9230	0.4426	0.0000	0.4426			0.0000			0.0000
Off-Road	2.2691	21.4844	19.6434	0.0388		0.9975	0.9975		0.9280	0.9280		3,746.9840	3,746.9840	1.0494		3,773.2183
Total	**2.2691**	**21.4844**	**19.6434**	**0.0388**	**2.9230**	**0.9975**	**3.9206**	**0.4426**	**0.9280**	**1.3706**		**3,746.9840**	**3,746.9840**	**1.0494**		**3,773.2183**

3.2 Demolition - 2023

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	lb/day										lb/day					
Hauling	0.0615	2.0415	0.6512	9.7900e-003	0.2359	3.7900e-003	0.2397	0.0647	3.6200e-003	0.0683		1,062.7707	1,062.7707	0.0675		1,064.4587
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
Worker	0.0558	0.0336	0.4825	1.5500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		154.1895	154.1895	3.6400e-003		154.2806
Total	**0.1174**	**2.0751**	**1.1337**	**0.0113**	**0.4036**	**4.9600e-003**	**0.4085**	**0.1091**	**4.7000e-003**	**0.1138**		**1,216.9602**	**1,216.9602**	**0.0712**		**1,218.7392**

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	lb/day										lb/day					
Fugitive Dust					1.3154	0.0000	1.3154	0.1992	0.0000	0.1992			0.0000			0.0000
Off-Road	1.2781	10.3827	21.7918	0.0388		0.4711	0.4711		0.4464	0.4464	0.0000	3,746.9840	3,746.9840	1.0494		3,773.2183
Total	**1.2781**	**10.3827**	**21.7918**	**0.0388**	**1.3154**	**0.4711**	**1.7865**	**0.1992**	**0.4464**	**0.6455**	**0.0000**	**3,746.9840**	**3,746.9840**	**1.0494**		**3,773.2183**

3.2 Demolition - 2023

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	lb/day										lb/day					
Hauling	0.0615	2.0415	0.6512	9.7900e-003	0.2359	3.7900e-003	0.2397	0.0647	3.6200e-003	0.0683		1,062.7707	1,062.7707	0.0675		1,064.4587
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
Worker	0.0558	0.0336	0.4825	1.5500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		154.1895	154.1895	3.6400e-003		154.2806
Total	**0.1174**	**2.0751**	**1.1337**	**0.0113**	**0.4036**	**4.9600e-003**	**0.4085**	**0.1091**	**4.7000e-003**	**0.1138**		**1,216.9602**	**1,216.9602**	**0.0712**		**1,218.7392**

3.3 Site Preparation - 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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**18.0663**	**1.2660**	**19.3323**	**9.9307**	**1.1647**	**11.0954**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

3.3 Site Preparation - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0670	0.0403	0.5791	1.8600e-003	0.2012	1.4000e-003	0.2026	0.0534	1.2900e-003	0.0547		185.0274	185.0274	4.3700e-003		185.1367
Total	**0.0670**	**0.0403**	**0.5791**	**1.8600e-003**	**0.2012**	**1.4000e-003**	**0.2026**	**0.0534**	**1.2900e-003**	**0.0547**		**185.0274**	**185.0274**	**4.3700e-003**		**185.1367**

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	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.2115	10.6898	19.9766	0.0381		0.4714	0.4714		0.4370	0.4370	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**1.2115**	**10.6898**	**19.9766**	**0.0381**	**8.1298**	**0.4714**	**8.6012**	**4.4688**	**0.4370**	**4.9058**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

3.3 Site Preparation - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0670	0.0403	0.5791	1.8600e-003	0.2012	1.4000e-003	0.2026	0.0534	1.2900e-003	0.0547		185.0274	185.0274	4.3700e-003		185.1367
Total	**0.0670**	**0.0403**	**0.5791**	**1.8600e-003**	**0.2012**	**1.4000e-003**	**0.2026**	**0.0534**	**1.2900e-003**	**0.0547**		**185.0274**	**185.0274**	**4.3700e-003**		**185.1367**

3.4 Grading - 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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**8.6733**	**1.4245**	**10.0978**	**3.5965**	**1.3105**	**4.9070**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

3.4 Grading - 2023

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	lb/day										lb/day					
Hauling	0.8758	29.0567	9.2677	0.1393	3.3574	0.0539	3.4113	0.9201	0.0516	0.9716		15,126.2075	15,126.2075	0.9610		15,150.2315
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
Worker	0.0745	0.0448	0.6434	2.0600e-003	0.2236	1.5600e-003	0.2251	0.0593	1.4300e-003	0.0607		205.5860	205.5860	4.8500e-003		205.7074
Total	**0.9502**	**29.1014**	**9.9111**	**0.1413**	**3.5810**	**0.0554**	**3.6364**	**0.9794**	**0.0530**	**1.0324**		**15,331.7935**	**15,331.7935**	**0.9658**		**15,355.9389**

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	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	2.0387	19.2973	30.1679	0.0621		0.7478	0.7478		0.6920	0.6920	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**2.0387**	**19.2973**	**30.1679**	**0.0621**	**3.9030**	**0.7478**	**4.6508**	**1.6184**	**0.6920**	**2.3104**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

3.4 Grading - 2023

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	lb/day										lb/day					
Hauling	0.8758	29.0567	9.2677	0.1393	3.3574	0.0539	3.4113	0.9201	0.0516	0.9716		15,126.2075	15,126.2075	0.9610		15,150.2315
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
Worker	0.0745	0.0448	0.6434	2.0600e-003	0.2236	1.5600e-003	0.2251	0.0593	1.4300e-003	0.0607		205.5860	205.5860	4.8500e-003		205.7074
Total	**0.9502**	**29.1014**	**9.9111**	**0.1413**	**3.5810**	**0.0554**	**3.6364**	**0.9794**	**0.0530**	**1.0324**		**15,331.7935**	**15,331.7935**	**0.9658**		**15,355.9389**

3.5 Building Construction - 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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Hauling	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
Vendor	0.0837	2.9431	0.8287	0.0105	0.2752	3.3100e-003	0.2785	0.0792	3.1600e-003	0.0824		1,126.0312	1,126.0312	0.0595		1,127.5184
Worker	0.6850	0.4117	5.9192	0.0190	2.0567	0.0143	2.0710	0.5454	0.0132	0.5586		1,891.3915	1,891.3915	0.0447		1,892.5081
Total	**0.7687**	**3.3548**	**6.7479**	**0.0295**	**2.3319**	**0.0176**	**2.3495**	**0.6247**	**0.0164**	**0.6410**		**3,017.4227**	**3,017.4227**	**0.1042**		**3,020.0265**

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	lb/day										lb/day					
Off-Road	1.2106	10.2709	16.4691	0.0269		0.4647	0.4647		0.4433	0.4433	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.2106**	**10.2709**	**16.4691**	**0.0269**		**0.4647**	**0.4647**		**0.4433**	**0.4433**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Hauling	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
Vendor	0.0837	2.9431	0.8287	0.0105	0.2752	3.3100e-003	0.2785	0.0792	3.1600e-003	0.0824		1,126.0312	1,126.0312	0.0595		1,127.5184
Worker	0.6850	0.4117	5.9192	0.0190	2.0567	0.0143	2.0710	0.5454	0.0132	0.5586		1,891.3915	1,891.3915	0.0447		1,892.5081
Total	**0.7687**	**3.3548**	**6.7479**	**0.0295**	**2.3319**	**0.0176**	**2.3495**	**0.6247**	**0.0164**	**0.6410**		**3,017.4227**	**3,017.4227**	**0.1042**		**3,020.0265**

3.6 Paving - 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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0558	0.0336	0.4825	1.5500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		154.1895	154.1895	3.6400e-003		154.2806
Total	**0.0558**	**0.0336**	**0.4825**	**1.5500e-003**	**0.1677**	**1.1700e-003**	**0.1688**	**0.0445**	**1.0800e-003**	**0.0455**		**154.1895**	**154.1895**	**3.6400e-003**		**154.2806**

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	lb/day										lb/day					
Off-Road	0.6566	5.7035	15.9399	0.0228		0.2738	0.2738		0.2534	0.2534	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6566**	**5.7035**	**15.9399**	**0.0228**		**0.2738**	**0.2738**		**0.2534**	**0.2534**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0558	0.0336	0.4825	1.5500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		154.1895	154.1895	3.6400e-003		154.2806
Total	**0.0558**	**0.0336**	**0.4825**	**1.5500e-003**	**0.1677**	**1.1700e-003**	**0.1688**	**0.0445**	**1.0800e-003**	**0.0455**		**154.1895**	**154.1895**	**3.6400e-003**		**154.2806**

3.7 Architectural Coating - 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	lb/day										lb/day					
Archit. Coating	136.0096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**136.2012**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.1378	0.0828	1.1903	3.8200e-003	0.4136	2.8800e-003	0.4165	0.1097	2.6500e-003	0.1123		380.3342	380.3342	8.9800e-003		380.5587
Total	**0.1378**	**0.0828**	**1.1903**	**3.8200e-003**	**0.4136**	**2.8800e-003**	**0.4165**	**0.1097**	**2.6500e-003**	**0.1123**		**380.3342**	**380.3342**	**8.9800e-003**		**380.5587**

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	lb/day										lb/day					
Archit. Coating	136.0096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**136.2012**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.1378	0.0828	1.1903	3.8200e-003	0.4136	2.8800e-003	0.4165	0.1097	2.6500e-003	0.1123		380.3342	380.3342	8.9800e-003		380.5587
Total	**0.1378**	**0.0828**	**1.1903**	**3.8200e-003**	**0.4136**	**2.8800e-003**	**0.4165**	**0.1097**	**2.6500e-003**	**0.1123**		**380.3342**	**380.3342**	**8.9800e-003**		**380.5587**

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	lb/day										lb/day					
Mitigated	4.1993	18.8210	55.3386	0.2255	19.5989	0.1548	19.7537	5.2434	0.1439	5.3873		22,993.4916	22,993.4916	0.9842		23,018.0954
Unmitigated	4.1993	18.8210	55.3386	0.2255	19.5989	0.1548	19.7537	5.2434	0.1439	5.3873		22,993.4916	22,993.4916	0.9842		23,018.0954

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,276.80	1,226.88	1125.12	4,264,606	4,264,606
General Office Building	994.80	221.87	94.70	2,434,755	2,434,755
Health Club	216.02	136.91	175.35	425,420	425,420
Research & Development	351.65	82.38	48.13	911,638	911,638
Total	2,839.27	1,668.04	1,443.30	8,036,418	8,036,418

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Research & Development	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845
General Office Building	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845
Health Club	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845
Research & Development	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845

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	lb/day										lb/day					
NaturalGas Mitigated	0.1411	1.2369	0.7417	7.7000e-003		0.0975	0.0975		0.0975	0.0975		1,539.1625	1,539.1625	0.0295	0.0282	1,548.3089
NaturalGas Unmitigated	0.1411	1.2369	0.7417	7.7000e-003		0.0975	0.0975		0.0975	0.0975		1,539.1625	1,539.1625	0.0295	0.0282	1,548.3089

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	lb/day										lb/day					
Apartments Mid Rise	7782.09	0.0839	0.7172	0.3052	4.5800e-003		0.0580	0.0580		0.0580	0.0580		915.5402	915.5402	0.0176	0.0168	920.9808
General Office Building	857.404	9.2500e-003	0.0841	0.0706	5.0000e-004		6.3900e-003	6.3900e-003		6.3900e-003	6.3900e-003		100.8710	100.8710	1.9300e-003	1.8500e-003	101.4705
Health Club	583.663	6.2900e-003	0.0572	0.0481	3.4000e-004		4.3500e-003	4.3500e-003		4.3500e-003	4.3500e-003		68.6662	68.6662	1.3200e-003	1.2600e-003	69.0743
Research & Development	3859.72	0.0416	0.3784	0.3179	2.2700e-003		0.0288	0.0288		0.0288	0.0288		454.0851	454.0851	8.7000e-003	8.3200e-003	456.7835
Total		**0.1411**	**1.2369**	**0.7417**	**7.6900e-003**		**0.0975**	**0.0975**		**0.0975**	**0.0975**		**1,539.1625**	**1,539.1625**	**0.0295**	**0.0282**	**1,548.3089**

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
Apartments Mid Rise	7.78209	0.0839	0.7172	0.3052	4.5800e-003		0.0580	0.0580		0.0580	0.0580		915.5402	915.5402	0.0176	0.0168	920.9808
General Office Building	0.857404	9.2500e-003	0.0841	0.0706	5.0000e-004		6.3900e-003	6.3900e-003		6.3900e-003	6.3900e-003		100.8710	100.8710	1.9300e-003	1.8500e-003	101.4705
Health Club	0.583663	6.2900e-003	0.0572	0.0481	3.4000e-004		4.3500e-003	4.3500e-003		4.3500e-003	4.3500e-003		68.6662	68.6662	1.3200e-003	1.2600e-003	69.0743
Research & Development	3.85972	0.0416	0.3784	0.3179	2.2700e-003		0.0288	0.0288		0.0288	0.0288		454.0851	454.0851	8.7000e-003	8.3200e-003	456.7835
Total		**0.1411**	**1.2369**	**0.7417**	**7.6900e-003**		**0.0975**	**0.0975**		**0.0975**	**0.0975**		**1,539.1625**	**1,539.1625**	**0.0295**	**0.0282**	**1,548.3089**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	lb/day										lb/day					
Mitigated	58.8055	4.1662	113.4898	0.2499		14.7544	14.7544		14.7544	14.7544	1,798.4483	3,484.5527	5,283.0010	5.3908	0.1221	5,454.1459
Unmitigated	58.8055	4.1662	113.4898	0.2499		14.7544	14.7544		14.7544	14.7544	1,798.4483	3,484.5527	5,283.0010	5.3908	0.1221	5,454.1459

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	lb/day										lb/day					
Architectural Coating	0.7453					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.2719					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	50.3109	3.9837	97.6420	0.2491		14.6666	14.6666		14.6666	14.6666	1,798.4483	3,456.0000	5,254.4483	5.3633	0.1221	5,424.9070
Landscaping	0.4774	0.1826	15.8479	8.4000e-004		0.0878	0.0878		0.0878	0.0878		28.5527	28.5527	0.0275		29.2389
Total	**58.8055**	**4.1662**	**113.4898**	**0.2499**		**14.7544**	**14.7544**		**14.7544**	**14.7544**	**1,798.4483**	**3,484.5527**	**5,283.0010**	**5.3908**	**0.1221**	**5,454.1459**

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	lb/day										lb/day					
Architectural Coating	0.7453					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.2719					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	50.3109	3.9837	97.6420	0.2491		14.6666	14.6666		14.6666	14.6666	1,798.4483	3,456.0000	5,254.4483	5.3633	0.1221	5,424.9070
Landscaping	0.4774	0.1826	15.8479	8.4000e-004		0.0878	0.0878		0.0878	0.0878		28.5527	28.5527	0.0275		29.2389
Total	**58.8055**	**4.1662**	**113.4898**	**0.2499**		**14.7544**	**14.7544**		**14.7544**	**14.7544**	**1,798.4483**	**3,484.5527**	**5,283.0010**	**5.3908**	**0.1221**	**5,454.1459**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

19-07846 Long Range Development Plan EIR - Construction 2023-2035

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	90.19	1000sqft	2.07	90,188.00	0
Research & Development	43.36	1000sqft	1.00	43,361.00	0
Health Club	6.56	1000sqft	0.15	6,557.00	0
Apartments Mid Rise	192.00	Dwelling Unit	5.05	227,162.00	549

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	15			**Operational Year**	2024
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Approx 7% development per year 2023-2035

Demolition -

Grading -

Trips and VMT -

Architectural Coating -

Woodstoves -

Area Coating -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation - 75% Tier 4

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
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
tblConstructionPhase	NumDays	20.00	35.00
tblConstructionPhase	NumDays	230.00	155.00
tblGrading	MaterialExported	0.00	34,006.00
tblGrading	MaterialImported	0.00	34,006.00
tblLandUse	LandUseSquareFeet	90,190.00	90,188.00
tblLandUse	LandUseSquareFeet	43,360.00	43,361.00
tblLandUse	LandUseSquareFeet	6,560.00	6,557.00
tblLandUse	LandUseSquareFeet	192,000.00	227,162.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2023	136.3526	63.7575	38.3786	0.2007	18.2675	1.4814	19.5349	9.9840	1.3649	11.1501	0.0000	21,049.7578	21,049.7578	2.9427	0.0000	21,123.3264
Maximum	**136.3526**	**63.7575**	**38.3786**	**0.2007**	**18.2675**	**1.4814**	**19.5349**	**9.9840**	**1.3649**	**11.1501**	**0.0000**	**21,049.7578**	**21,049.7578**	**2.9427**	**0.0000**	**21,123.3264**

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	lb/day										lb/day					
2023	136.3526	48.5392	40.4952	0.2007	8.3310	0.8046	8.8038	4.5222	0.7464	4.9604	0.0000	21,049.7578	21,049.7578	2.9427	0.0000	21,123.3264
Maximum	**136.3526**	**48.5392**	**40.4952**	**0.2007**	**8.3310**	**0.8046**	**8.8038**	**4.5222**	**0.7464**	**4.9604**	**0.0000**	**21,049.7578**	**21,049.7578**	**2.9427**	**0.0000**	**21,123.3264**

	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	N20	CO2e
Percent Reduction	**0.00**	**23.87**	**-5.52**	**0.00**	**54.39**	**45.68**	**54.93**	**54.71**	**45.32**	**55.51**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	lb/day										lb/day					
Area	58.8055	4.1662	113.4898	0.2499		14.7544	14.7544		14.7544	14.7544	1,798.4483	3,484.5527	5,283.0010	5.3908	0.1221	5,454.1459
Energy	0.1411	1.2369	0.7417	7.7000e-003		0.0975	0.0975		0.0975	0.0975		1,539.1625	1,539.1625	0.0295	0.0282	1,548.3089
Mobile	3.9746	19.1510	51.5990	0.2135	19.5989	0.1555	19.7544	5.2434	0.1445	5.3879		21,787.4434	21,787.4434	0.9834		21,812.0278
Total	**62.9211**	**24.5541**	**165.8305**	**0.4711**	**19.5989**	**15.0073**	**34.6063**	**5.2434**	**14.9964**	**20.2398**	**1,798.4483**	**26,811.1586**	**28,609.6069**	**6.4036**	**0.1503**	**28,814.4826**

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	lb/day										lb/day					
Area	58.8055	4.1662	113.4898	0.2499		14.7544	14.7544		14.7544	14.7544	1,798.4483	3,484.5527	5,283.0010	5.3908	0.1221	5,454.1459
Energy	0.1411	1.2369	0.7417	7.7000e-003		0.0975	0.0975		0.0975	0.0975		1,539.1625	1,539.1625	0.0295	0.0282	1,548.3089
Mobile	3.9746	19.1510	51.5990	0.2135	19.5989	0.1555	19.7544	5.2434	0.1445	5.3879		21,787.4434	21,787.4434	0.9834		21,812.0278
Total	**62.9211**	**24.5541**	**165.8305**	**0.4711**	**19.5989**	**15.0073**	**34.6063**	**5.2434**	**14.9964**	**20.2398**	**1,798.4483**	**26,811.1586**	**28,609.6069**	**6.4036**	**0.1503**	**28,814.4826**

	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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2023	1/27/2023	5	20	
2	Site Preparation	Site Preparation	1/30/2023	2/10/2023	5	10	
3	Grading	Grading	2/13/2023	3/31/2023	5	35	
4	Building Construction	Building Construction	4/3/2023	11/3/2023	5	155	
5	Paving	Paving	11/6/2023	12/1/2023	5	20	
6	Architectural Coating	Architectural Coating	12/4/2023	12/29/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 87.5

Acres of Paving: 0

Residential Indoor: 460,003; Residential Outdoor: 153,334; Non-Residential Indoor: 210,159; Non-Residential Outdoor: 70,053; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	6	15.00	0.00	270.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	6,725.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	184.00	43.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 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	lb/day										lb/day					
Fugitive Dust					2.9230	0.0000	2.9230	0.4426	0.0000	0.4426			0.0000			0.0000
Off-Road	2.2691	21.4844	19.6434	0.0388		0.9975	0.9975		0.9280	0.9280		3,746.9840	3,746.9840	1.0494		3,773.2183
Total	**2.2691**	**21.4844**	**19.6434**	**0.0388**	**2.9230**	**0.9975**	**3.9206**	**0.4426**	**0.9280**	**1.3706**		**3,746.9840**	**3,746.9840**	**1.0494**		**3,773.2183**

3.2 Demolition - 2023

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	lb/day										lb/day					
Hauling	0.0633	2.0511	0.6851	9.6000e-003	0.2359	3.8900e-003	0.2398	0.0647	3.7200e-003	0.0684		1,043.0847	1,043.0847	0.0698		1,044.8307
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
Worker	0.0614	0.0367	0.4320	1.4500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		144.1945	144.1945	3.3900e-003		144.2792
Total	**0.1247**	**2.0878**	**1.1171**	**0.0111**	**0.4036**	**5.0600e-003**	**0.4086**	**0.1091**	**4.8000e-003**	**0.1139**		**1,187.2792**	**1,187.2792**	**0.0732**		**1,189.1098**

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	lb/day										lb/day					
Fugitive Dust					1.3154	0.0000	1.3154	0.1992	0.0000	0.1992			0.0000			0.0000
Off-Road	1.2781	10.3827	21.7918	0.0388		0.4711	0.4711		0.4464	0.4464	0.0000	3,746.9840	3,746.9840	1.0494		3,773.2183
Total	**1.2781**	**10.3827**	**21.7918**	**0.0388**	**1.3154**	**0.4711**	**1.7865**	**0.1992**	**0.4464**	**0.6455**	**0.0000**	**3,746.9840**	**3,746.9840**	**1.0494**		**3,773.2183**

3.2 Demolition - 2023

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	lb/day										lb/day					
Hauling	0.0633	2.0511	0.6851	9.6000e-003	0.2359	3.8900e-003	0.2398	0.0647	3.7200e-003	0.0684		1,043.0847	1,043.0847	0.0698		1,044.8307
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
Worker	0.0614	0.0367	0.4320	1.4500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		144.1945	144.1945	3.3900e-003		144.2792
Total	**0.1247**	**2.0878**	**1.1171**	**0.0111**	**0.4036**	**5.0600e-003**	**0.4086**	**0.1091**	**4.8000e-003**	**0.1139**		**1,187.2792**	**1,187.2792**	**0.0732**		**1,189.1098**

3.3 Site Preparation - 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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**18.0663**	**1.2660**	**19.3323**	**9.9307**	**1.1647**	**11.0954**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

3.3 Site Preparation - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0736	0.0441	0.5184	1.7400e-003	0.2012	1.4000e-003	0.2026	0.0534	1.2900e-003	0.0547		173.0334	173.0334	4.0600e-003		173.1350
Total	**0.0736**	**0.0441**	**0.5184**	**1.7400e-003**	**0.2012**	**1.4000e-003**	**0.2026**	**0.0534**	**1.2900e-003**	**0.0547**		**173.0334**	**173.0334**	**4.0600e-003**		**173.1350**

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	lb/day										lb/day					
Fugitive Dust					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.2115	10.6898	19.9766	0.0381		0.4714	0.4714		0.4370	0.4370	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**1.2115**	**10.6898**	**19.9766**	**0.0381**	**8.1298**	**0.4714**	**8.6012**	**4.4688**	**0.4370**	**4.9058**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

3.3 Site Preparation - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0736	0.0441	0.5184	1.7400e-003	0.2012	1.4000e-003	0.2026	0.0534	1.2900e-003	0.0547		173.0334	173.0334	4.0600e-003		173.1350
Total	**0.0736**	**0.0441**	**0.5184**	**1.7400e-003**	**0.2012**	**1.4000e-003**	**0.2026**	**0.0534**	**1.2900e-003**	**0.0547**		**173.0334**	**173.0334**	**4.0600e-003**		**173.1350**

3.4 Grading - 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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.477 7	6,011.477 7	1.9442		6,060.083 6
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**8.6733**	**1.4245**	**10.0978**	**3.5965**	**1.3105**	**4.9070**		**6,011.477 7**	**6,011.477 7**	**1.9442**		**6,060.083 6**

3.4 Grading - 2023

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	lb/day										lb/day					
Hauling	0.9016	29.1930	9.7514	0.1367	3.3574	0.0553	3.4127	0.9201	0.0529	0.9730		14,846.0208	14,846.0208	0.9940		14,870.8706
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
Worker	0.0818	0.0490	0.5760	1.9300e-003	0.2236	1.5600e-003	0.2251	0.0593	1.4300e-003	0.0607		192.2593	192.2593	4.5200e-003		192.3722
Total	**0.9834**	**29.2419**	**10.3274**	**0.1386**	**3.5810**	**0.0569**	**3.6378**	**0.9794**	**0.0543**	**1.0337**		**15,038.2801**	**15,038.2801**	**0.9985**		**15,063.2428**

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	lb/day										lb/day					
Fugitive Dust					3.9030	0.0000	3.9030	1.6184	0.0000	1.6184			0.0000			0.0000
Off-Road	2.0387	19.2973	30.1679	0.0621		0.7478	0.7478		0.6920	0.6920	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**2.0387**	**19.2973**	**30.1679**	**0.0621**	**3.9030**	**0.7478**	**4.6508**	**1.6184**	**0.6920**	**2.3104**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

3.4 Grading - 2023

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	lb/day										lb/day					
Hauling	0.9016	29.1930	9.7514	0.1367	3.3574	0.0553	3.4127	0.9201	0.0529	0.9730		14,846.0208	14,846.0208	0.9940		14,870.8706
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
Worker	0.0818	0.0490	0.5760	1.9300e-003	0.2236	1.5600e-003	0.2251	0.0593	1.4300e-003	0.0607		192.2593	192.2593	4.5200e-003		192.3722
Total	**0.9834**	**29.2419**	**10.3274**	**0.1386**	**3.5810**	**0.0569**	**3.6378**	**0.9794**	**0.0543**	**1.0337**		**15,038.2801**	**15,038.2801**	**0.9985**		**15,063.2428**

3.5 Building Construction - 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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Hauling	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
Vendor	0.0882	2.9242	0.9106	0.0102	0.2752	3.4700e-003	0.2787	0.0792	3.3200e-003	0.0826		1,093.7551	1,093.7551	0.0634		1,095.3400
Worker	0.7527	0.4504	5.2991	0.0177	2.0567	0.0143	2.0710	0.5454	0.0132	0.5586		1,768.7854	1,768.7854	0.0416		1,769.8242
Total	**0.8409**	**3.3746**	**6.2097**	**0.0280**	**2.3319**	**0.0178**	**2.3497**	**0.6247**	**0.0165**	**0.6412**		**2,862.5406**	**2,862.5406**	**0.1049**		**2,865.1642**

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	lb/day										lb/day					
Off-Road	1.2106	10.2709	16.4691	0.0269		0.4647	0.4647		0.4433	0.4433	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.2106**	**10.2709**	**16.4691**	**0.0269**		**0.4647**	**0.4647**		**0.4433**	**0.4433**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Hauling	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
Vendor	0.0882	2.9242	0.9106	0.0102	0.2752	3.4700e-003	0.2787	0.0792	3.3200e-003	0.0826		1,093.755 1	1,093.755 1	0.0634		1,095.340 0
Worker	0.7527	0.4504	5.2991	0.0177	2.0567	0.0143	2.0710	0.5454	0.0132	0.5586		1,768.785 4	1,768.785 4	0.0416		1,769.824 2
Total	**0.8409**	**3.3746**	**6.2097**	**0.0280**	**2.3319**	**0.0178**	**2.3497**	**0.6247**	**0.0165**	**0.6412**		**2,862.540 6**	**2,862.540 6**	**0.1049**		**2,865.164 2**

3.6 Paving - 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	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.584 1	2,207.584 1	0.7140		2,225.433 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.584 1**	**2,207.584 1**	**0.7140**		**2,225.433 6**

3.6 Paving - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0614	0.0367	0.4320	1.4500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		144.1945	144.1945	3.3900e-003		144.2792
Total	**0.0614**	**0.0367**	**0.4320**	**1.4500e-003**	**0.1677**	**1.1700e-003**	**0.1688**	**0.0445**	**1.0800e-003**	**0.0455**		**144.1945**	**144.1945**	**3.3900e-003**		**144.2792**

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	lb/day										lb/day					
Off-Road	0.6566	5.7035	15.9399	0.0228		0.2738	0.2738		0.2534	0.2534	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6566**	**5.7035**	**15.9399**	**0.0228**		**0.2738**	**0.2738**		**0.2534**	**0.2534**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0614	0.0367	0.4320	1.4500e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		144.1945	144.1945	3.3900e-003		144.2792
Total	**0.0614**	**0.0367**	**0.4320**	**1.4500e-003**	**0.1677**	**1.1700e-003**	**0.1688**	**0.0445**	**1.0800e-003**	**0.0455**		**144.1945**	**144.1945**	**3.3900e-003**		**144.2792**

3.7 Architectural Coating - 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	lb/day										lb/day					
Archit. Coating	136.0096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**136.2012**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.1514	0.0906	1.0656	3.5700e-003	0.4136	2.8800e-003	0.4165	0.1097	2.6500e-003	0.1123		355.6797	355.6797	8.3600e-003		355.8886
Total	**0.1514**	**0.0906**	**1.0656**	**3.5700e-003**	**0.4136**	**2.8800e-003**	**0.4165**	**0.1097**	**2.6500e-003**	**0.1123**		**355.6797**	**355.6797**	**8.3600e-003**		**355.8886**

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	lb/day										lb/day					
Archit. Coating	136.0096					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**136.2012**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.1514	0.0906	1.0656	3.5700e-003	0.4136	2.8800e-003	0.4165	0.1097	2.6500e-003	0.1123		355.6797	355.6797	8.3600e-003		355.8886
Total	**0.1514**	**0.0906**	**1.0656**	**3.5700e-003**	**0.4136**	**2.8800e-003**	**0.4165**	**0.1097**	**2.6500e-003**	**0.1123**		**355.6797**	**355.6797**	**8.3600e-003**		**355.8886**

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	lb/day										lb/day					
Mitigated	3.9746	19.1510	51.5990	0.2135	19.5989	0.1555	19.7544	5.2434	0.1445	5.3879		21,787.44 34	21,787.44 34	0.9834		21,812.02 78
Unmitigated	3.9746	19.1510	51.5990	0.2135	19.5989	0.1555	19.7544	5.2434	0.1445	5.3879		21,787.44 34	21,787.44 34	0.9834		21,812.02 78

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,276.80	1,226.88	1125.12	4,264,606	4,264,606
General Office Building	994.80	221.87	94.70	2,434,755	2,434,755
Health Club	216.02	136.91	175.35	425,420	425,420
Research & Development	351.65	82.38	48.13	911,638	911,638
Total	2,839.27	1,668.04	1,443.30	8,036,418	8,036,418

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Research & Development	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845
General Office Building	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845
Health Club	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845
Research & Development	0.550809	0.042355	0.203399	0.115606	0.014562	0.005806	0.021810	0.035336	0.002134	0.001736	0.004891	0.000712	0.000845

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	lb/day										lb/day					
NaturalGas Mitigated	0.1411	1.2369	0.7417	7.7000e-003		0.0975	0.0975		0.0975	0.0975		1,539.1625	1,539.1625	0.0295	0.0282	1,548.3089
NaturalGas Unmitigated	0.1411	1.2369	0.7417	7.7000e-003		0.0975	0.0975		0.0975	0.0975		1,539.1625	1,539.1625	0.0295	0.0282	1,548.3089

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	lb/day										lb/day					
Apartments Mid Rise	7782.09	0.0839	0.7172	0.3052	4.5800e-003		0.0580	0.0580		0.0580	0.0580		915.5402	915.5402	0.0176	0.0168	920.9808
General Office Building	857.404	9.2500e-003	0.0841	0.0706	5.0000e-004		6.3900e-003	6.3900e-003		6.3900e-003	6.3900e-003		100.8710	100.8710	1.9300e-003	1.8500e-003	101.4705
Health Club	583.663	6.2900e-003	0.0572	0.0481	3.4000e-004		4.3500e-003	4.3500e-003		4.3500e-003	4.3500e-003		68.6662	68.6662	1.3200e-003	1.2600e-003	69.0743
Research & Development	3859.72	0.0416	0.3784	0.3179	2.2700e-003		0.0288	0.0288		0.0288	0.0288		454.0851	454.0851	8.7000e-003	8.3200e-003	456.7835
Total		**0.1411**	**1.2369**	**0.7417**	**7.6900e-003**		**0.0975**	**0.0975**		**0.0975**	**0.0975**		**1,539.1625**	**1,539.1625**	**0.0295**	**0.0282**	**1,548.3089**

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
Apartments Mid Rise	7.78209	0.0839	0.7172	0.3052	4.5800e-003		0.0580	0.0580		0.0580	0.0580		915.5402	915.5402	0.0176	0.0168	920.9808
General Office Building	0.857404	9.2500e-003	0.0841	0.0706	5.0000e-004		6.3900e-003	6.3900e-003		6.3900e-003	6.3900e-003		100.8710	100.8710	1.9300e-003	1.8500e-003	101.4705
Health Club	0.583663	6.2900e-003	0.0572	0.0481	3.4000e-004		4.3500e-003	4.3500e-003		4.3500e-003	4.3500e-003		68.6662	68.6662	1.3200e-003	1.2600e-003	69.0743
Research & Development	3.85972	0.0416	0.3784	0.3179	2.2700e-003		0.0288	0.0288		0.0288	0.0288		454.0851	454.0851	8.7000e-003	8.3200e-003	456.7835
Total		**0.1411**	**1.2369**	**0.7417**	**7.6900e-003**		**0.0975**	**0.0975**		**0.0975**	**0.0975**		**1,539.1625**	**1,539.1625**	**0.0295**	**0.0282**	**1,548.3089**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	lb/day										lb/day					
Mitigated	58.8055	4.1662	113.4898	0.2499		14.7544	14.7544		14.7544	14.7544	1,798.4483	3,484.5527	5,283.0010	5.3908	0.1221	5,454.1459
Unmitigated	58.8055	4.1662	113.4898	0.2499		14.7544	14.7544		14.7544	14.7544	1,798.4483	3,484.5527	5,283.0010	5.3908	0.1221	5,454.1459

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	lb/day										lb/day					
Architectural Coating	0.7453					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.2719					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	50.3109	3.9837	97.6420	0.2491		14.6666	14.6666		14.6666	14.6666	1,798.4483	3,456.0000	5,254.4483	5.3633	0.1221	5,424.9070
Landscaping	0.4774	0.1826	15.8479	8.4000e-004		0.0878	0.0878		0.0878	0.0878		28.5527	28.5527	0.0275		29.2389
Total	**58.8055**	**4.1662**	**113.4898**	**0.2499**		**14.7544**	**14.7544**		**14.7544**	**14.7544**	**1,798.4483**	**3,484.5527**	**5,283.0010**	**5.3908**	**0.1221**	**5,454.1459**

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	lb/day										lb/day					
Architectural Coating	0.7453					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.2719					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	50.3109	3.9837	97.6420	0.2491		14.6666	14.6666		14.6666	14.6666	1,798.4483	3,456.0000	5,254.4483	5.3633	0.1221	5,424.9070
Landscaping	0.4774	0.1826	15.8479	8.4000e-004		0.0878	0.0878		0.0878	0.0878		28.5527	28.5527	0.0275		29.2389
Total	**58.8055**	**4.1662**	**113.4898**	**0.2499**		**14.7544**	**14.7544**		**14.7544**	**14.7544**	**1,798.4483**	**3,484.5527**	**5,283.0010**	**5.3908**	**0.1221**	**5,454.1459**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

19-07846 Long Range Development Plan EIR - Operation 2035

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1,344.34	1000sqft	30.86	1,344,344.00	0
Research & Development	646.33	1000sqft	14.84	646,331.00	0
Health Club	97.74	1000sqft	2.24	97,740.00	0
Apartments Mid Rise	2,496.00	Dwelling Unit	65.68	3,386,071.00	7139

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	15			**Operational Year**	2035
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - obtained from PD

Construction Phase - operation run only

Trips and VMT -

Demolition - operation only run

Grading - operation only run

Architectural Coating -

Vehicle Trips - trip rate adjusted based on project TIS VMT

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - assume no woodstoves or fireplaces

Area Coating -

Energy Use -

Water And Wastewater -

Solid Waste -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,044,208.00	720,979.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	3,132,623.00	2,162,937.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	2,285,598.00	1,523,732.00
tblArchitecturalCoating	ConstArea_Residential_Interior	6,856,794.00	4,571,197.00
tblConstructionPhase	NumDays	220.00	110.00

tblConstructionPhase	NumDays	3,100.00	1,550.00
tblConstructionPhase	NumDays	200.00	100.00
tblConstructionPhase	NumDays	310.00	155.00
tblConstructionPhase	NumDays	220.00	110.00
tblConstructionPhase	NumDays	120.00	60.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	2,121.60	0.00
tblFireplaces	NumberNoFireplace	249.60	0.00
tblFireplaces	NumberWood	124.80	0.00
tblLandUse	LandUseSquareFeet	1,344,340.00	1,344,344.00
tblLandUse	LandUseSquareFeet	646,330.00	646,331.00
tblLandUse	LandUseSquareFeet	2,496,000.00	3,386,071.00
tblTripsAndVMT	VendorTripNumber	609.00	441.00
tblTripsAndVMT	WorkerTripNumber	2,475.00	1,845.00
tblTripsAndVMT	WorkerTripNumber	495.00	369.00
tblVehicleTrips	ST_TR	6.39	4.80
tblVehicleTrips	ST_TR	2.46	4.80
tblVehicleTrips	ST_TR	20.87	4.80
tblVehicleTrips	ST_TR	1.90	4.80
tblVehicleTrips	SU_TR	5.86	4.80
tblVehicleTrips	SU_TR	1.05	4.80
tblVehicleTrips	SU_TR	26.73	4.80
tblVehicleTrips	SU_TR	1.11	4.80
tblVehicleTrips	WD_TR	6.65	4.80
tblVehicleTrips	WD_TR	11.03	4.80

tblVehicleTrips	WD_TR	32.93	4.80
tblVehicleTrips	WD_TR	8.11	4.80
tblWoodstoves	NumberCatalytic	124.80	0.00
tblWoodstoves	NumberNoncatalytic	124.80	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

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					
2022	0.4173	4.2270	3.1464	6.4200e-003	1.0737	0.1924	1.2661	0.4923	0.1776	0.6699	0.0000	564.0423	564.0423	0.1689	0.0000	568.2648
2023	1.0415	6.0216	8.9797	0.0340	2.7369	0.1292	2.8661	0.7481	0.1205	0.8686	0.0000	3,130.8569	3,130.8569	0.2030	0.0000	3,135.9312
2024	1.1493	6.2942	9.9432	0.0404	3.0159	0.1034	3.1193	0.8093	0.0970	0.9063	0.0000	3,728.1959	3,728.1959	0.1914	0.0000	3,732.9812
2025	1.0872	6.0606	9.3893	0.0392	3.0043	0.0914	3.0957	0.8062	0.0857	0.8919	0.0000	3,625.1398	3,625.1398	0.1850	0.0000	3,629.7645
2026	1.0492	5.9832	8.9614	0.0384	3.0043	0.0907	3.0950	0.8062	0.0850	0.8912	0.0000	3,547.5601	3,547.5601	0.1803	0.0000	3,552.0670
2027	1.0121	5.9111	8.5818	0.0376	3.0044	0.0897	3.0940	0.8062	0.0841	0.8903	0.0000	3,479.0797	3,479.0797	0.1759	0.0000	3,483.4780
2028	0.9704	5.8266	8.2196	0.0368	2.9928	0.0880	3.0809	0.8031	0.0826	0.8857	0.0000	3,405.8749	3,405.8749	0.1714	0.0000	3,410.1610
2029	14.0057	1.4542	2.5365	8.6800e-003	0.6922	0.0405	0.7326	0.1851	0.0377	0.2228	0.0000	793.3483	793.3483	0.0648	0.0000	794.9684
Maximum	**14.0057**	**6.2942**	**9.9432**	**0.0404**	**3.0159**	**0.1924**	**3.1193**	**0.8093**	**0.1776**	**0.9063**	**0.0000**	**3,728.1959**	**3,728.1959**	**0.2030**	**0.0000**	**3,732.9812**

2.1 Overall Construction

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					
2022	0.4173	4.2270	3.1464	6.4200e-003	1.0737	0.1924	1.2661	0.4923	0.1776	0.6699	0.0000	564.0417	564.0417	0.1689	0.0000	568.2642
2023	1.0415	6.0216	8.9797	0.0340	2.7369	0.1292	2.8661	0.7481	0.1205	0.8686	0.0000	3,130.8564	3,130.8564	0.2030	0.0000	3,135.9308
2024	1.1493	6.2942	9.9432	0.0404	3.0159	0.1034	3.1193	0.8093	0.0970	0.9063	0.0000	3,728.1955	3,728.1955	0.1914	0.0000	3,732.9808
2025	1.0872	6.0606	9.3893	0.0392	3.0043	0.0914	3.0957	0.8062	0.0857	0.8919	0.0000	3,625.1395	3,625.1395	0.1850	0.0000	3,629.7641
2026	1.0492	5.9832	8.9614	0.0384	3.0043	0.0907	3.0950	0.8062	0.0850	0.8912	0.0000	3,547.5598	3,547.5598	0.1803	0.0000	3,552.0666
2027	1.0121	5.9111	8.5818	0.0376	3.0044	0.0897	3.0940	0.8062	0.0841	0.8903	0.0000	3,479.0794	3,479.0794	0.1759	0.0000	3,483.4776
2028	0.9704	5.8266	8.2196	0.0368	2.9928	0.0880	3.0809	0.8031	0.0826	0.8857	0.0000	3,405.8746	3,405.8746	0.1714	0.0000	3,410.1606
2029	14.0057	1.4542	2.5365	8.6800e-003	0.6922	0.0405	0.7326	0.1851	0.0377	0.2228	0.0000	793.3481	793.3481	0.0648	0.0000	794.9682
Maximum	**14.0057**	**6.2942**	**9.9432**	**0.0404**	**3.0159**	**0.1924**	**3.1193**	**0.8093**	**0.1776**	**0.9063**	**0.0000**	**3,728.1955**	**3,728.1955**	**0.2030**	**0.0000**	**3,732.9808**

	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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	1-3-2022	4-2-2022	0.9149	0.9149
2	4-3-2022	7-2-2022	1.0463	1.0463

3	**7-3-2022**	**10-2-2022**	1.3084	1.3084
4	**10-3-2022**	**1-2-2023**	1.3967	1.3967
5	**1-3-2023**	**4-2-2023**	1.3394	1.3394
6	**4-3-2023**	**7-2-2023**	1.8849	1.8849
7	**7-3-2023**	**10-2-2023**	1.9063	1.9063
8	**10-3-2023**	**1-2-2024**	1.9344	1.9344
9	**1-3-2024**	**4-2-2024**	1.8520	1.8520
10	**4-3-2024**	**7-2-2024**	1.8241	1.8241
11	**7-3-2024**	**10-2-2024**	1.8448	1.8448
12	**10-3-2024**	**1-2-2025**	1.8715	1.8715
13	**1-3-2025**	**4-2-2025**	1.7656	1.7656
14	**4-3-2025**	**7-2-2025**	1.7588	1.7588
15	**7-3-2025**	**10-2-2025**	1.7787	1.7787
16	**10-3-2025**	**1-2-2026**	1.8048	1.8048
17	**1-3-2026**	**4-2-2026**	1.7370	1.7370
18	**4-3-2026**	**7-2-2026**	1.7311	1.7311
19	**7-3-2026**	**10-2-2026**	1.7507	1.7507
20	**10-3-2026**	**1-2-2027**	1.7756	1.7756
21	**1-3-2027**	**4-2-2027**	1.7100	1.7100
22	**4-3-2027**	**7-2-2027**	1.7050	1.7050
23	**7-3-2027**	**10-2-2027**	1.7242	1.7242
24	**10-3-2027**	**1-2-2028**	1.7479	1.7479
25	**1-3-2028**	**4-2-2028**	1.7037	1.7037
26	**4-3-2028**	**7-2-2028**	1.6810	1.6810
27	**7-3-2028**	**10-2-2028**	1.6999	1.6999
28	**10-3-2028**	**1-2-2029**	1.7223	1.7223
29	**1-3-2029**	**4-2-2029**	1.0886	1.0886

30	**4-3-2029**	**7-2-2029**	0.3106	0.3106
31	**7-3-2029**	**9-30-2029**	5.9526	5.9526
		Highest	5.9526	5.9526

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	22.5788	0.2962	25.6764	1.3600e-003		0.1428	0.1428		0.1428	0.1428	0.0000	42.0983	42.0983	0.0402	0.0000	43.1023
Energy	0.3546	3.1152	1.9116	0.0193		0.2450	0.2450		0.2450	0.2450	0.0000	22,601.8264	22,601.8264	0.4849	0.1508	22,658.8745
Mobile	3.5611	22.9758	47.4867	0.2577	27.8134	0.1252	27.9386	7.4500	0.1164	7.5664	0.0000	24,026.0131	24,026.0131	0.9046	0.0000	24,048.6274
Waste						0.0000	0.0000		0.0000	0.0000	609.9148	0.0000	609.9148	36.0449	0.0000	1,511.0380
Water						0.0000	0.0000		0.0000	0.0000	230.0523	7,364.4163	7,594.4685	23.7897	0.5913	8,365.4042
Total	**26.4945**	**26.3871**	**75.0747**	**0.2784**	**27.8134**	**0.5131**	**28.3265**	**7.4500**	**0.5043**	**7.9543**	**839.9670**	**54,034.3541**	**54,874.3211**	**61.2643**	**0.7420**	**56,627.0464**

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	22.5788	0.2962	25.6764	1.3600e-003		0.1428	0.1428		0.1428	0.1428	0.0000	42.0983	42.0983	0.0402	0.0000	43.1023
Energy	0.3546	3.1152	1.9116	0.0193		0.2450	0.2450		0.2450	0.2450	0.0000	22,601.8264	22,601.8264	0.4849	0.1508	22,658.8745
Mobile	3.5611	22.9758	47.4867	0.2577	27.8134	0.1252	27.9386	7.4500	0.1164	7.5664	0.0000	24,026.0131	24,026.0131	0.9046	0.0000	24,048.6274
Waste						0.0000	0.0000		0.0000	0.0000	609.9148	0.0000	609.9148	36.0449	0.0000	1,511.0380
Water						0.0000	0.0000		0.0000	0.0000	230.0523	7,364.4163	7,594.4685	23.7897	0.5913	8,365.4042
Total	**26.4945**	**26.3871**	**75.0747**	**0.2784**	**27.8134**	**0.5131**	**28.3265**	**7.4500**	**0.5043**	**7.9543**	**839.9670**	**54,034.3541**	**54,874.3211**	**61.2643**	**0.7420**	**56,627.0464**

	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**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	5/20/2022	5	100	
2	Site Preparation	Site Preparation	5/21/2022	8/12/2022	5	60	
3	Grading	Grading	8/13/2022	3/17/2023	5	155	
4	Building Construction	Building Construction	3/18/2023	2/23/2029	5	1550	
5	Paving	Paving	2/24/2029	7/27/2029	5	110	
6	Architectural Coating	Architectural Coating	7/28/2029	12/28/2029	5	110	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 387.5

Acres of Paving: 0

Residential Indoor: 4,571,197; Residential Outdoor: 1,523,732; Non-Residential Indoor: 2,162,937; Non-Residential Outdoor: 720,979; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,845.00	441.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	369.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

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	0.1320	1.2860	1.0297	1.9400e-003		0.0621	0.0621		0.0578	0.0578	0.0000	169.9511	169.9511	0.0477	0.0000	171.1446
Total	**0.1320**	**1.2860**	**1.0297**	**1.9400e-003**		**0.0621**	**0.0621**		**0.0578**	**0.0578**	**0.0000**	**169.9511**	**169.9511**	**0.0477**	**0.0000**	**171.1446**

3.2 Demolition - 2022

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	0.0000	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
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	2.9400e-003	2.0900e-003	0.0241	8.0000e-005	8.2300e-003	6.0000e-005	8.2900e-003	2.1900e-003	6.0000e-005	2.2400e-003	0.0000	6.9105	6.9105	1.7000e-004	0.0000	6.9148
Total	**2.9400e-003**	**2.0900e-003**	**0.0241**	**8.0000e-005**	**8.2300e-003**	**6.0000e-005**	**8.2900e-003**	**2.1900e-003**	**6.0000e-005**	**2.2400e-003**	**0.0000**	**6.9105**	**6.9105**	**1.7000e-004**	**0.0000**	**6.9148**

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	0.1320	1.2860	1.0297	1.9400e-003		0.0621	0.0621		0.0578	0.0578	0.0000	169.9509	169.9509	0.0477	0.0000	171.1444
Total	**0.1320**	**1.2860**	**1.0297**	**1.9400e-003**		**0.0621**	**0.0621**		**0.0578**	**0.0578**	**0.0000**	**169.9509**	**169.9509**	**0.0477**	**0.0000**	**171.1444**

3.2 Demolition - 2022

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	0.0000	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
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	2.9400e-003	2.0900e-003	0.0241	8.0000e-005	8.2300e-003	6.0000e-005	8.2900e-003	2.1900e-003	6.0000e-005	2.2400e-003	0.0000	6.9105	6.9105	1.7000e-004	0.0000	6.9148
Total	**2.9400e-003**	**2.0900e-003**	**0.0241**	**8.0000e-005**	**8.2300e-003**	**6.0000e-005**	**8.2900e-003**	**2.1900e-003**	**6.0000e-005**	**2.2400e-003**	**0.0000**	**6.9105**	**6.9105**	**1.7000e-004**	**0.0000**	**6.9148**

3.3 Site Preparation - 2022

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					
Fugitive Dust					0.5420	0.0000	0.5420	0.2979	0.0000	0.2979	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0951	0.9925	0.5909	1.1400e-003		0.0484	0.0484		0.0445	0.0445	0.0000	100.3182	100.3182	0.0324	0.0000	101.1293
Total	**0.0951**	**0.9925**	**0.5909**	**1.1400e-003**	**0.5420**	**0.0484**	**0.5904**	**0.2979**	**0.0445**	**0.3424**	**0.0000**	**100.3182**	**100.3182**	**0.0324**	**0.0000**	**101.1293**

3.3 Site Preparation - 2022

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	0.0000	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
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	2.1100e-003	1.5000e-003	0.0174	6.0000e-005	5.9200e-003	4.0000e-005	5.9700e-003	1.5700e-003	4.0000e-005	1.6100e-003	0.0000	4.9755	4.9755	1.2000e-004	0.0000	4.9787
Total	**2.1100e-003**	**1.5000e-003**	**0.0174**	**6.0000e-005**	**5.9200e-003**	**4.0000e-005**	**5.9700e-003**	**1.5700e-003**	**4.0000e-005**	**1.6100e-003**	**0.0000**	**4.9755**	**4.9755**	**1.2000e-004**	**0.0000**	**4.9787**

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					
Fugitive Dust					0.5420	0.0000	0.5420	0.2979	0.0000	0.2979	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0951	0.9925	0.5909	1.1400e-003		0.0484	0.0484		0.0445	0.0445	0.0000	100.3181	100.3181	0.0324	0.0000	101.1292
Total	**0.0951**	**0.9925**	**0.5909**	**1.1400e-003**	**0.5420**	**0.0484**	**0.5904**	**0.2979**	**0.0445**	**0.3424**	**0.0000**	**100.3181**	**100.3181**	**0.0324**	**0.0000**	**101.1292**

3.3 Site Preparation - 2022

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	0.0000	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
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	2.1100e-003	1.5000e-003	0.0174	6.0000e-005	5.9200e-003	4.0000e-005	5.9700e-003	1.5700e-003	4.0000e-005	1.6100e-003	0.0000	4.9755	4.9755	1.2000e-004	0.0000	4.9787
Total	**2.1100e-003**	**1.5000e-003**	**0.0174**	**6.0000e-005**	**5.9200e-003**	**4.0000e-005**	**5.9700e-003**	**1.5700e-003**	**4.0000e-005**	**1.6100e-003**	**0.0000**	**4.9755**	**4.9755**	**1.2000e-004**	**0.0000**	**4.9787**

3.4 Grading - 2022

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					
Fugitive Dust					0.5066	0.0000	0.5066	0.1877	0.0000	0.1877	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1812	1.9422	1.4521	3.1000e-003		0.0817	0.0817		0.0752	0.0752	0.0000	272.6730	272.6730	0.0882	0.0000	274.8777
Total	**0.1812**	**1.9422**	**1.4521**	**3.1000e-003**	**0.5066**	**0.0817**	**0.5883**	**0.1877**	**0.0752**	**0.2629**	**0.0000**	**272.6730**	**272.6730**	**0.0882**	**0.0000**	**274.8777**

3.4 Grading - 2022

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	0.0000	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
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	3.9100e-003	2.7800e-003	0.0322	1.0000e-004	0.0110	8.0000e-005	0.0111	2.9100e-003	7.0000e-005	2.9900e-003	0.0000	9.2140	9.2140	2.3000e-004	0.0000	9.2198
Total	**3.9100e-003**	**2.7800e-003**	**0.0322**	**1.0000e-004**	**0.0110**	**8.0000e-005**	**0.0111**	**2.9100e-003**	**7.0000e-005**	**2.9900e-003**	**0.0000**	**9.2140**	**9.2140**	**2.3000e-004**	**0.0000**	**9.2198**

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					
Fugitive Dust					0.5066	0.0000	0.5066	0.1877	0.0000	0.1877	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1812	1.9422	1.4521	3.1000e-003		0.0817	0.0817		0.0752	0.0752	0.0000	272.6727	272.6727	0.0882	0.0000	274.8774
Total	**0.1812**	**1.9422**	**1.4521**	**3.1000e-003**	**0.5066**	**0.0817**	**0.5883**	**0.1877**	**0.0752**	**0.2629**	**0.0000**	**272.6727**	**272.6727**	**0.0882**	**0.0000**	**274.8774**

3.4 Grading - 2022

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	0.0000	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
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	3.9100e-003	2.7800e-003	0.0322	1.0000e-004	0.0110	8.0000e-005	0.0111	2.9100e-003	7.0000e-005	2.9900e-003	0.0000	9.2140	9.2140	2.3000e-004	0.0000	9.2198
Total	**3.9100e-003**	**2.7800e-003**	**0.0322**	**1.0000e-004**	**0.0110**	**8.0000e-005**	**0.0111**	**2.9100e-003**	**7.0000e-005**	**2.9900e-003**	**0.0000**	**9.2140**	**9.2140**	**2.3000e-004**	**0.0000**	**9.2198**

3.4 Grading - 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					
Fugitive Dust					0.3711	0.0000	0.3711	0.1132	0.0000	0.1132	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0914	0.9492	0.7714	1.7100e-003		0.0392	0.0392		0.0360	0.0360	0.0000	149.9718	149.9718	0.0485	0.0000	151.1844
Total	**0.0914**	**0.9492**	**0.7714**	**1.7100e-003**	**0.3711**	**0.0392**	**0.4103**	**0.1132**	**0.0360**	**0.1493**	**0.0000**	**149.9718**	**149.9718**	**0.0485**	**0.0000**	**151.1844**

3.4 Grading - 2023

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	0.0000	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
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	2.0300e-003	1.3800e-003	0.0163	5.0000e-005	6.0300e-003	4.0000e-005	6.0800e-003	1.6000e-003	4.0000e-005	1.6400e-003	0.0000	4.8787	4.8787	1.1000e-004	0.0000	4.8816
Total	**2.0300e-003**	**1.3800e-003**	**0.0163**	**5.0000e-005**	**6.0300e-003**	**4.0000e-005**	**6.0800e-003**	**1.6000e-003**	**4.0000e-005**	**1.6400e-003**	**0.0000**	**4.8787**	**4.8787**	**1.1000e-004**	**0.0000**	**4.8816**

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					
Fugitive Dust					0.3711	0.0000	0.3711	0.1132	0.0000	0.1132	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0914	0.9492	0.7714	1.7100e-003		0.0392	0.0392		0.0360	0.0360	0.0000	149.9717	149.9717	0.0485	0.0000	151.1842
Total	**0.0914**	**0.9492**	**0.7714**	**1.7100e-003**	**0.3711**	**0.0392**	**0.4103**	**0.1132**	**0.0360**	**0.1493**	**0.0000**	**149.9717**	**149.9717**	**0.0485**	**0.0000**	**151.1842**

3.4 Grading - 2023

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	0.0000	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
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	2.0300e-003	1.3800e-003	0.0163	5.0000e-005	6.0300e-003	4.0000e-005	6.0800e-003	1.6000e-003	4.0000e-005	1.6400e-003	0.0000	4.8787	4.8787	1.1000e-004	0.0000	4.8816
Total	**2.0300e-003**	**1.3800e-003**	**0.0163**	**5.0000e-005**	**6.0300e-003**	**4.0000e-005**	**6.0800e-003**	**1.6000e-003**	**4.0000e-005**	**1.6400e-003**	**0.0000**	**4.8787**	**4.8787**	**1.1000e-004**	**0.0000**	**4.8816**

3.5 Building Construction - 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	0.1612	1.4745	1.6650	2.7600e-003		0.0717	0.0717		0.0675	0.0675	0.0000	237.5999	237.5999	0.0565	0.0000	239.0129
Total	**0.1612**	**1.4745**	**1.6650**	**2.7600e-003**		**0.0717**	**0.0717**		**0.0675**	**0.0675**	**0.0000**	**237.5999**	**237.5999**	**0.0565**	**0.0000**	**239.0129**

3.5 Building Construction - 2023

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	0.0000	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
Vendor	0.0900	3.1205	0.9163	0.0109	0.2849	3.5500e-003	0.2885	0.0822	3.3900e-003	0.0856	0.0000	1,060.9141	1,060.9141	0.0584	0.0000	1,062.3738
Worker	0.6969	0.4760	5.6107	0.0186	2.0748	0.0147	2.0895	0.5510	0.0136	0.5646	0.0000	1,677.4925	1,677.4925	0.0394	0.0000	1,678.4786
Total	**0.7869**	**3.5966**	**6.5270**	**0.0295**	**2.3597**	**0.0183**	**2.3780**	**0.6332**	**0.0169**	**0.6502**	**0.0000**	**2,738.4065**	**2,738.4065**	**0.0978**	**0.0000**	**2,740.8524**

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	0.1612	1.4745	1.6650	2.7600e-003		0.0717	0.0717		0.0675	0.0675	0.0000	237.5996	237.5996	0.0565	0.0000	239.0126
Total	**0.1612**	**1.4745**	**1.6650**	**2.7600e-003**		**0.0717**	**0.0717**		**0.0675**	**0.0675**	**0.0000**	**237.5996**	**237.5996**	**0.0565**	**0.0000**	**239.0126**

3.5 Building Construction - 2023

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	0.0000	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
Vendor	0.0900	3.1205	0.9163	0.0109	0.2849	3.5500e-003	0.2885	0.0822	3.3900e-003	0.0856	0.0000	1,060.9141	1,060.9141	0.0584	0.0000	1,062.3738
Worker	0.6969	0.4760	5.6107	0.0186	2.0748	0.0147	2.0895	0.5510	0.0136	0.5646	0.0000	1,677.4925	1,677.4925	0.0394	0.0000	1,678.4786
Total	**0.7869**	**3.5966**	**6.5270**	**0.0295**	**2.3597**	**0.0183**	**2.3780**	**0.6332**	**0.0169**	**0.6502**	**0.0000**	**2,738.4065**	**2,738.4065**	**0.0978**	**0.0000**	**2,740.8524**

3.5 Building Construction - 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	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

3.5 Building Construction - 2024

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	0.0000	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
Vendor	0.1126	3.9788	1.1370	0.0139	0.3641	4.4800e-003	0.3686	0.1051	4.2800e-003	0.1094	0.0000	1,351.1096	1,351.1096	0.0734	0.0000	1,352.9452
Worker	0.8440	0.5543	6.6884	0.0229	2.6517	0.0186	2.6703	0.7042	0.0171	0.7213	0.0000	2,073.3640	2,073.3640	0.0462	0.0000	2,074.5181
Total	**0.9565**	**4.5331**	**7.8254**	**0.0368**	**3.0159**	**0.0231**	**3.0389**	**0.8093**	**0.0214**	**0.8307**	**0.0000**	**3,424.4736**	**3,424.4736**	**0.1196**	**0.0000**	**3,427.4633**

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	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

3.5 Building Construction - 2024

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	0.0000	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
Vendor	0.1126	3.9788	1.1370	0.0139	0.3641	4.4800e-003	0.3686	0.1051	4.2800e-003	0.1094	0.0000	1,351.1096	1,351.1096	0.0734	0.0000	1,352.9452
Worker	0.8440	0.5543	6.6884	0.0229	2.6517	0.0186	2.6703	0.7042	0.0171	0.7213	0.0000	2,073.3640	2,073.3640	0.0462	0.0000	2,074.5181
Total	**0.9565**	**4.5331**	**7.8254**	**0.0368**	**3.0159**	**0.0231**	**3.0389**	**0.8093**	**0.0214**	**0.8307**	**0.0000**	**3,424.4736**	**3,424.4736**	**0.1196**	**0.0000**	**3,427.4633**

3.5 Building Construction - 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	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

3.5 Building Construction - 2025

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	0.0000	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
Vendor	0.1093	3.9284	1.1026	0.0138	0.3628	4.3900e-003	0.3671	0.1047	4.2000e-003	0.1089	0.0000	1,338.3959	1,338.3959	0.0719	0.0000	1,340.1945
Worker	0.7995	0.5049	6.1877	0.0219	2.6416	0.0181	2.6597	0.7015	0.0167	0.7182	0.0000	1,984.0891	1,984.0891	0.0419	0.0000	1,985.1364
Total	**0.9088**	**4.4333**	**7.2903**	**0.0357**	**3.0043**	**0.0225**	**3.0269**	**0.8062**	**0.0209**	**0.8271**	**0.0000**	**3,322.4850**	**3,322.4850**	**0.1138**	**0.0000**	**3,325.3310**

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	0.1784	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1784**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

3.5 Building Construction - 2025

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	0.0000	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
Vendor	0.1093	3.9284	1.1026	0.0138	0.3628	4.3900e-003	0.3671	0.1047	4.2000e-003	0.1089	0.0000	1,338.3959	1,338.3959	0.0719	0.0000	1,340.1945
Worker	0.7995	0.5049	6.1877	0.0219	2.6416	0.0181	2.6597	0.7015	0.0167	0.7182	0.0000	1,984.0891	1,984.0891	0.0419	0.0000	1,985.1364
Total	**0.9088**	**4.4333**	**7.2903**	**0.0357**	**3.0043**	**0.0225**	**3.0269**	**0.8062**	**0.0209**	**0.8271**	**0.0000**	**3,322.4850**	**3,322.4850**	**0.1138**	**0.0000**	**3,325.3310**

3.5 Building Construction - 2026

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	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

3.5 Building Construction - 2026

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	0.0000	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
Vendor	0.1068	3.8911	1.0795	0.0137	0.3628	4.3100e-003	0.3671	0.1047	4.1200e-003	0.1088	0.0000	1,331.1586	1,331.1586	0.0708	0.0000	1,332.9276
Worker	0.7639	0.4648	5.7828	0.0212	2.6416	0.0175	2.6591	0.7015	0.0161	0.7177	0.0000	1,913.7466	1,913.7466	0.0384	0.0000	1,914.7059
Total	**0.8707**	**4.3559**	**6.8624**	**0.0348**	**3.0043**	**0.0219**	**3.0262**	**0.8062**	**0.0203**	**0.8265**	**0.0000**	**3,244.9052**	**3,244.9052**	**0.1091**	**0.0000**	**3,247.6334**

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	0.1784	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1784**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

3.5 Building Construction - 2026

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	0.0000	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
Vendor	0.1068	3.8911	1.0795	0.0137	0.3628	4.3100e-003	0.3671	0.1047	4.1200e-003	0.1088	0.0000	1,331.1586	1,331.1586	0.0708	0.0000	1,332.9276
Worker	0.7639	0.4648	5.7828	0.0212	2.6416	0.0175	2.6591	0.7015	0.0161	0.7177	0.0000	1,913.7466	1,913.7466	0.0384	0.0000	1,914.7059
Total	**0.8707**	**4.3559**	**6.8624**	**0.0348**	**3.0043**	**0.0219**	**3.0262**	**0.8062**	**0.0203**	**0.8265**	**0.0000**	**3,244.9052**	**3,244.9052**	**0.1091**	**0.0000**	**3,247.6334**

3.5 Building Construction - 2027

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	0.1785	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6549	302.6549	0.0711	0.0000	304.4335
Total	**0.1785**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6549**	**302.6549**	**0.0711**	**0.0000**	**304.4335**

3.5 Building Construction - 2027

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	0.0000	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
Vendor	0.1047	3.8551	1.0609	0.0136	0.3628	4.2300e-003	0.3670	0.1047	4.0400e-003	0.1087	0.0000	1,324.7028	1,324.7028	0.0696	0.0000	1,326.4426
Worker	0.7290	0.4287	5.4219	0.0205	2.6416	0.0166	2.6582	0.7015	0.0153	0.7168	0.0000	1,851.7220	1,851.7220	0.0352	0.0000	1,852.6019
Total	**0.8337**	**4.2838**	**6.4828**	**0.0341**	**3.0044**	**0.0208**	**3.0252**	**0.8062**	**0.0193**	**0.8255**	**0.0000**	**3,176.4248**	**3,176.4248**	**0.1048**	**0.0000**	**3,179.0445**

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	0.1784	1.6273	2.0991	3.5200e-003		0.0689	0.0689		0.0648	0.0648	0.0000	302.6545	302.6545	0.0711	0.0000	304.4331
Total	**0.1784**	**1.6273**	**2.0991**	**3.5200e-003**		**0.0689**	**0.0689**		**0.0648**	**0.0648**	**0.0000**	**302.6545**	**302.6545**	**0.0711**	**0.0000**	**304.4331**

3.5 Building Construction - 2027

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	0.0000	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
Vendor	0.1047	3.8551	1.0609	0.0136	0.3628	4.2300e-003	0.3670	0.1047	4.0400e-003	0.1087	0.0000	1,324.7028	1,324.7028	0.0696	0.0000	1,326.4426
Worker	0.7290	0.4287	5.4219	0.0205	2.6416	0.0166	2.6582	0.7015	0.0153	0.7168	0.0000	1,851.7220	1,851.7220	0.0352	0.0000	1,852.6019
Total	**0.8337**	**4.2838**	**6.4828**	**0.0341**	**3.0044**	**0.0208**	**3.0252**	**0.8062**	**0.0193**	**0.8255**	**0.0000**	**3,176.4248**	**3,176.4248**	**0.1048**	**0.0000**	**3,179.0445**

3.5 Building Construction - 2028

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	0.1778	1.6211	2.0910	3.5000e-003		0.0686	0.0686		0.0645	0.0645	0.0000	301.4953	301.4953	0.0709	0.0000	303.2671
Total	**0.1778**	**1.6211**	**2.0910**	**3.5000e-003**		**0.0686**	**0.0686**		**0.0645**	**0.0645**	**0.0000**	**301.4953**	**301.4953**	**0.0709**	**0.0000**	**303.2671**

3.5 Building Construction - 2028

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	0.0000	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
Vendor	0.1025	3.8107	1.0426	0.0135	0.3614	4.1500e-003	0.3655	0.1043	3.9600e-003	0.1082	0.0000	1,314.1608	1,314.1608	0.0682	0.0000	1,315.8667
Worker	0.6901	0.3948	5.0860	0.0198	2.6315	0.0153	2.6468	0.6989	0.0141	0.7129	0.0000	1,790.2188	1,790.2188	0.0323	0.0000	1,791.0272
Total	**0.7926**	**4.2056**	**6.1286**	**0.0333**	**2.9928**	**0.0195**	**3.0123**	**0.8031**	**0.0180**	**0.8212**	**0.0000**	**3,104.3796**	**3,104.3796**	**0.1006**	**0.0000**	**3,106.8939**

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	0.1778	1.6211	2.0910	3.5000e-003		0.0686	0.0686		0.0645	0.0645	0.0000	301.4949	301.4949	0.0709	0.0000	303.2667
Total	**0.1778**	**1.6211**	**2.0910**	**3.5000e-003**		**0.0686**	**0.0686**		**0.0645**	**0.0645**	**0.0000**	**301.4949**	**301.4949**	**0.0709**	**0.0000**	**303.2667**

3.5 Building Construction - 2028

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	0.0000	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
Vendor	0.1025	3.8107	1.0426	0.0135	0.3614	4.1500e-003	0.3655	0.1043	3.9600e-003	0.1082	0.0000	1,314.160 8	1,314.160 8	0.0682	0.0000	1,315.866 7
Worker	0.6901	0.3948	5.0860	0.0198	2.6315	0.0153	2.6468	0.6989	0.0141	0.7129	0.0000	1,790.218 8	1,790.218 8	0.0323	0.0000	1,791.027 2
Total	**0.7926**	**4.2056**	**6.1286**	**0.0333**	**2.9928**	**0.0195**	**3.0123**	**0.8031**	**0.0180**	**0.8212**	**0.0000**	**3,104.379 6**	**3,104.379 6**	**0.1006**	**0.0000**	**3,106.893 9**

3.5 Building Construction - 2029

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	0.0274	0.2494	0.3217	5.4000e-004		0.0106	0.0106		9.9300e-003	9.9300e-003	0.0000	46.3839	46.3839	0.0109	0.0000	46.6565
Total	**0.0274**	**0.2494**	**0.3217**	**5.4000e-004**		**0.0106**	**0.0106**		**9.9300e-003**	**9.9300e-003**	**0.0000**	**46.3839**	**46.3839**	**0.0109**	**0.0000**	**46.6565**

3.5 Building Construction - 2029

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	0.0000	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
Vendor	0.0155	0.5818	0.1583	2.0700e-003	0.0556	6.3000e-004	0.0562	0.0160	6.0000e-004	0.0166	0.0000	201.4298	201.4298	0.0104	0.0000	201.6885
Worker	0.0999	0.0560	0.7347	2.9600e-003	0.4048	2.1900e-003	0.4070	0.1075	2.0100e-003	0.1095	0.0000	267.9962	267.9962	4.5600e-003	0.0000	268.1103
Total	**0.1155**	**0.6378**	**0.8930**	**5.0300e-003**	**0.4604**	**2.8200e-003**	**0.4633**	**0.1236**	**2.6100e-003**	**0.1262**	**0.0000**	**469.4259**	**469.4259**	**0.0149**	**0.0000**	**469.7988**

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	0.0274	0.2494	0.3217	5.4000e-004		0.0106	0.0106		9.9300e-003	9.9300e-003	0.0000	46.3838	46.3838	0.0109	0.0000	46.6564
Total	**0.0274**	**0.2494**	**0.3217**	**5.4000e-004**		**0.0106**	**0.0106**		**9.9300e-003**	**9.9300e-003**	**0.0000**	**46.3838**	**46.3838**	**0.0109**	**0.0000**	**46.6564**

3.5 Building Construction - 2029

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	0.0000	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
Vendor	0.0155	0.5818	0.1583	2.0700e-003	0.0556	6.3000e-004	0.0562	0.0160	6.0000e-004	0.0166	0.0000	201.4298	201.4298	0.0104	0.0000	201.6885
Worker	0.0999	0.0560	0.7347	2.9600e-003	0.4048	2.1900e-003	0.4070	0.1075	2.0100e-003	0.1095	0.0000	267.9962	267.9962	4.5600e-003	0.0000	268.1103
Total	**0.1155**	**0.6378**	**0.8930**	**5.0300e-003**	**0.4604**	**2.8200e-003**	**0.4633**	**0.1236**	**2.6100e-003**	**0.1262**	**0.0000**	**469.4259**	**469.4259**	**0.0149**	**0.0000**	**469.7988**

3.6 Paving - 2029

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	0.0503	0.4720	0.8018	1.2500e-003		0.0230	0.0230		0.0212	0.0212	0.0000	110.1059	110.1059	0.0356	0.0000	110.9962
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0503**	**0.4720**	**0.8018**	**1.2500e-003**		**0.0230**	**0.0230**		**0.0212**	**0.0212**	**0.0000**	**110.1059**	**110.1059**	**0.0356**	**0.0000**	**110.9962**

3.6 Paving - 2029

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	0.0000	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
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	2.2300e-003	1.2500e-003	0.0164	7.0000e-005	9.0500e-003	5.0000e-005	9.1000e-003	2.4000e-003	4.0000e-005	2.4500e-003	0.0000	5.9918	5.9918	1.0000e-004	0.0000	5.9943
Total	**2.2300e-003**	**1.2500e-003**	**0.0164**	**7.0000e-005**	**9.0500e-003**	**5.0000e-005**	**9.1000e-003**	**2.4000e-003**	**4.0000e-005**	**2.4500e-003**	**0.0000**	**5.9918**	**5.9918**	**1.0000e-004**	**0.0000**	**5.9943**

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	0.0503	0.4720	0.8018	1.2500e-003		0.0230	0.0230		0.0212	0.0212	0.0000	110.1058	110.1058	0.0356	0.0000	110.9960
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0503**	**0.4720**	**0.8018**	**1.2500e-003**		**0.0230**	**0.0230**		**0.0212**	**0.0212**	**0.0000**	**110.1058**	**110.1058**	**0.0356**	**0.0000**	**110.9960**

3.6 Paving - 2029

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	0.0000	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
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	2.2300e-003	1.2500e-003	0.0164	7.0000e-005	9.0500e-003	5.0000e-005	9.1000e-003	2.4000e-003	4.0000e-005	2.4500e-003	0.0000	5.9918	5.9918	1.0000e-004	0.0000	5.9943
Total	**2.2300e-003**	**1.2500e-003**	**0.0164**	**7.0000e-005**	**9.0500e-003**	**5.0000e-005**	**9.1000e-003**	**2.4000e-003**	**4.0000e-005**	**2.4500e-003**	**0.0000**	**5.9918**	**5.9918**	**1.0000e-004**	**0.0000**	**5.9943**

3.7 Architectural Coating - 2029

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					
Archit. Coating	13.7460					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.4000e-003	0.0630	0.0995	1.6000e-004		2.8300e-003	2.8300e-003		2.8300e-003	2.8300e-003	0.0000	14.0429	14.0429	7.7000e-004	0.0000	14.0621
Total	**13.7554**	**0.0630**	**0.0995**	**1.6000e-004**		**2.8300e-003**	**2.8300e-003**		**2.8300e-003**	**2.8300e-003**	**0.0000**	**14.0429**	**14.0429**	**7.7000e-004**	**0.0000**	**14.0621**

3.7 Architectural Coating - 2029

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	0.0000	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
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	0.0550	0.0308	0.4041	1.6300e-003	0.2227	1.2000e-003	0.2239	0.0591	1.1100e-003	0.0602	0.0000	147.3979	147.3979	2.5100e-003	0.0000	147.4607
Total	**0.0550**	**0.0308**	**0.4041**	**1.6300e-003**	**0.2227**	**1.2000e-003**	**0.2239**	**0.0591**	**1.1100e-003**	**0.0602**	**0.0000**	**147.3979**	**147.3979**	**2.5100e-003**	**0.0000**	**147.4607**

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					
Archit. Coating	13.7460					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.4000e-003	0.0630	0.0995	1.6000e-004		2.8300e-003	2.8300e-003		2.8300e-003	2.8300e-003	0.0000	14.0429	14.0429	7.7000e-004	0.0000	14.0620
Total	**13.7554**	**0.0630**	**0.0995**	**1.6000e-004**		**2.8300e-003**	**2.8300e-003**		**2.8300e-003**	**2.8300e-003**	**0.0000**	**14.0429**	**14.0429**	**7.7000e-004**	**0.0000**	**14.0620**

3.7 Architectural Coating - 2029

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	0.0000	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
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	0.0550	0.0308	0.4041	1.6300e-003	0.2227	1.2000e-003	0.2239	0.0591	1.1100e-003	0.0602	0.0000	147.3979	147.3979	2.5100e-003	0.0000	147.4607
Total	**0.0550**	**0.0308**	**0.4041**	**1.6300e-003**	**0.2227**	**1.2000e-003**	**0.2239**	**0.0591**	**1.1100e-003**	**0.0602**	**0.0000**	**147.3979**	**147.3979**	**2.5100e-003**	**0.0000**	**147.4607**

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	3.5611	22.9758	47.4867	0.2577	27.8134	0.1252	27.9386	7.4500	0.1164	7.5664	0.0000	24,026.0131	24,026.0131	0.9046	0.0000	24,048.6274
Unmitigated	3.5611	22.9758	47.4867	0.2577	27.8134	0.1252	27.9386	7.4500	0.1164	7.5664	0.0000	24,026.0131	24,026.0131	0.9046	0.0000	24,048.6274

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	11,980.80	11,980.80	11980.80	40,940,214	40,940,214
General Office Building	6,452.83	6,452.83	6452.83	20,787,546	20,787,546
Health Club	469.15	469.15	469.15	1,003,409	1,003,409
Research & Development	3,102.38	3,102.38	3102.38	10,481,872	10,481,872
Total	22,005.17	22,005.17	22,005.17	73,213,041	73,213,041

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Research & Development	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730
General Office Building	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730
Health Club	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730
Research & Development	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730

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	19,092.3148	19,092.3148	0.4177	0.0864	19,128.5076
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	19,092.3148	19,092.3148	0.4177	0.0864	19,128.5076
NaturalGas Mitigated	0.3546	3.1152	1.9116	0.0193		0.2450	0.2450		0.2450	0.2450	0.0000	3,509.5116	3,509.5116	0.0673	0.0643	3,530.3669
NaturalGas Unmitigated	0.3546	3.1152	1.9116	0.0193		0.2450	0.2450		0.2450	0.2450	0.0000	3,509.5116	3,509.5116	0.0673	0.0643	3,530.3669

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					
Apartments Mid Rise	3.6926e +007	0.1991	1.7015	0.7240	0.0109		0.1376	0.1376		0.1376	0.1376	0.0000	1,970.513 3	1,970.513 3	0.0378	0.0361	1,982.223 0
General Office Building	4.66487e +006	0.0252	0.2287	0.1921	1.3700e-003		0.0174	0.0174		0.0174	0.0174	0.0000	248.9354	248.9354	4.7700e-003	4.5600e-003	250.4147
Health Club	3.17557e +006	0.0171	0.1557	0.1308	9.3000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	169.4607	169.4607	3.2500e-003	3.1100e-003	170.4677
Research & Development	2.09993e +007	0.1132	1.0294	0.8647	6.1800e-003		0.0782	0.0782		0.0782	0.0782	0.0000	1,120.602 3	1,120.602 3	0.0215	0.0205	1,127.261 5
Total		**0.3546**	**3.1152**	**1.9116**	**0.0193**		**0.2450**	**0.2450**		**0.2450**	**0.2450**	**0.0000**	**3,509.511 6**	**3,509.511 6**	**0.0673**	**0.0643**	**3,530.366 9**

5.2 Energy by Land Use - NaturalGas

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					
Apartments Mid Rise	3.6926e+007	0.1991	1.7015	0.7240	0.0109		0.1376	0.1376		0.1376	0.1376	0.0000	1,970.5133	1,970.5133	0.0378	0.0361	1,982.2230
General Office Building	4.66487e+006	0.0252	0.2287	0.1921	1.3700e-003		0.0174	0.0174		0.0174	0.0174	0.0000	248.9354	248.9354	4.7700e-003	4.5600e-003	250.4147
Health Club	3.17557e+006	0.0171	0.1557	0.1308	9.3000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	169.4607	169.4607	3.2500e-003	3.1100e-003	170.4677
Research & Development	2.09993e+007	0.1132	1.0294	0.8647	6.1800e-003		0.0782	0.0782		0.0782	0.0782	0.0000	1,120.6023	1,120.6023	0.0215	0.0205	1,127.2615
Total		**0.3546**	**3.1152**	**1.9116**	**0.0193**		**0.2450**	**0.2450**		**0.2450**	**0.2450**	**0.0000**	**3,509.5116**	**3,509.5116**	**0.0673**	**0.0643**	**3,530.3669**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.1401e +007	6,855.477 7	0.1500	0.0310	6,868.473 4
General Office Building	1.27982e +007	7,695.591 0	0.1684	0.0348	7,710.179 3
Health Club	992061	596.5310	0.0131	2.7000e-003	597.6618
Research & Development	6.56026e +006	3,944.715 1	0.0863	0.0179	3,952.193 0
Total		**19,092.31 48**	**0.4177**	**0.0864**	**19,128.50 76**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	1.1401e +007	6,855.477 7	0.1500	0.0310	6,868.473 4
General Office Building	1.27982e +007	7,695.591 0	0.1684	0.0348	7,710.179 3
Health Club	992061	596.5310	0.0131	2.7000e-003	597.6618
Research & Development	6.56026e +006	3,944.715 1	0.0863	0.0179	3,952.193 0
Total		**19,092.31 48**	**0.4177**	**0.0864**	**19,128.50 76**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	22.5788	0.2962	25.6764	1.3600e-003		0.1428	0.1428		0.1428	0.1428	0.0000	42.0983	42.0983	0.0402	0.0000	43.1023
Unmitigated	22.5788	0.2962	25.6764	1.3600e-003		0.1428	0.1428		0.1428	0.1428	0.0000	42.0983	42.0983	0.0402	0.0000	43.1023

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	2.0274					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	19.7821					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.7694	0.2962	25.6764	1.3600e-003		0.1428	0.1428		0.1428	0.1428	0.0000	42.0983	42.0983	0.0402	0.0000	43.1023
Total	**22.5788**	**0.2962**	**25.6764**	**1.3600e-003**		**0.1428**	**0.1428**		**0.1428**	**0.1428**	**0.0000**	**42.0983**	**42.0983**	**0.0402**	**0.0000**	**43.1023**

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	2.0274					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	19.7821					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.7694	0.2962	25.6764	1.3600e-003		0.1428	0.1428		0.1428	0.1428	0.0000	42.0983	42.0983	0.0402	0.0000	43.1023
Total	**22.5788**	**0.2962**	**25.6764**	**1.3600e-003**		**0.1428**	**0.1428**		**0.1428**	**0.1428**	**0.0000**	**42.0983**	**42.0983**	**0.0402**	**0.0000**	**43.1023**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7,594.468 5	23.7897	0.5913	8,365.404 2
Unmitigated	7,594.468 5	23.7897	0.5913	8,365.404 2

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	162.624 / 102.524	2,009.787 6	5.3420	0.1340	2,183.264 6
General Office Building	238.935 / 146.444	2,924.879 5	7.8480	0.1967	3,179.706 0
Health Club	5.78065 / 3.54298	70.7629	0.1899	4.7600e-003	76.9280
Research & Development	317.797 / 0	2,589.038 5	10.4098	0.2558	2,925.505 5
Total		**7,594.468 5**	**23.7897**	**0.5913**	**8,365.404 1**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	162.624 / 102.524	2,009.787 6	5.3420	0.1340	2,183.264 6
General Office Building	238.935 / 146.444	2,924.879 5	7.8480	0.1967	3,179.706 0
Health Club	5.78065 / 3.54298	70.7629	0.1899	4.7600e-003	76.9280
Research & Development	317.797 / 0	2,589.038 5	10.4098	0.2558	2,925.505 5
Total		**7,594.468 5**	**23.7897**	**0.5913**	**8,365.404 1**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	609.9148	36.0449	0.0000	1,511.0380
Unmitigated	609.9148	36.0449	0.0000	1,511.0380

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	1148.16	233.0661	13.7738	0.0000	577.4114
General Office Building	1250.24	253.7874	14.9984	0.0000	628.7476
Health Club	557.12	113.0903	6.6835	0.0000	280.1765
Research & Development	49.12	9.9709	0.5893	0.0000	24.7025
Total		**609.9148**	**36.0449**	**0.0000**	**1,511.0380**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	1148.16	233.0661	13.7738	0.0000	577.4114
General Office Building	1250.24	253.7874	14.9984	0.0000	628.7476
Health Club	557.12	113.0903	6.6835	0.0000	280.1765
Research & Development	49.12	9.9709	0.5893	0.0000	24.7025
Total		**609.9148**	**36.0449**	**0.0000**	**1,511.0380**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

19-07846 Long Range Development Plan EIR - Operation 2035

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1,344.34	1000sqft	30.86	1,344,344.00	0
Research & Development	646.33	1000sqft	14.84	646,331.00	0
Health Club	97.74	1000sqft	2.24	97,740.00	0
Apartments Mid Rise	2,496.00	Dwelling Unit	65.68	3,386,071.00	7139

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	15			**Operational Year**	2035
Utility Company	Riverside Public Utilities				
CO2 Intensity (lb/MWhr)	1325.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - obtained from PD

Construction Phase - operation run only

Trips and VMT -

Demolition - operation only run

Grading - operation only run

Architectural Coating -

Vehicle Trips - trip rate adjusted based on project TIS VMT

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - assume no woodstoves or fireplaces

Area Coating -

Energy Use -

Water And Wastewater -

Solid Waste -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,044,208.00	720,979.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	3,132,623.00	2,162,937.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	2,285,598.00	1,523,732.00
tblArchitecturalCoating	ConstArea_Residential_Interior	6,856,794.00	4,571,197.00
tblConstructionPhase	NumDays	220.00	110.00

tblConstructionPhase	NumDays	3,100.00	1,550.00
tblConstructionPhase	NumDays	200.00	100.00
tblConstructionPhase	NumDays	310.00	155.00
tblConstructionPhase	NumDays	220.00	110.00
tblConstructionPhase	NumDays	120.00	60.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	2,121.60	0.00
tblFireplaces	NumberNoFireplace	249.60	0.00
tblFireplaces	NumberWood	124.80	0.00
tblLandUse	LandUseSquareFeet	1,344,340.00	1,344,344.00
tblLandUse	LandUseSquareFeet	646,330.00	646,331.00
tblLandUse	LandUseSquareFeet	2,496,000.00	3,386,071.00
tblTripsAndVMT	VendorTripNumber	609.00	441.00
tblTripsAndVMT	WorkerTripNumber	2,475.00	1,845.00
tblTripsAndVMT	WorkerTripNumber	495.00	369.00
tblVehicleTrips	ST_TR	6.39	4.80
tblVehicleTrips	ST_TR	2.46	4.80
tblVehicleTrips	ST_TR	20.87	4.80
tblVehicleTrips	ST_TR	1.90	4.80
tblVehicleTrips	SU_TR	5.86	4.80
tblVehicleTrips	SU_TR	1.05	4.80
tblVehicleTrips	SU_TR	26.73	4.80
tblVehicleTrips	SU_TR	1.11	4.80
tblVehicleTrips	WD_TR	6.65	4.80
tblVehicleTrips	WD_TR	11.03	4.80

tblVehicleTrips	WD_TR	32.93	4.80
tblVehicleTrips	WD_TR	8.11	4.80
tblWoodstoves	NumberCatalytic	124.80	0.00
tblWoodstoves	NumberNoncatalytic	124.80	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	3.7040	38.8929	29.7382	0.0642	18.2675	1.6365	19.8815	9.9840	1.5056	11.4689	0.0000	6,224.9553	6,224.9553	1.9496	0.0000	6,273.6952
2023	9.3000	48.6970	84.0958	0.3251	23.4452	1.4261	24.3225	6.2818	1.3120	7.1049	0.0000	33,068.8879	33,068.8879	1.9491	0.0000	33,110.5324
2024	8.8127	47.3147	79.8641	0.3184	23.4452	0.7886	24.2338	6.2818	0.7395	7.0213	0.0000	32,405.3499	32,405.3499	1.6155	0.0000	32,445.7376
2025	8.3606	45.7565	75.6544	0.3105	23.4452	0.6997	24.1448	6.2818	0.6558	6.9376	0.0000	31,618.6122	31,618.6122	1.5662	0.0000	31,657.7680
2026	8.0593	45.2060	72.1573	0.3035	23.4452	0.6945	24.1397	6.2818	0.6510	6.9328	0.0000	30,931.9924	30,931.9924	1.5255	0.0000	30,970.1293
2027	7.7674	44.6932	69.0547	0.2974	23.4452	0.6866	24.1318	6.2818	0.6437	6.9255	0.0000	30,326.5504	30,326.5504	1.4880	0.0000	30,363.7492
2028	7.4704	44.2512	66.3489	0.2921	23.4452	0.6768	24.1220	6.2818	0.6347	6.9165	0.0000	29,795.3403	29,795.3403	1.4549	0.0000	29,831.7126
2029	251.1006	43.8220	63.6937	0.2873	23.4452	0.6679	24.1132	6.2818	0.6265	6.9083	0.0000	29,324.6491	29,324.6491	1.4234	0.0000	29,360.2335
Maximum	**251.1006**	**48.6970**	**84.0958**	**0.3251**	**23.4452**	**1.6365**	**24.3225**	**9.9840**	**1.5056**	**11.4689**	**0.0000**	**33,068.8879**	**33,068.8879**	**1.9496**	**0.0000**	**33,110.5324**

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	3.7040	38.8929	29.7382	0.0642	18.2675	1.6365	19.8815	9.9840	1.5056	11.4689	0.0000	6,224.9553	6,224.9553	1.9496	0.0000	6,273.6952
2023	9.3000	48.6970	84.0958	0.3251	23.4452	1.4261	24.3225	6.2818	1.3120	7.1049	0.0000	33,068.8879	33,068.8879	1.9491	0.0000	33,110.5324
2024	8.8127	47.3147	79.8641	0.3184	23.4452	0.7886	24.2338	6.2818	0.7395	7.0213	0.0000	32,405.3499	32,405.3499	1.6155	0.0000	32,445.7376
2025	8.3606	45.7565	75.6544	0.3105	23.4452	0.6997	24.1448	6.2818	0.6558	6.9376	0.0000	31,618.6122	31,618.6122	1.5662	0.0000	31,657.7680
2026	8.0593	45.2060	72.1573	0.3035	23.4452	0.6945	24.1397	6.2818	0.6510	6.9328	0.0000	30,931.9924	30,931.9924	1.5255	0.0000	30,970.1293
2027	7.7674	44.6932	69.0547	0.2974	23.4452	0.6866	24.1318	6.2818	0.6437	6.9255	0.0000	30,326.5504	30,326.5504	1.4880	0.0000	30,363.7492
2028	7.4704	44.2512	66.3489	0.2921	23.4452	0.6768	24.1220	6.2818	0.6347	6.9165	0.0000	29,795.3403	29,795.3403	1.4549	0.0000	29,831.7126
2029	251.1006	43.8220	63.6937	0.2873	23.4452	0.6679	24.1132	6.2818	0.6265	6.9083	0.0000	29,324.6491	29,324.6491	1.4234	0.0000	29,360.2335
Maximum	**251.1006**	**48.6970**	**84.0958**	**0.3251**	**23.4452**	**1.6365**	**24.3225**	**9.9840**	**1.5056**	**11.4689**	**0.0000**	**33,068.8879**	**33,068.8879**	**1.9496**	**0.0000**	**33,110.5324**

	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**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	lb/day										lb/day					
Area	125.6584	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427	0.0000	371.2436	371.2436	0.3541	0.0000	380.0972
Energy	1.9431	17.0696	10.4743	0.1060		1.3425	1.3425		1.3425	1.3425		21,197.6677	21,197.6677	0.4063	0.3886	21,323.6349
Mobile	21.0402	123.5327	275.1737	1.4705	155.6441	0.6881	156.3322	41.6271	0.6396	42.2668		151,036.2955	151,036.2955	5.4785		151,173.2574
Total	**148.6417**	**142.9716**	**491.0593**	**1.5874**	**155.6441**	**3.1733**	**158.8174**	**41.6271**	**3.1249**	**44.7520**	**0.0000**	**172,605.2069**	**172,605.2069**	**6.2389**	**0.3886**	**172,876.9895**

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	lb/day										lb/day					
Area	125.6584	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427	0.0000	371.2436	371.2436	0.3541	0.0000	380.0972
Energy	1.9431	17.0696	10.4743	0.1060		1.3425	1.3425		1.3425	1.3425		21,197.6677	21,197.6677	0.4063	0.3886	21,323.6349
Mobile	21.0402	123.5327	275.1737	1.4705	155.6441	0.6881	156.3322	41.6271	0.6396	42.2668		151,036.2955	151,036.2955	5.4785		151,173.2574
Total	**148.6417**	**142.9716**	**491.0593**	**1.5874**	**155.6441**	**3.1733**	**158.8174**	**41.6271**	**3.1249**	**44.7520**	**0.0000**	**172,605.2069**	**172,605.2069**	**6.2389**	**0.3886**	**172,876.9895**

	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	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	5/20/2022	5	100	
2	Site Preparation	Site Preparation	5/21/2022	8/12/2022	5	60	
3	Grading	Grading	8/13/2022	3/17/2023	5	155	
4	Building Construction	Building Construction	3/18/2023	2/23/2029	5	1550	
5	Paving	Paving	2/24/2029	7/27/2029	5	110	
6	Architectural Coating	Architectural Coating	7/28/2029	12/28/2029	5	110	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 387.5

Acres of Paving: 0

Residential Indoor: 4,571,197; Residential Outdoor: 1,523,732; Non-Residential Indoor: 2,162,937; Non-Residential Outdoor: 720,979; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,845.00	441.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	369.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

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	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**		**1.2427**	**1.2427**		**1.1553**	**1.1553**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	**0.0594**	**0.0371**	**0.5225**	**1.6100e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**160.1586**	**160.1586**	**4.0400e-003**		**160.2595**

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	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**		**1.2427**	**1.2427**		**1.1553**	**1.1553**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	**0.0594**	**0.0371**	**0.5225**	**1.6100e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**160.1586**	**160.1586**	**4.0400e-003**		**160.2595**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0663**	**1.6126**	**19.6788**	**9.9307**	**1.4836**	**11.4143**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0713	0.0445	0.6270	1.9300e-003	0.2012	1.4400e-003	0.2026	0.0534	1.3200e-003	0.0547		192.1903	192.1903	4.8400e-003		192.3114
Total	**0.0713**	**0.0445**	**0.6270**	**1.9300e-003**	**0.2012**	**1.4400e-003**	**0.2026**	**0.0534**	**1.3200e-003**	**0.0547**		**192.1903**	**192.1903**	**4.8400e-003**		**192.3114**

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0663**	**1.6126**	**19.6788**	**9.9307**	**1.4836**	**11.4143**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0713	0.0445	0.6270	1.9300e-003	0.2012	1.4400e-003	0.2026	0.0534	1.3200e-003	0.0547		192.1903	192.1903	4.8400e-003		192.3114
Total	**0.0713**	**0.0445**	**0.6270**	**1.9300e-003**	**0.2012**	**1.4400e-003**	**0.2026**	**0.0534**	**1.3200e-003**	**0.0547**		**192.1903**	**192.1903**	**4.8400e-003**		**192.3114**

3.4 Grading - 2022

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0792	0.0495	0.6967	2.1400e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		213.5448	213.5448	5.3800e-003		213.6794
Total	**0.0792**	**0.0495**	**0.6967**	**2.1400e-003**	**0.2236**	**1.6000e-003**	**0.2252**	**0.0593**	**1.4700e-003**	**0.0608**		**213.5448**	**213.5448**	**5.3800e-003**		**213.6794**

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0792	0.0495	0.6967	2.1400e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		213.5448	213.5448	5.3800e-003		213.6794
Total	**0.0792**	**0.0495**	**0.6967**	**2.1400e-003**	**0.2236**	**1.6000e-003**	**0.2252**	**0.0593**	**1.4700e-003**	**0.0608**		**213.5448**	**213.5448**	**5.3800e-003**		**213.6794**

3.4 Grading - 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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**8.6733**	**1.4245**	**10.0978**	**3.5965**	**1.3105**	**4.9070**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

3.4 Grading - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0745	0.0448	0.6434	2.0600e-003	0.2236	1.5600e-003	0.2251	0.0593	1.4300e-003	0.0607		205.5860	205.5860	4.8500e-003		205.7074
Total	**0.0745**	**0.0448**	**0.6434**	**2.0600e-003**	**0.2236**	**1.5600e-003**	**0.2251**	**0.0593**	**1.4300e-003**	**0.0607**		**205.5860**	**205.5860**	**4.8500e-003**		**205.7074**

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**8.6733**	**1.4245**	**10.0978**	**3.5965**	**1.3105**	**4.9070**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

3.4 Grading - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0745	0.0448	0.6434	2.0600e-003	0.2236	1.5600e-003	0.2251	0.0593	1.4300e-003	0.0607		205.5860	205.5860	4.8500e-003		205.7074
Total	**0.0745**	**0.0448**	**0.6434**	**2.0600e-003**	**0.2236**	**1.5600e-003**	**0.2251**	**0.0593**	**1.4300e-003**	**0.0607**		**205.5860**	**205.5860**	**4.8500e-003**		**205.7074**

3.5 Building Construction - 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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Hauling	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
Vendor	0.8585	30.1836	8.4988	0.1079	2.8224	0.0339	2.8564	0.8126	0.0324	0.8450		11,548.3663	11,548.3663	0.6101		11,563.6187
Worker	6.8687	4.1285	59.3529	0.1903	20.6228	0.1436	20.7664	5.4693	0.1322	5.6015		18,965.3116	18,965.3116	0.4478		18,976.5077
Total	**7.7272**	**34.3121**	**67.8518**	**0.2982**	**23.4452**	**0.1776**	**23.6227**	**6.2818**	**0.1647**	**6.4465**		**30,513.6779**	**30,513.6779**	**1.0579**		**30,540.1264**

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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Hauling	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
Vendor	0.8585	30.1836	8.4988	0.1079	2.8224	0.0339	2.8564	0.8126	0.0324	0.8450		11,548.3663	11,548.3663	0.6101		11,563.6187
Worker	6.8687	4.1285	59.3529	0.1903	20.6228	0.1436	20.7664	5.4693	0.1322	5.6015		18,965.3116	18,965.3116	0.4478		18,976.5077
Total	**7.7272**	**34.3121**	**67.8518**	**0.2982**	**23.4452**	**0.1776**	**23.6227**	**6.2818**	**0.1647**	**6.4465**		**30,513.6779**	**30,513.6779**	**1.0579**		**30,540.1264**

3.5 Building Construction - 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	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.5 Building Construction - 2024

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	lb/day										lb/day					
Hauling	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
Vendor	0.8405	30.1087	8.2542	0.1075	2.8224	0.0336	2.8560	0.8126	0.0321	0.8447		11,506.4961	11,506.4961	0.6006		11,521.5112
Worker	6.5006	3.7623	55.4430	0.1840	20.6228	0.1417	20.7645	5.4693	0.1305	5.5997		18,343.1549	18,343.1549	0.4106		18,353.4187
Total	**7.3411**	**33.8710**	**63.6973**	**0.2915**	**23.4452**	**0.1753**	**23.6205**	**6.2818**	**0.1626**	**6.4444**		**29,849.6510**	**29,849.6510**	**1.0112**		**29,874.9299**

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	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.5 Building Construction - 2024

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	lb/day										lb/day					
Hauling	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
Vendor	0.8405	30.1087	8.2542	0.1075	2.8224	0.0336	2.8560	0.8126	0.0321	0.8447		11,506.4961	11,506.4961	0.6006		11,521.5112
Worker	6.5006	3.7623	55.4430	0.1840	20.6228	0.1417	20.7645	5.4693	0.1305	5.5997		18,343.1549	18,343.1549	0.4106		18,353.4187
Total	**7.3411**	**33.8710**	**63.6973**	**0.2915**	**23.4452**	**0.1753**	**23.6205**	**6.2818**	**0.1626**	**6.4444**		**29,849.6510**	**29,849.6510**	**1.0112**		**29,874.9299**

3.5 Building Construction - 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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2025

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	lb/day										lb/day					
Hauling	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
Vendor	0.8192	29.8462	8.0362	0.1068	2.8224	0.0331	2.8555	0.8125	0.0316	0.8442		11,441.0895	11,441.0895	0.5911		11,455.8660
Worker	6.1741	3.4407	51.5335	0.1767	20.6228	0.1390	20.7618	5.4693	0.1279	5.5972		17,621.0483	17,621.0483	0.3742		17,630.4040
Total	**6.9932**	**33.2869**	**59.5697**	**0.2835**	**23.4452**	**0.1721**	**23.6173**	**6.2818**	**0.1596**	**6.4414**		**29,062.1378**	**29,062.1378**	**0.9653**		**29,086.2699**

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2025

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	lb/day										lb/day					
Hauling	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
Vendor	0.8192	29.8462	8.0362	0.1068	2.8224	0.0331	2.8555	0.8125	0.0316	0.8442		11,441.0895	11,441.0895	0.5911		11,455.8660
Worker	6.1741	3.4407	51.5335	0.1767	20.6228	0.1390	20.7618	5.4693	0.1279	5.5972		17,621.0483	17,621.0483	0.3742		17,630.4040
Total	**6.9932**	**33.2869**	**59.5697**	**0.2835**	**23.4452**	**0.1721**	**23.6173**	**6.2818**	**0.1596**	**6.4414**		**29,062.1378**	**29,062.1378**	**0.9653**		**29,086.2699**

3.5 Building Construction - 2026

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2026

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	lb/day										lb/day					
Hauling	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
Vendor	0.8005	29.5685	7.8691	0.1062	2.8224	0.0325	2.8550	0.8126	0.0311	0.8436		11,378.4240	11,378.4240	0.5816		11,392.9640
Worker	5.8914	3.1678	48.2036	0.1704	20.6228	0.1344	20.7572	5.4693	0.1237	5.5930		16,997.0941	16,997.0941	0.3429		17,005.6672
Total	**6.6919**	**32.7363**	**56.0727**	**0.2766**	**23.4452**	**0.1669**	**23.6121**	**6.2818**	**0.1548**	**6.4366**		**28,375.5181**	**28,375.5181**	**0.9245**		**28,398.6312**

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2026

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	lb/day										lb/day					
Hauling	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
Vendor	0.8005	29.5685	7.8691	0.1062	2.8224	0.0325	2.8550	0.8126	0.0311	0.8436		11,378.4240	11,378.4240	0.5816		11,392.9640
Worker	5.8914	3.1678	48.2036	0.1704	20.6228	0.1344	20.7572	5.4693	0.1237	5.5930		16,997.0941	16,997.0941	0.3429		17,005.6672
Total	**6.6919**	**32.7363**	**56.0727**	**0.2766**	**23.4452**	**0.1669**	**23.6121**	**6.2818**	**0.1548**	**6.4366**		**28,375.5181**	**28,375.5181**	**0.9245**		**28,398.6312**

3.5 Building Construction - 2027

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2027

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	lb/day										lb/day					
Hauling	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
Vendor	0.7849	29.3012	7.7341	0.1056	2.8224	0.0320	2.8544	0.8126	0.0305	0.8431		11,322.6564	11,322.6564	0.5723		11,336.9629
Worker	5.6151	2.9223	45.2359	0.1649	20.6228	0.1271	20.7498	5.4693	0.1169	5.5862		16,447.4196	16,447.4196	0.3148		16,455.2883
Total	**6.4000**	**32.2235**	**52.9700**	**0.2705**	**23.4452**	**0.1590**	**23.6042**	**6.2818**	**0.1475**	**6.4293**		**27,770.0760**	**27,770.0760**	**0.8870**		**27,792.2511**

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2027

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	lb/day										lb/day					
Hauling	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
Vendor	0.7849	29.3012	7.7341	0.1056	2.8224	0.0320	2.8544	0.8126	0.0305	0.8431		11,322.6564	11,322.6564	0.5723		11,336.9629
Worker	5.6151	2.9223	45.2359	0.1649	20.6228	0.1271	20.7498	5.4693	0.1169	5.5862		16,447.4196	16,447.4196	0.3148		16,455.2883
Total	**6.4000**	**32.2235**	**52.9700**	**0.2705**	**23.4452**	**0.1590**	**23.6042**	**6.2818**	**0.1475**	**6.4293**		**27,770.0760**	**27,770.0760**	**0.8870**		**27,792.2511**

3.5 Building Construction - 2028

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2028

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	lb/day										lb/day					
Hauling	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
Vendor	0.7715	29.0795	7.6306	0.1051	2.8225	0.0315	2.8540	0.8126	0.0301	0.8427		11,275.12 69	11,275.12 69	0.5635		11,289.21 46
Worker	5.3315	2.7020	42.6337	0.1600	20.6228	0.1177	20.7405	5.4693	0.1083	5.5776		15,963.73 90	15,963.73 90	0.2904		15,970.99 99
Total	**6.1030**	**31.7816**	**50.2642**	**0.2651**	**23.4452**	**0.1492**	**23.5945**	**6.2818**	**0.1384**	**6.4202**		**27,238.86 59**	**27,238.86 59**	**0.8540**		**27,260.21 45**

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.474 4	2,556.474 4	0.6010		2,571.498 1
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.474 4**	**2,556.474 4**	**0.6010**		**2,571.498 1**

3.5 Building Construction - 2028

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	lb/day										lb/day					
Hauling	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
Vendor	0.7715	29.0795	7.6306	0.1051	2.8225	0.0315	2.8540	0.8126	0.0301	0.8427		11,275.1269	11,275.1269	0.5635		11,289.2146
Worker	5.3315	2.7020	42.6337	0.1600	20.6228	0.1177	20.7405	5.4693	0.1083	5.5776		15,963.7390	15,963.7390	0.2904		15,970.9999
Total	**6.1030**	**31.7816**	**50.2642**	**0.2651**	**23.4452**	**0.1492**	**23.5945**	**6.2818**	**0.1384**	**6.4202**		**27,238.8659**	**27,238.8659**	**0.8540**		**27,260.2145**

3.5 Building Construction - 2029

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2029

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	lb/day										lb/day					
Hauling	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
Vendor	0.7594	28.8628	7.5338	0.1047	2.8225	0.0310	2.8535	0.8126	0.0296	0.8422		11,232.8855	11,232.8855	0.5558		11,246.7800
Worker	5.0145	2.4895	40.0752	0.1557	20.6228	0.1094	20.7321	5.4693	0.1006	5.5699		15,535.2892	15,535.2892	0.2666		15,541.9554
Total	**5.7739**	**31.3523**	**47.6090**	**0.2604**	**23.4452**	**0.1404**	**23.5856**	**6.2818**	**0.1302**	**6.4121**		**26,768.1747**	**26,768.1747**	**0.8224**		**26,788.7354**

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2029

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	lb/day										lb/day					
Hauling	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
Vendor	0.7594	28.8628	7.5338	0.1047	2.8225	0.0310	2.8535	0.8126	0.0296	0.8422		11,232.8855	11,232.8855	0.5558		11,246.7800
Worker	5.0145	2.4895	40.0752	0.1557	20.6228	0.1094	20.7321	5.4693	0.1006	5.5699		15,535.2892	15,535.2892	0.2666		15,541.9554
Total	**5.7739**	**31.3523**	**47.6090**	**0.2604**	**23.4452**	**0.1404**	**23.5856**	**6.2818**	**0.1302**	**6.4121**		**26,768.1747**	**26,768.1747**	**0.8224**		**26,788.7354**

3.6 Paving - 2029

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	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

3.6 Paving - 2029

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0408	0.0202	0.3258	1.2700e-003	0.1677	8.9000e-004	0.1686	0.0445	8.2000e-004	0.0453		126.3032	126.3032	2.1700e-003		126.3574
Total	**0.0408**	**0.0202**	**0.3258**	**1.2700e-003**	**0.1677**	**8.9000e-004**	**0.1686**	**0.0445**	**8.2000e-004**	**0.0453**		**126.3032**	**126.3032**	**2.1700e-003**		**126.3574**

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	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.745 2	2,206.745 2	0.7137		2,224.587 8
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.745 2**	**2,206.745 2**	**0.7137**		**2,224.587 8**

3.6 Paving - 2029

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0408	0.0202	0.3258	1.2700e-003	0.1677	8.9000e-004	0.1686	0.0445	8.2000e-004	0.0453		126.3032	126.3032	2.1700e-003		126.3574
Total	**0.0408**	**0.0202**	**0.3258**	**1.2700e-003**	**0.1677**	**8.9000e-004**	**0.1686**	**0.0445**	**8.2000e-004**	**0.0453**		**126.3032**	**126.3032**	**2.1700e-003**		**126.3574**

3.7 Architectural Coating - 2029

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	lb/day										lb/day					
Archit. Coating	249.9268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**250.0977**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

3.7 Architectural Coating - 2029

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	lb/day										lb/day					
Hauling	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
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
Worker	1.0029	0.4979	8.0151	0.0311	4.1246	0.0219	4.1464	1.0939	0.0201	1.1140		3,107.057 9	3,107.057 9	0.0533		3,108.391 1
Total	**1.0029**	**0.4979**	**8.0151**	**0.0311**	**4.1246**	**0.0219**	**4.1464**	**1.0939**	**0.0201**	**1.1140**		**3,107.057 9**	**3,107.057 9**	**0.0533**		**3,108.391 1**

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	lb/day										lb/day					
Archit. Coating	249.9268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**250.0977**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

3.7 Architectural Coating - 2029

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	lb/day										lb/day					
Hauling	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
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
Worker	1.0029	0.4979	8.0151	0.0311	4.1246	0.0219	4.1464	1.0939	0.0201	1.1140		3,107.057 9	3,107.057 9	0.0533		3,108.391 1
Total	**1.0029**	**0.4979**	**8.0151**	**0.0311**	**4.1246**	**0.0219**	**4.1464**	**1.0939**	**0.0201**	**1.1140**		**3,107.057 9**	**3,107.057 9**	**0.0533**		**3,108.391 1**

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	lb/day										lb/day					
Mitigated	21.0402	123.5327	275.1737	1.4705	155.6441	0.6881	156.3322	41.6271	0.6396	42.2668		151,036.2955	151,036.2955	5.4785		151,173.2574
Unmitigated	21.0402	123.5327	275.1737	1.4705	155.6441	0.6881	156.3322	41.6271	0.6396	42.2668		151,036.2955	151,036.2955	5.4785		151,173.2574

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	11,980.80	11,980.80	11980.80	40,940,214	40,940,214
General Office Building	6,452.83	6,452.83	6452.83	20,787,546	20,787,546
Health Club	469.15	469.15	469.15	1,003,409	1,003,409
Research & Development	3,102.38	3,102.38	3102.38	10,481,872	10,481,872
Total	22,005.17	22,005.17	22,005.17	73,213,041	73,213,041

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Research & Development	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730
General Office Building	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730
Health Club	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730
Research & Development	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730

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	lb/day										lb/day					
NaturalGas Mitigated	1.9431	17.0696	10.4743	0.1060		1.3425	1.3425		1.3425	1.3425		21,197.6677	21,197.6677	0.4063	0.3886	21,323.6349
NaturalGas Unmitigated	1.9431	17.0696	10.4743	0.1060		1.3425	1.3425		1.3425	1.3425		21,197.6677	21,197.6677	0.4063	0.3886	21,323.6349

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	lb/day										lb/day					
Apartments Mid Rise	101167	1.0910	9.3233	3.9673	0.0595		0.7538	0.7538		0.7538	0.7538		11,902.0221	11,902.0221	0.2281	0.2182	11,972.7499
General Office Building	12780.5	0.1378	1.2530	1.0525	7.5200e-003		0.0952	0.0952		0.0952	0.0952		1,503.5854	1,503.5854	0.0288	0.0276	1,512.5205
Health Club	8700.2	0.0938	0.8530	0.7165	5.1200e-003		0.0648	0.0648		0.0648	0.0648		1,023.5528	1,023.5528	0.0196	0.0188	1,029.6353
Research & Development	57532.3	0.6205	5.6404	4.7380	0.0338		0.4287	0.4287		0.4287	0.4287		6,768.5074	6,768.5074	0.1297	0.1241	6,808.7293
Total		**1.9431**	**17.0696**	**10.4743**	**0.1060**		**1.3425**	**1.3425**		**1.3425**	**1.3425**		**21,197.6677**	**21,197.6677**	**0.4063**	**0.3886**	**21,323.6349**

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
Apartments Mid Rise	101.167	1.0910	9.3233	3.9673	0.0595		0.7538	0.7538		0.7538	0.7538		11,902.0221	11,902.0221	0.2281	0.2182	11,972.7499
General Office Building	12.7805	0.1378	1.2530	1.0525	7.5200e-003		0.0952	0.0952		0.0952	0.0952		1,503.5854	1,503.5854	0.0288	0.0276	1,512.5205
Health Club	8.7002	0.0938	0.8530	0.7165	5.1200e-003		0.0648	0.0648		0.0648	0.0648		1,023.5528	1,023.5528	0.0196	0.0188	1,029.6353
Research & Development	57.5323	0.6205	5.6404	4.7380	0.0338		0.4287	0.4287		0.4287	0.4287		6,768.5074	6,768.5074	0.1297	0.1241	6,808.7293
Total		**1.9431**	**17.0696**	**10.4743**	**0.1060**		**1.3425**	**1.3425**		**1.3425**	**1.3425**		**21,197.6677**	**21,197.6677**	**0.4063**	**0.3886**	**21,323.6349**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	lb/day										lb/day					
Mitigated	125.6584	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427	0.0000	371.2436	371.2436	0.3541	0.0000	380.0972
Unmitigated	125.6584	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427	0.0000	371.2436	371.2436	0.3541	0.0000	380.0972

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	lb/day										lb/day					
Architectural Coating	11.1088					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	108.3948					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	6.1548	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427		371.2436	371.2436	0.3541		380.0972
Total	**125.6584**	**2.3693**	**205.4114**	**0.0109**		**1.1427**	**1.1427**		**1.1427**	**1.1427**	**0.0000**	**371.2436**	**371.2436**	**0.3541**	**0.0000**	**380.0972**

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	lb/day										lb/day					
Architectural Coating	11.1088					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	108.3948					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	6.1548	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427		371.2436	371.2436	0.3541		380.0972
Total	**125.6584**	**2.3693**	**205.4114**	**0.0109**		**1.1427**	**1.1427**		**1.1427**	**1.1427**	**0.0000**	**371.2436**	**371.2436**	**0.3541**	**0.0000**	**380.0972**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

19-07846 Long Range Development Plan EIR - Operation 2035

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1,344.34	1000sqft	30.86	1,344,344.00	0
Research & Development	646.33	1000sqft	14.84	646,331.00	0
Health Club	97.74	1000sqft	2.24	97,740.00	0
Apartments Mid Rise	2,496.00	Dwelling Unit	65.68	3,386,071.00	7139

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 31

Climate Zone 15 **Operational Year** 2035

Utility Company Riverside Public Utilities

CO2 Intensity (lb/MWhr) 1325.65 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - obtained from PD

Construction Phase - operation run only

Trips and VMT -

Demolition - operation only run

Grading - operation only run

Architectural Coating -

Vehicle Trips - trip rate adjusted based on project TIS VMT

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Woodstoves - assume no woodstoves or fireplaces

Area Coating -

Energy Use -

Water And Wastewater -

Solid Waste -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,044,208.00	720,979.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	3,132,623.00	2,162,937.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	2,285,598.00	1,523,732.00
tblArchitecturalCoating	ConstArea_Residential_Interior	6,856,794.00	4,571,197.00
tblConstructionPhase	NumDays	220.00	110.00

tblConstructionPhase	NumDays	3,100.00	1,550.00
tblConstructionPhase	NumDays	200.00	100.00
tblConstructionPhase	NumDays	310.00	155.00
tblConstructionPhase	NumDays	220.00	110.00
tblConstructionPhase	NumDays	120.00	60.00
tblFireplaces	FireplaceDayYear	25.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	2,121.60	0.00
tblFireplaces	NumberNoFireplace	249.60	0.00
tblFireplaces	NumberWood	124.80	0.00
tblLandUse	LandUseSquareFeet	1,344,340.00	1,344,344.00
tblLandUse	LandUseSquareFeet	646,330.00	646,331.00
tblLandUse	LandUseSquareFeet	2,496,000.00	3,386,071.00
tblTripsAndVMT	VendorTripNumber	609.00	441.00
tblTripsAndVMT	WorkerTripNumber	2,475.00	1,845.00
tblTripsAndVMT	WorkerTripNumber	495.00	369.00
tblVehicleTrips	ST_TR	6.39	4.80
tblVehicleTrips	ST_TR	2.46	4.80
tblVehicleTrips	ST_TR	20.87	4.80
tblVehicleTrips	ST_TR	1.90	4.80
tblVehicleTrips	SU_TR	5.86	4.80
tblVehicleTrips	SU_TR	1.05	4.80
tblVehicleTrips	SU_TR	26.73	4.80
tblVehicleTrips	SU_TR	1.11	4.80
tblVehicleTrips	WD_TR	6.65	4.80
tblVehicleTrips	WD_TR	11.03	4.80

tblVehicleTrips	WD_TR	32.93	4.80
tblVehicleTrips	WD_TR	8.11	4.80
tblWoodstoves	NumberCatalytic	124.80	0.00
tblWoodstoves	NumberNoncatalytic	124.80	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	3.7116	38.8976	29.6665	0.0641	18.2675	1.6365	19.8815	9.9840	1.5056	11.4689	0.0000	6,211.1178	6,211.1178	1.9492	0.0000	6,259.8485
2023	10.0244	48.8913	78.7180	0.3097	23.4452	1.4261	24.3241	6.2818	1.3120	7.1065	0.0000	31,508.4782	31,508.4782	1.9488	0.0000	31,550.3442
2024	9.5203	47.4825	74.7783	0.3034	23.4452	0.7901	24.2353	6.2818	0.7409	7.0227	0.0000	30,886.4315	30,886.4315	1.6252	0.0000	30,927.0626
2025	9.0537	45.8939	70.9153	0.2960	23.4452	0.7010	24.1462	6.2818	0.6571	6.9389	0.0000	30,149.9308	30,149.9308	1.5770	0.0000	30,189.3569
2026	8.7416	45.3173	67.7124	0.2895	23.4452	0.6957	24.1409	6.2818	0.6522	6.9340	0.0000	29,506.6735	29,506.6735	1.5371	0.0000	29,545.1010
2027	8.4358	44.7795	64.8720	0.2838	23.4452	0.6876	24.1328	6.2818	0.6447	6.9265	0.0000	28,938.5420	28,938.5420	1.5002	0.0000	28,976.0473
2028	8.1188	44.3169	62.3978	0.2787	23.4452	0.6777	24.1230	6.2818	0.6356	6.9174	0.0000	28,439.9460	28,439.9460	1.4676	0.0000	28,476.6370
2029	251.2171	43.8668	59.9643	0.2743	23.4452	0.6688	24.1140	6.2818	0.6273	6.9091	0.0000	27,997.4474	27,997.4474	1.4367	0.0000	28,033.3644
Maximum	**251.2171**	**48.8913**	**78.7180**	**0.3097**	**23.4452**	**1.6365**	**24.3241**	**9.9840**	**1.5056**	**11.4689**	**0.0000**	**31,508.4782**	**31,508.4782**	**1.9492**	**0.0000**	**31,550.3442**

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	3.7116	38.8976	29.6665	0.0641	18.2675	1.6365	19.8815	9.9840	1.5056	11.4689	0.0000	6,211.1178	6,211.1178	1.9492	0.0000	6,259.8485
2023	10.0244	48.8913	78.7180	0.3097	23.4452	1.4261	24.3241	6.2818	1.3120	7.1065	0.0000	31,508.4782	31,508.4782	1.9488	0.0000	31,550.3442
2024	9.5203	47.4825	74.7783	0.3034	23.4452	0.7901	24.2353	6.2818	0.7409	7.0227	0.0000	30,886.4315	30,886.4315	1.6252	0.0000	30,927.0626
2025	9.0537	45.8939	70.9153	0.2960	23.4452	0.7010	24.1462	6.2818	0.6571	6.9389	0.0000	30,149.9308	30,149.9308	1.5770	0.0000	30,189.3569
2026	8.7416	45.3173	67.7124	0.2895	23.4452	0.6957	24.1409	6.2818	0.6522	6.9340	0.0000	29,506.6735	29,506.6735	1.5371	0.0000	29,545.1010
2027	8.4358	44.7795	64.8720	0.2838	23.4452	0.6876	24.1328	6.2818	0.6447	6.9265	0.0000	28,938.5420	28,938.5420	1.5002	0.0000	28,976.0473
2028	8.1188	44.3169	62.3978	0.2787	23.4452	0.6777	24.1230	6.2818	0.6356	6.9174	0.0000	28,439.9460	28,439.9460	1.4676	0.0000	28,476.6370
2029	251.2171	43.8668	59.9643	0.2743	23.4452	0.6688	24.1140	6.2818	0.6273	6.9091	0.0000	27,997.4474	27,997.4474	1.4367	0.0000	28,033.3644
Maximum	**251.2171**	**48.8913**	**78.7180**	**0.3097**	**23.4452**	**1.6365**	**24.3241**	**9.9840**	**1.5056**	**11.4689**	**0.0000**	**31,508.4782**	**31,508.4782**	**1.9492**	**0.0000**	**31,550.3442**

	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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	lb/day										lb/day					
Area	125.6584	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427	0.0000	371.2436	371.2436	0.3541	0.0000	380.0972
Energy	1.9431	17.0696	10.4743	0.1060		1.3425	1.3425		1.3425	1.3425		21,197.6677	21,197.6677	0.4063	0.3886	21,323.6349
Mobile	19.9421	124.3378	257.0241	1.3951	155.6441	0.6898	156.3339	41.6271	0.6413	42.2684		143,414.1006	143,414.1006	5.5321		143,552.4022
Total	**147.5436**	**143.7768**	**472.9098**	**1.5120**	**155.6441**	**3.1751**	**158.8191**	**41.6271**	**3.1265**	**44.7537**	**0.0000**	**164,983.0119**	**164,983.0119**	**6.2925**	**0.3886**	**165,256.1343**

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	lb/day										lb/day					
Area	125.6584	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427	0.0000	371.2436	371.2436	0.3541	0.0000	380.0972
Energy	1.9431	17.0696	10.4743	0.1060		1.3425	1.3425		1.3425	1.3425		21,197.6677	21,197.6677	0.4063	0.3886	21,323.6349
Mobile	19.9421	124.3378	257.0241	1.3951	155.6441	0.6898	156.3339	41.6271	0.6413	42.2684		143,414.1006	143,414.1006	5.5321		143,552.4022
Total	**147.5436**	**143.7768**	**472.9098**	**1.5120**	**155.6441**	**3.1751**	**158.8191**	**41.6271**	**3.1265**	**44.7537**	**0.0000**	**164,983.0119**	**164,983.0119**	**6.2925**	**0.3886**	**165,256.1343**

	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	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2022	5/20/2022	5	100	
2	Site Preparation	Site Preparation	5/21/2022	8/12/2022	5	60	
3	Grading	Grading	8/13/2022	3/17/2023	5	155	
4	Building Construction	Building Construction	3/18/2023	2/23/2029	5	1550	
5	Paving	Paving	2/24/2029	7/27/2029	5	110	
6	Architectural Coating	Architectural Coating	7/28/2029	12/28/2029	5	110	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 387.5

Acres of Paving: 0

Residential Indoor: 4,571,197; Residential Outdoor: 1,523,732; Non-Residential Indoor: 2,162,937; Non-Residential Outdoor: 720,979; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,845.00	441.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	369.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

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	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**		**1.2427**	**1.2427**		**1.1553**	**1.1553**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	**0.0651**	**0.0406**	**0.4687**	**1.5000e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**149.7805**	**149.7805**	**3.7600e-003**		**149.8745**

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	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**		**1.2427**	**1.2427**		**1.1553**	**1.1553**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	**0.0651**	**0.0406**	**0.4687**	**1.5000e-003**	**0.1677**	**1.2000e-003**	**0.1689**	**0.0445**	**1.1000e-003**	**0.0456**		**149.7805**	**149.7805**	**3.7600e-003**		**149.8745**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0663**	**1.6126**	**19.6788**	**9.9307**	**1.4836**	**11.4143**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0781	0.0487	0.5625	1.8000e-003	0.2012	1.4400e-003	0.2026	0.0534	1.3200e-003	0.0547		179.7366	179.7366	4.5100e-003		179.8494
Total	**0.0781**	**0.0487**	**0.5625**	**1.8000e-003**	**0.2012**	**1.4400e-003**	**0.2026**	**0.0534**	**1.3200e-003**	**0.0547**		**179.7366**	**179.7366**	**4.5100e-003**		**179.8494**

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0663**	**1.6126**	**19.6788**	**9.9307**	**1.4836**	**11.4143**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0781	0.0487	0.5625	1.8000e-003	0.2012	1.4400e-003	0.2026	0.0534	1.3200e-003	0.0547		179.7366	179.7366	4.5100e-003		179.8494
Total	**0.0781**	**0.0487**	**0.5625**	**1.8000e-003**	**0.2012**	**1.4400e-003**	**0.2026**	**0.0534**	**1.3200e-003**	**0.0547**		**179.7366**	**179.7366**	**4.5100e-003**		**179.8494**

3.4 Grading - 2022

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0868	0.0541	0.6250	2.0000e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		199.7073	199.7073	5.0100e-003		199.8326
Total	**0.0868**	**0.0541**	**0.6250**	**2.0000e-003**	**0.2236**	**1.6000e-003**	**0.2252**	**0.0593**	**1.4700e-003**	**0.0608**		**199.7073**	**199.7073**	**5.0100e-003**		**199.8326**

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**8.6733**	**1.6349**	**10.3082**	**3.5965**	**1.5041**	**5.1006**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0868	0.0541	0.6250	2.0000e-003	0.2236	1.6000e-003	0.2252	0.0593	1.4700e-003	0.0608		199.7073	199.7073	5.0100e-003		199.8326
Total	**0.0868**	**0.0541**	**0.6250**	**2.0000e-003**	**0.2236**	**1.6000e-003**	**0.2252**	**0.0593**	**1.4700e-003**	**0.0608**		**199.7073**	**199.7073**	**5.0100e-003**		**199.8326**

3.4 Grading - 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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**8.6733**	**1.4245**	**10.0978**	**3.5965**	**1.3105**	**4.9070**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

3.4 Grading - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0818	0.0490	0.5760	1.9300e-003	0.2236	1.5600e-003	0.2251	0.0593	1.4300e-003	0.0607		192.2593	192.2593	4.5200e-003		192.3722
Total	**0.0818**	**0.0490**	**0.5760**	**1.9300e-003**	**0.2236**	**1.5600e-003**	**0.2251**	**0.0593**	**1.4300e-003**	**0.0607**		**192.2593**	**192.2593**	**4.5200e-003**		**192.3722**

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**8.6733**	**1.4245**	**10.0978**	**3.5965**	**1.3105**	**4.9070**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

3.4 Grading - 2023

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0818	0.0490	0.5760	1.9300e-003	0.2236	1.5600e-003	0.2251	0.0593	1.4300e-003	0.0607		192.2593	192.2593	4.5200e-003		192.3722
Total	**0.0818**	**0.0490**	**0.5760**	**1.9300e-003**	**0.2236**	**1.5600e-003**	**0.2251**	**0.0593**	**1.4300e-003**	**0.0607**		**192.2593**	**192.2593**	**4.5200e-003**		**192.3722**

3.5 Building Construction - 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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Hauling	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
Vendor	0.9045	29.9901	9.3390	0.1049	2.8224	0.0356	2.8580	0.8126	0.0340	0.8466		11,217.3491	11,217.3491	0.6502		11,233.6027
Worker	7.5472	4.5163	53.1350	0.1779	20.6228	0.1436	20.7664	5.4693	0.1322	5.6015		17,735.9192	17,735.9192	0.4167		17,746.3355
Total	**8.4516**	**34.5064**	**62.4740**	**0.2828**	**23.4452**	**0.1792**	**23.6244**	**6.2818**	**0.1663**	**6.4481**		**28,953.2682**	**28,953.2682**	**1.0668**		**28,979.9382**

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	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Hauling	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
Vendor	0.9045	29.9901	9.3390	0.1049	2.8224	0.0356	2.8580	0.8126	0.0340	0.8466		11,217.3491	11,217.3491	0.6502		11,233.6027
Worker	7.5472	4.5163	53.1350	0.1779	20.6228	0.1436	20.7664	5.4693	0.1322	5.6015		17,735.9192	17,735.9192	0.4167		17,746.3355
Total	**8.4516**	**34.5064**	**62.4740**	**0.2828**	**23.4452**	**0.1792**	**23.6244**	**6.2818**	**0.1663**	**6.4481**		**28,953.2682**	**28,953.2682**	**1.0668**		**28,979.9382**

3.5 Building Construction - 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	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

3.5 Building Construction - 2024

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	lb/day										lb/day					
Hauling	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
Vendor	0.8849	29.9245	9.0712	0.1045	2.8224	0.0351	2.8575	0.8126	0.0335	0.8461		11,179.19 71	11,179.19 71	0.6394		11,195.18 27
Worker	7.1639	4.1142	49.5403	0.1720	20.6228	0.1417	20.7645	5.4693	0.1305	5.5997		17,151.53 55	17,151.53 55	0.3815		17,161.07 23
Total	**8.0487**	**34.0387**	**58.6115**	**0.2765**	**23.4452**	**0.1768**	**23.6220**	**6.2818**	**0.1640**	**6.4458**		**28,330.73 26**	**28,330.73 26**	**1.0209**		**28,356.25 50**

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	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.698 9	2,555.698 9	0.6044		2,570.807 7
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.698 9**	**2,555.698 9**	**0.6044**		**2,570.807 7**

3.5 Building Construction - 2024

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	lb/day										lb/day					
Hauling	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
Vendor	0.8849	29.9245	9.0712	0.1045	2.8224	0.0351	2.8575	0.8126	0.0335	0.8461		11,179.1971	11,179.1971	0.6394		11,195.1827
Worker	7.1639	4.1142	49.5403	0.1720	20.6228	0.1417	20.7645	5.4693	0.1305	5.5997		17,151.5355	17,151.5355	0.3815		17,161.0723
Total	**8.0487**	**34.0387**	**58.6115**	**0.2765**	**23.4452**	**0.1768**	**23.6220**	**6.2818**	**0.1640**	**6.4458**		**28,330.7326**	**28,330.7326**	**1.0209**		**28,356.2550**

3.5 Building Construction - 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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2025

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	lb/day										lb/day					
Hauling	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
Vendor	0.8622	29.6629	8.8342	0.1038	2.8224	0.0344	2.8568	0.8125	0.0329	0.8455		11,117.5421	11,117.5421	0.6286		11,133.2574
Worker	6.8241	3.7614	45.9965	0.1652	20.6228	0.1390	20.7618	5.4693	0.1279	5.5972		16,475.9143	16,475.9143	0.3475		16,484.6014
Total	**7.6863**	**33.4243**	**54.8307**	**0.2690**	**23.4452**	**0.1734**	**23.6186**	**6.2818**	**0.1608**	**6.4426**		**27,593.4564**	**27,593.4564**	**0.9761**		**27,617.8588**

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2025

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						lb/day							lb/day			
Hauling	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
Vendor	0.8622	29.6629	8.8342	0.1038	2.8224	0.0344	2.8568	0.8125	0.0329	0.8455		11,117.5421	11,117.5421	0.6286		11,133.2574
Worker	6.8241	3.7614	45.9965	0.1652	20.6228	0.1390	20.7618	5.4693	0.1279	5.5972		16,475.9143	16,475.9143	0.3475		16,484.6014
Total	**7.6863**	**33.4243**	**54.8307**	**0.2690**	**23.4452**	**0.1734**	**23.6186**	**6.2818**	**0.1608**	**6.4426**		**27,593.4564**	**27,593.4564**	**0.9761**		**27,617.8588**

3.5 Building Construction - 2026

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						lb/day							lb/day			
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2026

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	lb/day										lb/day					
Hauling	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
Vendor	0.8424	29.3854	8.6509	0.1032	2.8224	0.0337	2.8561	0.8126	0.0322	0.8448		11,058.52 71	11,058.52 71	0.6179		11,073.97 56
Worker	6.5318	3.4623	42.9769	0.1593	20.6228	0.1344	20.7572	5.4693	0.1237	5.5930		15,891.67 21	15,891.67 21	0.3182		15,899.62 73
Total	**7.3742**	**32.8476**	**51.6278**	**0.2625**	**23.4452**	**0.1681**	**23.6133**	**6.2818**	**0.1559**	**6.4377**		**26,950.19 92**	**26,950.19 92**	**0.9362**		**26,973.60 29**

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.474 4	2,556.474 4	0.6010		2,571.498 1
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.474 4**	**2,556.474 4**	**0.6010**		**2,571.498 1**

3.5 Building Construction - 2026

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	lb/day										lb/day					
Hauling	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
Vendor	0.8424	29.3854	8.6509	0.1032	2.8224	0.0337	2.8561	0.8126	0.0322	0.8448		11,058.5271	11,058.5271	0.6179		11,073.9756
Worker	6.5318	3.4623	42.9769	0.1593	20.6228	0.1344	20.7572	5.4693	0.1237	5.5930		15,891.6721	15,891.6721	0.3182		15,899.6273
Total	**7.3742**	**32.8476**	**51.6278**	**0.2625**	**23.4452**	**0.1681**	**23.6133**	**6.2818**	**0.1559**	**6.4377**		**26,950.1992**	**26,950.1992**	**0.9362**		**26,973.6029**

3.5 Building Construction - 2027

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2027

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	lb/day										lb/day					
Hauling	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
Vendor	0.8258	29.1167	8.5031	0.1027	2.8224	0.0330	2.8555	0.8126	0.0316	0.8441		11,005.7048	11,005.7048	0.6074		11,020.8898
Worker	6.2426	3.1931	40.2842	0.1541	20.6228	0.1271	20.7498	5.4693	0.1169	5.5862		15,376.3629	15,376.3629	0.2919		15,383.6594
Total	**7.0684**	**32.3098**	**48.7873**	**0.2568**	**23.4452**	**0.1601**	**23.6053**	**6.2818**	**0.1485**	**6.4303**		**26,382.0677**	**26,382.0677**	**0.8993**		**26,404.5492**

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2027

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	lb/day										lb/day					
Hauling	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
Vendor	0.8258	29.1167	8.5031	0.1027	2.8224	0.0330	2.8555	0.8126	0.0316	0.8441		11,005.7048	11,005.7048	0.6074		11,020.8898
Worker	6.2426	3.1931	40.2842	0.1541	20.6228	0.1271	20.7498	5.4693	0.1169	5.5862		15,376.3629	15,376.3629	0.2919		15,383.6594
Total	**7.0684**	**32.3098**	**48.7873**	**0.2568**	**23.4452**	**0.1601**	**23.6053**	**6.2818**	**0.1485**	**6.4303**		**26,382.0677**	**26,382.0677**	**0.8993**		**26,404.5492**

3.5 Building Construction - 2028

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2028

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	lb/day										lb/day					
Hauling	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
Vendor	0.8117	28.8958	8.3891	0.1022	2.8225	0.0325	2.8549	0.8126	0.0310	0.8436		10,960.9783	10,960.9783	0.5975		10,975.9168
Worker	5.9397	2.9515	37.9240	0.1495	20.6228	0.1177	20.7405	5.4693	0.1083	5.5776		14,922.4933	14,922.4933	0.2692		14,929.2221
Total	**6.7514**	**31.8473**	**46.3132**	**0.2518**	**23.4452**	**0.1502**	**23.5954**	**6.2818**	**0.1393**	**6.4211**		**25,883.4716**	**25,883.4716**	**0.8667**		**25,905.1389**

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2028

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	lb/day										lb/day					
Hauling	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
Vendor	0.8117	28.8958	8.3891	0.1022	2.8225	0.0325	2.8549	0.8126	0.0310	0.8436		10,960.9783	10,960.9783	0.5975		10,975.9168
Worker	5.9397	2.9515	37.9240	0.1495	20.6228	0.1177	20.7405	5.4693	0.1083	5.5776		14,922.4933	14,922.4933	0.2692		14,929.2221
Total	**6.7514**	**31.8473**	**46.3132**	**0.2518**	**23.4452**	**0.1502**	**23.5954**	**6.2818**	**0.1393**	**6.4211**		**25,883.4716**	**25,883.4716**	**0.8667**		**25,905.1389**

3.5 Building Construction - 2029

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2029

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	lb/day										lb/day					
Hauling	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
Vendor	0.7987	28.6792	8.2828	0.1018	2.8225	0.0318	2.8543	0.8126	0.0304	0.8430		10,921.0450	10,921.0450	0.5888		10,935.7658
Worker	5.5970	2.7180	35.5968	0.1455	20.6228	0.1094	20.7321	5.4693	0.1006	5.5699		14,519.9281	14,519.9281	0.2469		14,526.1005
Total	**6.3957**	**31.3971**	**43.8797**	**0.2473**	**23.4452**	**0.1412**	**23.5864**	**6.2818**	**0.1310**	**6.4129**		**25,440.9731**	**25,440.9731**	**0.8357**		**25,461.8663**

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	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

3.5 Building Construction - 2029

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	lb/day										lb/day					
Hauling	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
Vendor	0.7987	28.6792	8.2828	0.1018	2.8225	0.0318	2.8543	0.8126	0.0304	0.8430		10,921.0450	10,921.0450	0.5888		10,935.7658
Worker	5.5970	2.7180	35.5968	0.1455	20.6228	0.1094	20.7321	5.4693	0.1006	5.5699		14,519.9281	14,519.9281	0.2469		14,526.1005
Total	**6.3957**	**31.3971**	**43.8797**	**0.2473**	**23.4452**	**0.1412**	**23.5864**	**6.2818**	**0.1310**	**6.4129**		**25,440.9731**	**25,440.9731**	**0.8357**		**25,461.8663**

3.6 Paving - 2029

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	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

3.6 Paving - 2029

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0455	0.0221	0.2894	1.1800e-003	0.1677	8.9000e-004	0.1686	0.0445	8.2000e-004	0.0453		118.0482	118.0482	2.0100e-003		118.0984
Total	**0.0455**	**0.0221**	**0.2894**	**1.1800e-003**	**0.1677**	**8.9000e-004**	**0.1686**	**0.0445**	**8.2000e-004**	**0.0453**		**118.0482**	**118.0482**	**2.0100e-003**		**118.0984**

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	lb/day										lb/day					
Off-Road	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850	0.0000	2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**	**0.0000**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

3.6 Paving - 2029

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	lb/day										lb/day					
Hauling	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
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
Worker	0.0455	0.0221	0.2894	1.1800e-003	0.1677	8.9000e-004	0.1686	0.0445	8.2000e-004	0.0453		118.0482	118.0482	2.0100e-003		118.0984
Total	**0.0455**	**0.0221**	**0.2894**	**1.1800e-003**	**0.1677**	**8.9000e-004**	**0.1686**	**0.0445**	**8.2000e-004**	**0.0453**		**118.0482**	**118.0482**	**2.0100e-003**		**118.0984**

3.7 Architectural Coating - 2029

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	lb/day										lb/day					
Archit. Coating	249.9268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**250.0977**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

3.7 Architectural Coating - 2029

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	lb/day										lb/day					
Hauling	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
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
Worker	1.1194	0.5436	7.1194	0.0291	4.1246	0.0219	4.1464	1.0939	0.0201	1.1140		2,903.985 6	2,903.985 6	0.0494		2,905.220 1
Total	**1.1194**	**0.5436**	**7.1194**	**0.0291**	**4.1246**	**0.0219**	**4.1464**	**1.0939**	**0.0201**	**1.1140**		**2,903.985 6**	**2,903.985 6**	**0.0494**		**2,905.220 1**

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	lb/day										lb/day					
Archit. Coating	249.9268					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**250.0977**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

3.7 Architectural Coating - 2029

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	lb/day										lb/day					
Hauling	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
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
Worker	1.1194	0.5436	7.1194	0.0291	4.1246	0.0219	4.1464	1.0939	0.0201	1.1140		2,903.985 6	2,903.985 6	0.0494		2,905.220 1
Total	**1.1194**	**0.5436**	**7.1194**	**0.0291**	**4.1246**	**0.0219**	**4.1464**	**1.0939**	**0.0201**	**1.1140**		**2,903.985 6**	**2,903.985 6**	**0.0494**		**2,905.220 1**

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	lb/day										lb/day					
Mitigated	19.9421	124.3378	257.0241	1.3951	155.6441	0.6898	156.3339	41.6271	0.6413	42.2684		143,414.1006	143,414.1006	5.5321		143,552.4022
Unmitigated	19.9421	124.3378	257.0241	1.3951	155.6441	0.6898	156.3339	41.6271	0.6413	42.2684		143,414.1006	143,414.1006	5.5321		143,552.4022

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	11,980.80	11,980.80	11980.80	40,940,214	40,940,214
General Office Building	6,452.83	6,452.83	6452.83	20,787,546	20,787,546
Health Club	469.15	469.15	469.15	1,003,409	1,003,409
Research & Development	3,102.38	3,102.38	3102.38	10,481,872	10,481,872
Total	22,005.17	22,005.17	22,005.17	73,213,041	73,213,041

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Health Club	16.60	8.40	6.90	16.90	64.10	19.00	52	39	9
Research & Development	16.60	8.40	6.90	33.00	48.00	19.00	82	15	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730
General Office Building	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730
Health Club	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730
Research & Development	0.551603	0.041085	0.206475	0.110641	0.012172	0.005739	0.022664	0.039599	0.002222	0.001434	0.004920	0.000715	0.000730

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	lb/day										lb/day					
NaturalGas Mitigated	1.9431	17.0696	10.4743	0.1060		1.3425	1.3425		1.3425	1.3425		21,197.6677	21,197.6677	0.4063	0.3886	21,323.6349
NaturalGas Unmitigated	1.9431	17.0696	10.4743	0.1060		1.3425	1.3425		1.3425	1.3425		21,197.6677	21,197.6677	0.4063	0.3886	21,323.6349

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	lb/day										lb/day					
Apartments Mid Rise	101167	1.0910	9.3233	3.9673	0.0595		0.7538	0.7538		0.7538	0.7538		11,902.0221	11,902.0221	0.2281	0.2182	11,972.7499
General Office Building	12780.5	0.1378	1.2530	1.0525	7.5200e-003		0.0952	0.0952		0.0952	0.0952		1,503.5854	1,503.5854	0.0288	0.0276	1,512.5205
Health Club	8700.2	0.0938	0.8530	0.7165	5.1200e-003		0.0648	0.0648		0.0648	0.0648		1,023.5528	1,023.5528	0.0196	0.0188	1,029.6353
Research & Development	57532.3	0.6205	5.6404	4.7380	0.0338		0.4287	0.4287		0.4287	0.4287		6,768.5074	6,768.5074	0.1297	0.1241	6,808.7293
Total		**1.9431**	**17.0696**	**10.4743**	**0.1060**		**1.3425**	**1.3425**		**1.3425**	**1.3425**		**21,197.6677**	**21,197.6677**	**0.4063**	**0.3886**	**21,323.6349**

5.2 Energy by Land Use - NaturalGas

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	lb/day										lb/day					
Apartments Mid Rise	101.167	1.0910	9.3233	3.9673	0.0595		0.7538	0.7538		0.7538	0.7538		11,902.0221	11,902.0221	0.2281	0.2182	11,972.7499
General Office Building	12.7805	0.1378	1.2530	1.0525	7.5200e-003		0.0952	0.0952		0.0952	0.0952		1,503.5854	1,503.5854	0.0288	0.0276	1,512.5205
Health Club	8.7002	0.0938	0.8530	0.7165	5.1200e-003		0.0648	0.0648		0.0648	0.0648		1,023.5528	1,023.5528	0.0196	0.0188	1,029.6353
Research & Development	57.5323	0.6205	5.6404	4.7380	0.0338		0.4287	0.4287		0.4287	0.4287		6,768.5074	6,768.5074	0.1297	0.1241	6,808.7293
Total		**1.9431**	**17.0696**	**10.4743**	**0.1060**		**1.3425**	**1.3425**		**1.3425**	**1.3425**		**21,197.6677**	**21,197.6677**	**0.4063**	**0.3886**	**21,323.6349**

6.0 Area Detail

6.1 Mitigation Measures Area

	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	lb/day										lb/day					
Mitigated	125.6584	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427	0.0000	371.2436	371.2436	0.3541	0.0000	380.0972
Unmitigated	125.6584	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427	0.0000	371.2436	371.2436	0.3541	0.0000	380.0972

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	lb/day										lb/day					
Architectural Coating	11.1088					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	108.3948					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	6.1548	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427		371.2436	371.2436	0.3541		380.0972
Total	**125.6584**	**2.3693**	**205.4114**	**0.0109**		**1.1427**	**1.1427**		**1.1427**	**1.1427**	**0.0000**	**371.2436**	**371.2436**	**0.3541**	**0.0000**	**380.0972**

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	lb/day										lb/day					
Architectural Coating	11.1088					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	108.3948					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	6.1548	2.3693	205.4114	0.0109		1.1427	1.1427		1.1427	1.1427		371.2436	371.2436	0.3541		380.0972
Total	**125.6584**	**2.3693**	**205.4114**	**0.0109**		**1.1427**	**1.1427**		**1.1427**	**1.1427**	**0.0000**	**371.2436**	**371.2436**	**0.3541**	**0.0000**	**380.0972**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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Appendix C3

2021 LRDP Programmatic Health Risk Assessment

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2021 Long Range Development Plan

Programmatic Health Risk Assessment

prepared by

University of California, Riverside
Planning, Design & Construction
1223 University Avenue, Suite 240
Riverside, California 92507

prepared with the assistance of

Rincon Consultants, Inc.
1980 Orange Tree Lane, Suite 105
Redlands, California 92374

March 2021

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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2021 Long Range Development Plan

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1 Introduction and Executive Summary

1.1 Purpose of Assessment

University of California, Riverside (UCR or University) is one of 10 campuses in the University of California (UC) system. The UCR campus is located in the eastern portion of the city of Riverside in southern California. UC policy requires all campuses to maintain a Long Range Development Plan (LRDP), defined as a "physical development and land use plan to meet the academic and institutional objectives for a particular campus or medical center of public higher education" (Public Resources Code of the State of California Section 21080.09). In addition to incorporating program objectives to achieve a campus's academic goals, the LRDP is a comprehensive document that guides a campus's physical development and addresses land use, the location of new facilities, distribution of open space, and circulation strategies.

This Programmatic Health Risk Assessment (HRA) has been completed in support of California Environmental Quality Act (CEQA) documentation being prepared for UCR's proposed 2021 LRDP. With directives from the UC system-wide initiatives and UCR Strategic Plan, the proposed 2021 LRDP contains an updated campus land use plan; new student enrollment and campus population projections; updated academic, research, support and ancillary space needs; and planning principles for guiding future campus development under the plan. Specifically, the analysis contained herein quantifies potential health risk impacts associated with changes in toxic air contaminant (TAC) emissions resulting from implementation of the proposed UCR 2021 LRDP.

1.2 Executive Summary

The Programmatic HRA analyzes both carcinogenic and non-carcinogenic (chronic and acute) health risks associated with campus buildout under the proposed 2021 LRDP. First, the emissions of TACs were characterized (i.e., quantified, speciated, and sited) under both baseline and future buildout conditions. Next, emissions under each scenario were modeled using air dispersion modeling software to obtain ground-level concentrations of each TAC under each scenario. These ground-level concentrations were then used to determine the health risk values at both on-campus and off-campus receptor locations. Potential increases in health risk under the 2021 LRDP are compared to applicable South Coast Air Quality Management District (SCAQMD) health risk criteria to determine whether the 2021 LRDP would result in a potentially significant health risk impact.

The proposed 2021 LRDP establishes a land use framework and identifies physical development necessary to support projected enrollment growth to 35,000 students by 2035, based on current student enrollment, regional growth trends, and agreements between the UC and the State regarding resident student and transfer student enrollment objectives. To accommodate planned growth in enrollment, the proposed 2021 LRDP would involve expansion of academic and research, academic support, and student life facilities across the approximately 1,108-acre campus.

This analysis estimates operational health risks associated with implementation of the proposed 2021 LRDP. Specifically, this analysis considers potential changes in emissions of TACs under baseline (2018/2019 academic year) and future (2035) scenarios. TAC emissions sources considered in this analysis include: Natural-gas fired kitchen equipment, diesel- and natural gas-fired emergency generators, natural gas-fired boilers and water heaters, gasoline dispensing facilities, laboratory fume hoods, and diesel delivery truck routes on and adjacent to campus.

For this Programmatic HRA, site-specific air dispersion modeling was conducted to determine whether health risks presented to sensitive receptors on- and off-campus from implementation of the proposed 2021 LRDP would exceed SCAQMD health risk criteria. Off-site sensitive receptors in the vicinity of the project site include residential neighborhoods to the north, south, east, and west, as well as Highland Elementary School and University Middle School to the north. On-campus sensitive receptors include existing and proposed student housing and residence halls and the UCR Child Development Center daycare.

Cancer risk is expressed as the incremental excess cancer risk, or the maximum number of new cancer cases projected to occur in a population of one million people due to exposure to a cancer-causing substance. Additionally, TAC emissions can present non-carcinogenic acute and chronic health hazards. Potential acute health risks include severe symptoms that develop rapidly and lead to a health crisis due to exposure to a harmful substance, whereas chronic health risks include health crises, such as lung inflammation, immune suppression, and immune sensitization, which develop due to exposure to low levels of a harmful substance over a long period of time. Non-cancer chronic and acute health risk is typically expressed as a unitless hazard index.

Typically, cancer risk is analyzed over a specific exposure duration, such as the average residency (50-percentile) of nine years or high-end residency (95-percentile) of 30 years (SCAQMD 2017). For example, a cancer risk of one in one million means that in a population of one million people, not more than one additional person would be expected to develop cancer as the result of the exposure to the substance causing that risk. The exposure durations used for this analysis include 30 years for off-campus residents, 6 years for on-campus residents and daycare students, and 25 years for on- and off-campus workers.

An analysis using the United States Environmental Protection Agency's (U.S. EPA) AERMOD dispersion model and Office of Environmental Health Hazard Assessment (OEHHA) and SCAQMD guidance for health risk analysis determined that the net increase in health risk between the baseline and future scenarios for the on- and off-campus Maximally Exposed Individual Resident (MEIR), on- and off-campus Maximally Exposed Individual Worker (MEIW), and the UCR Child Development Center student would remain below SCAQMD recommended health risk criteria. The greatest increase in cancer risk resulting from implementation of the proposed 2021 LRDP would occur at off-site residences, which would experience an increase in cancer risk of approximately 4.9 in 1 million. This does not exceed SCAQMD's recommended cancer risk criteria of 10 excess cases of cancer in 1 million (1×10^{-5}). The greatest increase in non-cancer chronic health risk would occur at off-site residences, on-campus residences, and on-campus worker locations, which would each experience an increase in non-cancer chronic hazard index of approximately 0.02. This remains below SCAQMD's recommended chronic health risk threshold of a hazard index of 1.0. Finally, on-campus residents, off-campus workers, and the UCR Child Development Center would each experience an increase in acute hazard index of approximately 0.04 under the proposed 2021 LRDP, which does not exceed the SCAQMD recommended threshold of 1.0.

2 Project Description

This section provides an overview of the existing UCR campus setting, proposed 2021 LRDP objectives, current and projected land use, development, and growth under the proposed 2021 LRDP, and the 2021 LRDP implementation process.

2.1 Existing Campus Setting

Site Location

The UCR campus is located at 900 University Avenue in the city of Riverside, Riverside County, California. The approximately 1,108-acre campus[1] is in the eastern portion of Riverside, immediately west of the Box Springs Mountains, approximately 3 miles east of downtown Riverside, and approximately 2 miles northeast of Moreno Valley. Riverside, including UCR, is located within a larger geographic area known as Inland Southern California, which includes western Riverside and southwestern San Bernardino counties, and portions of the Pomona Valley in easternmost Los Angeles County. The campus is diagonally bisected by Interstate 215/State Route 60 (I-215/SR 60), resulting in two areas of campus: East Campus and West Campus. The campus is generally bounded by Blaine Street to the north, Le Conte Drive to the south, Watkins Drive to the east, and Chicago Avenue to the west.

East Campus

East Campus comprises approximately 604 acres and contains most of the University's built space. Nearly all the academic, research, and support facilities are in the Academic Center circumscribed by Campus Drive. The northern half of East Campus is devoted to student housing and recreation. The bell tower marks the heart of the campus, at the center of the Carillon Mall. The UCR Botanic Gardens is in the southeastern area of East Campus. The terrain steepens to the south and east of East Campus surrounding the Botanic Gardens and as a result, these areas remain largely undeveloped.

West Campus

West Campus comprises approximately 504 acres and is largely used as agricultural teaching and research fields managed by the Agricultural Operations unit of UCR's College of Natural and Agricultural Sciences. Other UCR facilities located on West Campus include Parking Lot 30; University Extension; and International Village, a housing complex intended for visiting international students. The University Substation, jointly owned by the City of Riverside and UCR, is at the northern edge of Parking Lot 30. A California Department of Transportation (Caltrans) service yard is situated on an approximately 4.4-acre triangular parcel directly west of the I-215/SR 60 freeway, at the eastern terminus of Everton Place. The Gage Canal traverses West Campus, mostly underground, from north to south.

[1] The UC Riverside Palm Desert Center, UCR Natural Reserves, all other Regents-owned properties, and all off-campus leased spaces are excluded.

Surrounding Land Uses

Land uses surrounding the campus are primarily residential, with some commercial uses along the arterial streets. Residential uses, commercial uses, and the I-215/SR 60 freeway are located north of the campus. Residential uses and open space, including the Box Springs Mountain Reserve, are located east of the campus. Residential uses, open space, and the I-215/SR 60 freeway are located south of the campus. Residential uses and commercial uses are located west of the campus. The California Air Resources Board (CARB) Southern California headquarters facility is located adjacent to the West Campus, between Chicago Avenue, Iowa Avenue, University Avenue and Martin Luther King Boulevard.

Figure 1 shows the regional location of the UCR campus. Figure 2 displays East Campus and West Campus within the Riverside city limits.

2.2 2021 LRDP Overview

The proposed 2021 LRDP establishes a land use framework and identifies physical development necessary to support projected enrollment growth to 35,000 students by 2035, based on current student enrollment, regional growth trends, and agreements between the UC and the State regarding resident student and transfer student enrollment objectives.

The proposed 2021 LRDP would direct the renovation and expansion of existing academic, research, academic support, student life, and other support functions that complement appropriate growth in operational funding. The 2021 LRDP proposes to accommodate a total campus population of approximately 42,545, including enrollment of approximately 35,000 students (three-quarter average headcount) by the academic year 2035/2036. It is anticipated that approximately 7,600 faculty and staff would be needed to support the projected academic year 2035/2036 student enrollment. Table 1 provides a net increase comparison of the projected campus population between the 2018/2019 academic year (baseline) and the 2035/2036 academic year (2021 LRDP).

Table 1 Baseline and 2021 LRDP (2035/2036) Campus Population

Campus Population[1]	Baseline (2018/2019)	2021 LRDP (2035/2036)	Net 2021 LRDP Increase from Baseline
Undergraduate Student Population	20,581	28,000	7,419
Graduate Student Population	3,341	7,000	3,659
Total Student Population	**23,922**	**35,000**	**11,078**
Academic Faculty and Staff	1,702	2,545	843
Non-Academic Staff	3,037	5,000	1,963
Total Faculty/Staff Population	**4,739**	**7,545**	**2,806**
Total Campus Population	**28,661**	**42,545**	**13,884**

[1]Fall 2018 headcount

Figure 1 Regional Location

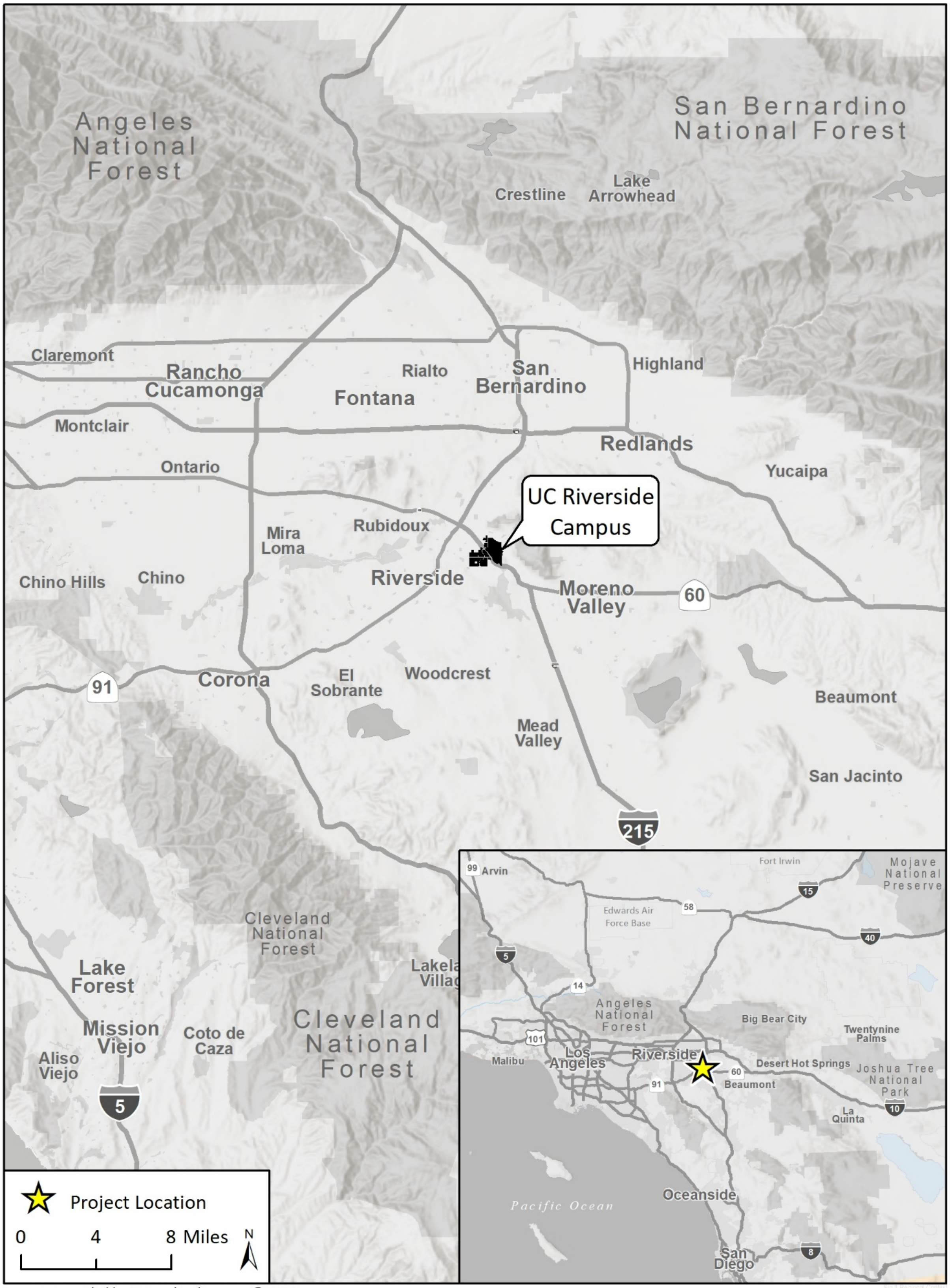

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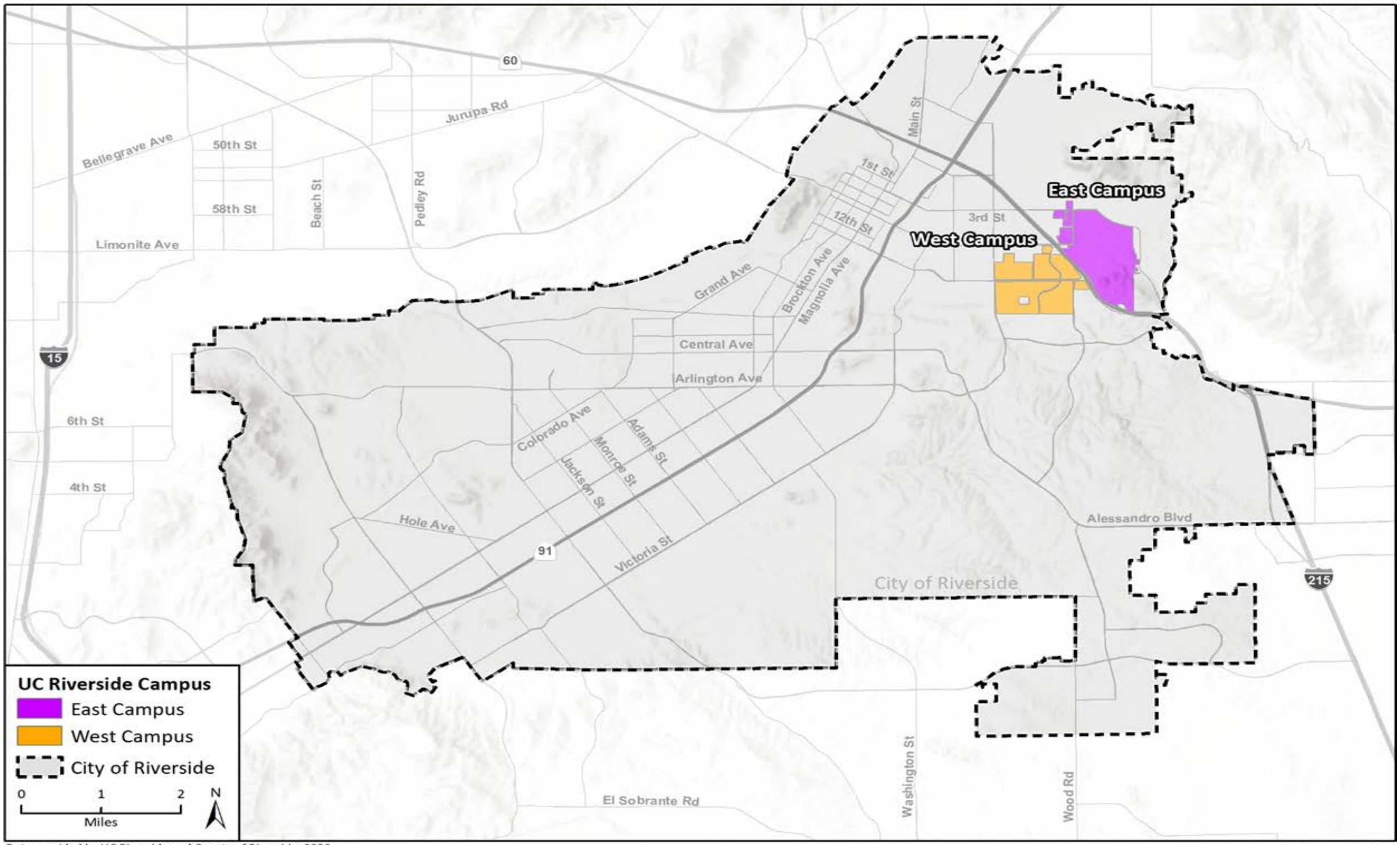
Figure 2 Project Site



Data provided by UC Riverside and County of Riverside, 2020.

2.3 Proposed Land Use

The 2021 LRDP proposes a net increase in development of approximately 3.7 million asf (approximately 6 million gsf) of additional academic buildings and support facilities. Therefore, the 2021 LRDP proposes a maximum of approximately 8.5 million asf (approximately 13 million gsf) of total academic, research, and support space development by the year 2035/2036 to accommodate the enrollment growth and meet program needs. The proposed 2021 LRDP includes a framework of land uses categories that designate the general allowable uses in a certain area. Predominant land uses are the primary facilities, programs, and/or activities within a given land use category to achieve specific planning objectives. Figure 3 shows the general location of the proposed land uses on campus.

Facilities Development

The proposed 2021 LRDP is a strategy for accommodating growth and change through academic year 2035/2036. It presents a guideline for future campus development, including new construction, facility renovations, and site development projects. These activities would be carried out throughout the life of the proposed 2021 LRDP.

To accommodate presumed enrollment growth, new construction and the renovation and expansion of existing UCR facilities would be undertaken. Facilities proposed under the 2021 LRDP broadly include:

- **Academics and Research.** These facilities are primarily dedicated to undergraduate and graduate learning, research environments, and daytime student life activities.
- **Academic Support.** These facilities are targeted at supporting academic and research activities on campus and include administrative offices, libraries, and other academic department space.
- **Student Life.** These facilities support core campus life activities and include residential and dining hall space, recreation and athletics land uses, and student health facilities.
- **Other Facilities.** This category of facilities includes the campus Corporation Yard, which houses multiple units supporting campus-wide operations, including Facilities Services and Environment, Health and Safety.

The proposed 2021 LRDP assumes that renovations, development, and expansions would generally occur within the existing campus footprint, on acquisitions of interest, and through University partnerships in City-owned districts by means of increased development density. Table 2 shows the existing and proposed building space for each of the above facilities categories.

Figure 3 2021 Land Use Map

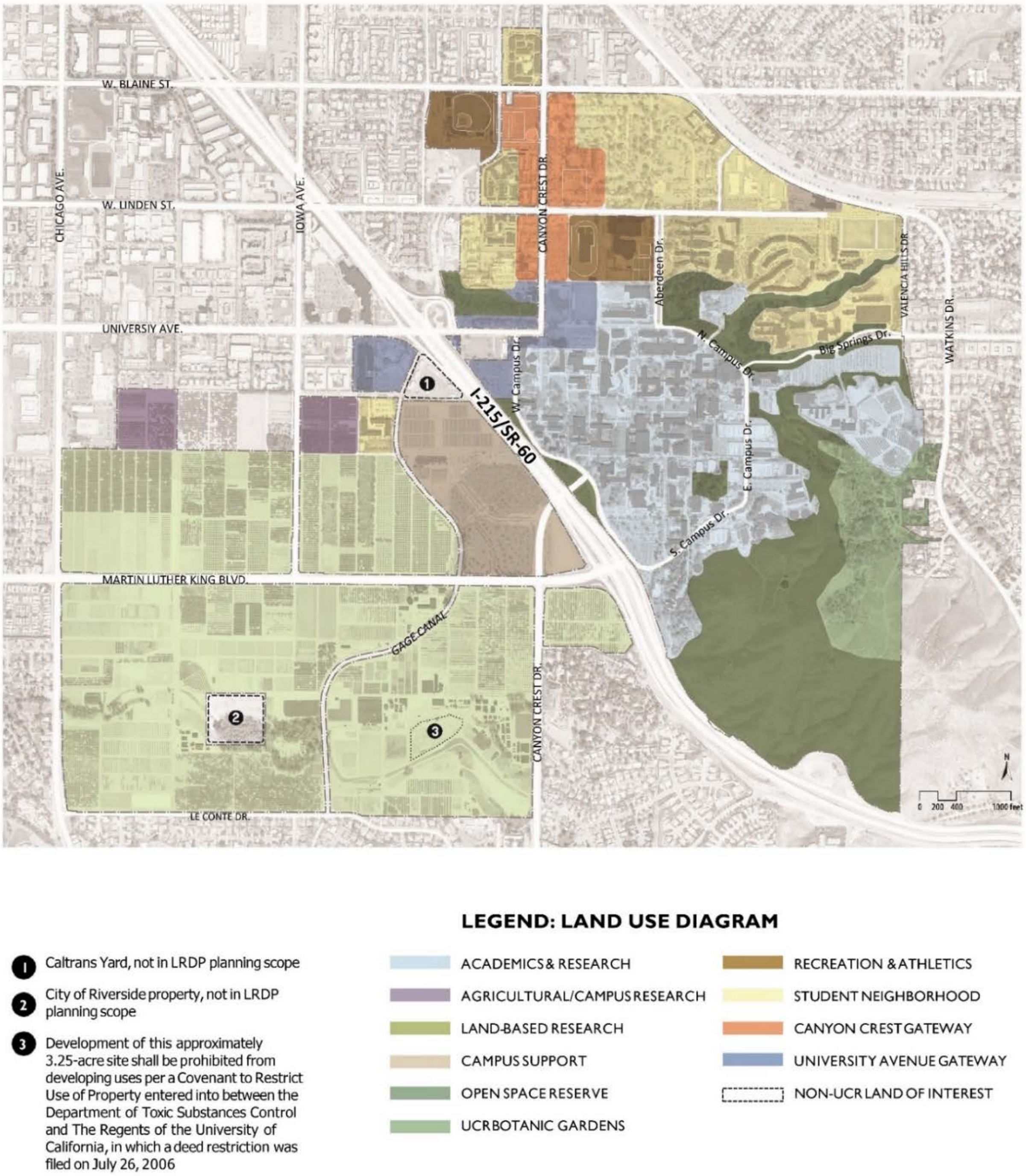


Table 2 Existing and Proposed Campus Building Space

Facilities	2018 Existing Space (asf)	2035 Proposed Space (asf)	Difference (asf)
Academics & Research			
Classroom & Services[1]	113,282	290,252	176,970
Classroom & Services (seats)[2]	6,947	12,978	6,031
Teaching Lab & Services[3]	102,729	165,800	63,071
Open Lab & Service[4]	116,743	129,500	12,757
Research Lab & Service[5]	887,529	1,115,300	178,090
Total Academics & Research	**1,220,283**	**1,700,852**	**480,569**
Academic Support			
Offices and Services[6]	996,834	1,583,415	586,581
Library & Collaborative Learning Space[7]	337,551	514,789	177,238
Assembly & Exhibit[8]	54,988	117,000	62,012
Other Department Space[9]	69,602	140,000	70,398
Total Academic Support	**1,458,97**	**2,355,204**	**896,229**
Student Life			
Residential[10]	1,525,647	3,643,620	2,117,973
Residential Dining (seats)[11]	1,172	1,929	757
Residential Dining[12]	55,802	94,527	38,725
Student Health[13]	14,117	24,500	10,383
Student Union[14]	97,122	187,422	90,300
Recreation (Indoor)	140,707	205,867	65,160
Recreation (Outdoor)[15]	7	11	4
Athletics[16]	42,568	42,568	0
Total Student Life	**1,875,963**	**4,198,504**	**2,322,541**
Other Facilities			
Corporation Yard[17]	248,279	248,279	0
Total Other Facilities	**248,279**	**248,279**	**0**
Total Campus Space	**4,803,500**	**8,500,000**	**3,700,000**

asf = assignable square feet, defined as the area measured within the interior walls of a room that can be assigned to a program. asf does not include circulation, mechanical, restrooms, or building service spaces.

Note: All baseline asf is Fall 2018 data unless otherwise stated.

[1] Renovations of existing classrooms will not reduce their capacity.

[2] Future student seats are assumed to be 21 asf/station. UCR's existing classrooms (excluding the movie theaters) have an average 15.5 asf/station, which is typical for lecture-style classrooms. Active learning can require up to 25 asf/station. The assumed 21 asf/station in the model represents the average of the 15 - 25 asf range for active learning classrooms. The asf calculations add 4% for classroom service space for new classrooms, plus existing classroom and service asf.

[3] Teaching labs are defined as rooms used for regularly or formally scheduled classes which require special equipment or configuration (ex: art studios, chemistry labs, engineering computer labs).

[4] An open laboratory is designed for or furnished with equipment that serves the needs of a particular discipline or discipline group for individual or group instruction where 1) use of the space is not formally or regularly scheduled, or 2) access is limited to specific groups of students. Included in this category are spaces generally called music practice rooms, language laboratories used for individual instruction, studios for individualized instruction, special laboratories or learning laboratories (e.g., speech, hearing, law, psychology, and health-related professions) if discipline restricted, individual laboratories, and computer laboratories involving specialized restrictive software or where access is limited to specific categories of students. General purpose computer labs are not open labs, but rather classified as study rooms (Library & Collaborative Space).

[5] Base year 2018/2019. Space needs analysis was limited to direct expenditures (67% of total research expenditures), and do not include facilities and administrative expenditures (indirect costs) or land-based research expenditures.

[6] Allocation per person by employment type plus 40% factor for conference, service, and internal office suite circulation. The Faculty, Staff, and Student Appointment office sizes are UCR guidelines. UCR has no formal telecommuting policy - all employees are assumed to require office space.

[7] UCR Librarian prepared a UCR-specific needs calculation for a library to serve a 35,000-student enrollment (expansion by 128,875 asf). There is no standard guideline for collaborative learning space distributed across campus outside of the library, but through benchmarking and discussion with various universities, an asf allocation of 15% to 25% of the classroom and teaching lab asf was found appropriate.

[8] Guidelines from Association for Learning Environments were used to determine asf.

[9] Uses included in this category are those that do not fit in any other category. At UCR this includes space categorized by UCR as 510 (Armory), 530/535 (Media Production), 555 (Demonstration), 560 (Field Buildings), 570/575 (Animal Quarters), and 650 (Lounge). The 4.0 asf/student benchmark is achievable.

[10] New beds are designed to average 250 gsf/Freshmen bed, average 500 gsf/Upperclassmen-Family bed, 70% asf/gsf efficiency. In Freshmen tripled rooms, three residents in a room sized for two residents. Falkirk Apartments will be converted from upperclassmen to family within the next ten years, reducing the upperclassmen student beds by 345 beds.

[11] The Residential Dining Base Year is Fall 2020, when Glasgow dining (830 seats) is open and Aberdeen-Inverness dining (500 seats) is closed. The completion of the North District will result in 5,470 freshmen beds and 1,772 dining seats (3.1 freshmen residents/seat). The Program Model maintains the 3.1 freshmen residents/seat ratio for 40% on-campus residency.

[12] Lothian Dining Hall is 15,002 asf and has 342 seats (44 asf/seat). The Glasgow Dining Hall is planned to be 50,600 gsf/40,800 asf and have 830 seats (49 asf/seat).

[13] New Student Health and Counseling Center (anticipated completion Summer 2021)

[14] Expansion assumptions from Student Union Expansion Analysis (2015)

[15] In addition to the 3 fields at Glen Mor, UCR Recreation presently has shared use of the 3 fields of the Sportsplex with the City of Riverside and has access to the fields during the typical times for intramural and club sport competition. UCR Recreation also has shared use of the 1 athletics soccer competitive field.

[16] Indoor athletic facilities are shared with recreation. No plans for growth in the Athletics program that would result in a need for additional space or outdoor facilities was expressed. However, quality of existing space is a concern.

[17] Guidelines recommend 5% of all non-residential, non-facilities asf. It is anticipated that UCR residence halls will have their own maintenance staff and workspace, which is incorporated to the Residential Beds Program Model. Based on that assumption, current interior space for campus related needs is in line with the projected need in 2035.

In addition to the project facilities development described above, UCR has identified several recently completed or presently underway interim projects. Interim projects are those that have recently been constructed since academic year 2018/2019 or will be completed in the near future, as shown in Table 3. The environmental impacts of these projects were analyzed under a stand-alone Environmental Impact Report (EIR) or an addendum to the 2005 LRDP EIR or assessed through a CEQA categorical exemption.

Table 3 Interim Projects

Project	Estimated Completion Date
Dundee Glasgow	Completed
The Barn	Completed
Pierce Hall Renovation	Winter 2020
Plant Growth Environments Facility	Winter 2020
Parking Structure 1	Spring 2021
Student Health & Counseling Center	Summer 2021
North District Phase 1	Summer 2021
Student Success Center	Summer/Fall 2021
School of Medicine Building 2	Winter 2021
Batchelor Hall Renovation	Fall 2023
North District Phase 2	To be determined
North District Future Phases 3-5	To be determined

Implementation

The proposed 2021 LRDP is a plan to guide development, but it is not an implementation plan. Adoption of the proposed 2021 LRDP does not constitute a commitment to any specific project. Rather, development under the LRDP would occur over time, based on campus needs and funding availability. As individual 2021 LRDP projects are proposed for implementation (i.e., when UCR is ready to move forward with individual project planning and construction), additional CEQA compliance review, including site- and condition-specific analysis and specific permits and/or approvals may be necessary, depending on the circumstances of the particular project. Accordingly, each project would be evaluated at the time it is proposed for implementation to determine the need for additional environmental review.

The UC Regents and/or its delegated authorities must approve each development proposal, as appropriate. At the campus level, the review of campus development proposals is informed by a process that involves input from staff, faculty, and students (and the local community, as appropriate). The design and construction of future projects at UCR would be subject to the campus development review process. In addition to compliance with CEQA, the development review process requires review by campus committees and administrative staff, evaluation of the proposed design and construction documents, and construction inspection and site monitoring during construction. Committees and administrative offices involved in project implementation may include project sponsors, Office of the Vice Chancellor for Planning, Budget, & Administration, and campus stakeholders, among others.

Although the LRDP is the primary governing planning document for the campus, several other supplemental guidance documents are in place to inform development at UCR (e.g., Physical Design Framework, Campus Design Guidelines). In general, facilities on the UCR campus comply with the design guidelines set forth in these documents.

3 Background

The following section provides a general overview of local air quality conditions, federal and State regulation of air pollution, the nature of specific TACs of concern, and a description of health risks evaluated in this Programmatic HRA.

3.1 Local Climate and Meteorology

The UCR campus is in the South Coast Air Basin (SCAB), which is bounded by the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, and the Pacific Ocean to the west. The SCAB includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The regional climate in the SCAB is semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The air quality in the SCAB is primarily influenced by meteorology and a wide range of emission sources, such as dense population centers, substantial vehicular traffic, and industry.

Air pollutant emissions in the SCAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

3.2 Air Quality Regulation

Federal and State governments have established ambient air quality standards for the protection of public health. The U.S. EPA is the federal agency designated to administer air quality regulation, while the California Air Resources Board (CARB) is the State equivalent in the California Environmental Protection Agency (CalEPA). County-level or regional Air Quality Management Districts (AQMDs) provide local management of air quality. CARB has established air quality standards and is responsible for the control of mobile emission sources, while the local AQMDs are responsible for enforcing standards and regulating stationary sources. The South Coast Air Quality Management District (SCAQMD) is the designated air quality control agency in the SCAB, which is currently designated in non-attainment for the federal ozone and $PM_{2.5}$ (particulate matter up to 2.5 microns[2] in size) standards, and the State standards for ozone, PM_{10}, and $PM_{2.5}$. The Los Angeles County portion of the SCAB is also designated non-attainment for federal lead standards, and a portion of the SR 60 corridor in Los Angeles and San Bernardino counties is designated non-

[2] One micron equals one-millionth of a meter; i.e., 10^{-6}

attainment for State nitrogen dioxide standards (SCAQMD 2017; CARB 2019). The SCAB is designated unclassifiable or in attainment for all other federal and State standards.

3.3 Toxic Air Contaminants

A TAC is a substance CARB has determined to have the potential to cause serious health effects. TACs tend to be localized and are found in relatively low concentrations in ambient air; however, exposure to low concentrations over long periods can result in increased risk of cancer and/or adverse health effects.

The State of California has taken regulatory action to identify, evaluate, and control the harmful effects of TACs through the California Air Toxics Program, which establishes the process for the identification and control of TACs and includes provisions to make the public aware of significant toxic exposures and for reducing risk. The California Air Toxics Program is implemented by CARB and shaped by multiple key pieces of legislation originating in the 1980s.

In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health (Assembly Bill [AB] 1807: Health and Safety Code Sections 39650–39674). The Legislature established a two-step process to address the potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase of the process.

Additionally, the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, Connelly Bill) was enacted in 1987 and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, identify facilities having localized impacts, ascertain health risks, notify nearby residents of significant risks, and reduce those significant risks to acceptable levels. The Children's Environmental Health Protection Act, California Senate Bill 25 (Chapter 731, Escutia, Statutes of 1999), focuses on children's exposure to air pollutants. The act requires CARB to review its air quality standards from a children's health perspective, evaluate the statewide air quality monitoring network, and develop any additional air toxic control measures needed to protect children's health.

TACs include both organic and inorganic chemical substances, and emissions are highly dependent on the nature of the pollution source or activity. One of the main sources of TACs in California is diesel engines that emit exhaust containing solid material known as diesel particulate matter (DPM); however, TACs may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. Given the diversity of land uses and activities that occur on the UCR campus, this analysis quantifies and analyzes health risk associated with emissions of approximately 84 TACs. A brief description of the primary TACs (i.e., those with the greatest bulk emissions) considered in this Programmatic HRA is included below.

Diesel Particulate Matter

Fine particulates are generally associated with combustion processes and form in the atmosphere as a secondary pollutant through chemical reactions. PM_{10} (particulate matter measuring no more than 10 microns in diameter) is a by-product of fuel combustion and wind erosion of soil and unpaved roads (dust), and it is directly emitted into the atmosphere through these processes. Chemical reactions in the atmosphere also create PM_{10}. Very fine particulate matter, or $PM_{2.5}$ (particulate matter measuring no more than 2.5 microns in diameter), is a class of suspended particulates that can be generated by dust, but is more commonly associated with combustion processes. Fine and very fine particulate matter poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an adsorbed toxic substance.

Diesel engine fuel combustion forms an important fraction of the particulate matter emission inventory statewide, as particulates in diesel emissions are very small and readily respirable. The particles have hundreds of chemicals adsorbed onto their surfaces, including many known or suspected mutagens and carcinogens. Therefore, these particulate emissions have been determined by CARB to be a TAC.

DPM emissions are estimated to be responsible for about 70 percent of the total ambient air toxics risk in California and contributes to approximately 1,400 premature deaths from cardiovascular disease statewide each year (CARB 2021). In addition to these general risks, DPM can also be responsible for elevated localized or near-source exposures ("hot-spots").

Acetaldehyde

Sometimes known as ethanol, acetaldehyde is an organic chemical compound used as an intermediate in the production of acetic acid, certain esters, and a number of other chemicals. It is a flammable liquid with a fruity smell. Acetaldehyde is a toxic when applied externally for prolonged periods, an irritant, and a probable carcinogen.

Formaldehyde

Formaldehyde is an organic chemical compound containing a terminal carbonyl group. It is produced in the atmosphere by the action of sunlight and oxygen on atmospheric methane and other hydrocarbons, becoming a part of smog. Additionally, formaldehyde is an intermediate in the oxidation (or combustion) of methane as well as other carbon compounds including automobile exhaust. Formaldehyde is a flammable substance that can be toxic, allergenic, and carcinogenic. It is naturally made in small amounts in human bodies and is found in small amounts in household sources, such as fiberglass, carpets, permanent press fabrics, paper products, and some household cleaners.

BTEX Chemicals

Benzene, toluene, ethylbenzene, and xylene—commonly referred to as BTEX chemicals—are frequently co-occurring compounds, typically associated with volatilization and combustion of petroleum and natural gas products. Common sources of BTEX chemicals in urban environments include vehicle exhaust, gasoline dispensing facilities, and natural gas boilers.

Benzene is a known carcinogen, linked to multiple forms of leukemia and non-Hodgkin lymphoma. Other long-term common health risks associated with benzene include a decrease in red blood cells, leading to anemia and harmful effects on bone marrow, and ovarian damage. Toluene is commonly associated with irritation of the eyes, nose, and throat in addition to dizziness and headache. Long-term exposure can lead to numbness of the hand or feet and female reproductive system damage. Ethylbenzene affects the inner ear and hearing of individuals and is a known carcinogen when exposure occurs for a prolonged amount of time. Finally, like the other chemicals, short term exposure of xylene can lead to irritation to the eyes, nose, skin, and throat. Prolonged exposure to xylene may also lead to harmful nervous system effects.

Ammonia

Ammonia is commonly known for its use in refrigeration, blueprinting machines, and neutralizing agents. Ammonia is present in the atmosphere in a gas phase and can react with other chemicals to form ammonium salts. It is likely to cause non-carcinogenic effects such as irritation to the eyes and respiratory tract. High concentrations of this chemical can cause severe issues such as pulmonary edema, conjunctivitis, laryngitis, and difficulties breathing.

Methanol

Methanol is a flammable, mobile, colorless liquid that can be found in inks, resins, adhesives, dyes, and pharmaceuticals as a solvent. It is also found in antifreeze and has been used as an alternative motor fuel. Methanol is toxic and allergenic when exposure is short or prolonged. The chemical has not been classified by the U.S. EPA with respect to carcinogenicity.

Hexane

Hexane is a chemical compound used to extract oils from seeds and vegetables and a solvent for other chemicals. It is a highly flammable, colorless liquid with a faint odor. Hexane is toxic when applied externally and internally for prolonged periods, an irritant, and a probable carcinogen. However, the U.S. EPA has not yet classified the carcinogenicity of hexane.

Chloroform

Chloroform is a chemical compound often formed in pulp, paper mills, hazardous waste sites such as sanitary landfills, and has been observed to be present in the air as a result of the chlorination of drinking water, wastewater, and swimming pools. It is a colorless liquid with a pleasant odor. Chloroform is toxic when applied internally for prolonged periods, an irritant, and a probable carcinogen. The EPA has classified chloroform as a Group B2 carcinogen, meaning there is limited to no human data but sufficient animal data to indicate it potentially causes cancer.

Methylene Chloride

Methylene chloride is a chemical compound found in paint remover, aerosols, and degreasers. It is a popular chemical with low flammability, low boiling point, and strong solvent properties. Methylene chloride is toxic when applied internally for prolonged periods, a probable carcinogen, and mutagenic based off of several short-term tests.

Ethylene Dichloride

Ethylene dichloride is a chemical compound used as an intermediate in the formation of chlorinated and fluorinated chemical compounds. Ethylene dichloride is toxic when applied internally or externally for prolonged periods, an irritant, and a carcinogen. Ethylene dichloride has also been discovered to be genotoxic, meaning it is damaging to genetic material.

3.4 Health Risk

This Programmatic HRA assesses the potential for the proposed 2021 LRDP to result in substantial increases in carcinogenic and non-carcinogenic health risks to on- and off-site residents, workers, and students.

Carcinogenic Health Risk

Carcinogenic health risk is the probability for an individual to develop cancer over a lifetime as a result of exposure to a possible carcinogen. Carcinogenic health risk is generally presented as the incremental excess cancer risk, a probability expressed in "chances per 100,000" or "chances per million." Incremental excess cancer risk resulting from exposure to a TAC is primarily a function of the concentration of the contaminant at exposure, the duration of exposure, and the cancer potency of the contaminant (often described as a cancer potency factor or slope factor). Other factors affecting carcinogenic health risk include individual breathing rates, exposure to risk from multiple pathways (e.g., inhalation, dermal exposure, contaminated food), and age sensitivity to mutagens, which are carcinogens that affect genetic composition.

To provide a perspective on cancer risk, the American Cancer Society (2020) reports that in the United States, men have about a 40 in 100 chance (0.40 probability) and women about a 39 in 100 chance (0.39) of developing cancer during a lifetime. Based on this background cancer risk level in the general population, application of a 10 in 1 million (1.0×10^{-5}) excess risk limit means that the contribution from a toxic hazard should not cause the resultant cancer risk for the exposed population to exceed 0.40001 for men or 0.39001 for women.

Non-Carcinogenic Health Risk

Non-carcinogenic health risks are health risks that do not result in cancer. These risks include acute and chronic health effects. Acute health risks are short-term and sometimes immediate reactions to health risks. These health risks are based on one-hour exposure and generally include symptoms such as throat pain, eye irritation, and other similar symptoms. Chronic health risks on the other hand, are long-term health issues resulting from longer-term exposure (from one year to a lifetime) that are not cancer. This may include reproductive health issues, heart disease, or respiratory illness.

Unlike carcinogenic health risk, neither chronic nor acute health risk impacts are expressed in "chances per million," but instead as a unitless "hazard index." The hazard index is calculated by dividing the concentration of the pollutant (i.e., maximum hourly concentration for acute risk, annual average concentration for chronic risk) by a pollutant-specific reference exposure level. The reference exposure level is the concentration level at or below which no adverse health effects are anticipated for a given contaminant, based on medical and toxicological literature.

4 Methodology

The following section describes the methodology employed to identify and quantify TAC emissions on campus under both the baseline and future scenarios, model air dispersion to obtain ground-level concentrations of TACs, and calculate health risk at on-site and off-site receptors.

4.1 Emissions Quantification

The methodology used to complete this Programmatic HRA was developed based in part on the emissions quantification, air dispersion modeling, and health risk characterization approach described in the *Health Risk Assessment in Support of the 2005 Long Range Development Plan for the University of California, Riverside* (URS 2005). The Programmatic HRA characterizes (i.e., quantifies, speciates, and sites) emissions of TACs under two scenarios:

- **Baseline Scenario.** The baseline scenario is used to evaluate existing health risk on and around campus. The University's Annual Emission Report (AER) submitted to SCAQMD serves as the foundation for characterizing baseline TAC emissions from most sources on campus. Because the 2018/2019 school year serves as the baseline year for analyses prepared in support of the 2021 LRDP EIR, this analysis could use the AER for the 2018 or 2019 reporting years. However, the 2019 AER, submitted to SCAQMD on March 11, 2020 (Appendix A) provides the most recent submitted inventory of on-campus TAC sources and emissions and, therefore, is used in the Programmatic HRA.
- **Future Scenario.** The future scenario evaluates health risk on and around campus under implementation of the proposed 2021 LRDP at horizon year 2035. As appropriate, a growth factor is applied to emissions sources based on planned development, policy, and implementation of the proposed 2021 LRDP to evaluate future health risk under the proposed project. For the purposes of this analysis, interim projects described in Section 2, *Project Description*, are considered as part of the future, 2021 LRDP scenario.

By employing a scenario-based modeling approach, this Programmatic HRA provides a direct comparison of health risk associated with buildout of the proposed 2021 LRDP to clearly assess potential impacts of the proposed project for the purposes of CEQA.

The following describes the methodology to characterize and forecast emissions from each of the sources included in the Programmatic HRA. For each source of TACs, the process used to characterize emissions under both the baseline and future scenario is described. Emissions for all sources under baseline and future scenarios are included in Appendix B.

Kitchen Equipment

Baseline Emissions

The 2019 AER includes two natural gas ovens with nearly identical annual fuel consumption (1.31 million standard cubic feet [mmscf] per year and 1.32 mmscf per year). These oven sources are located at the 342-seat Lothian and 500-seat Aberdeen-Inverness residence hall dining facilities, respectively, and emit TACs associated with natural gas combustion, including but not limited to BTEX chemicals, formaldehyde, and ammonia. Under the baseline scenario, both ovens were modeled as point sources, with emissions reflecting those reported in the 2019 AER. Table B-1 in Appendix B summarizes baseline emissions from the Lothian and Aberdeen-Inverness residence hall kitchens.

While not identified in the 2019 AER, UCR operates charbroilers and gas grills at the Alumni & Visitor's Center and the Highlander Union Building. However, due to the limited and sporadic use of such grills, emissions associated with these kitchen facilities are considered negligible and, therefore, are not quantified or included in this Programmatic HRA. Other on-campus kitchen equipment not quantified in the 2019 AER is likely exempt from SCAQMD permitting pursuant to Rule 219 (*Equipment Not Requiring a Written Permit Pursuant to Regulation II*) and Rule 1147 (*NO_x Reductions from Miscellaneous Sources*) and would be expected to result in *de minimis* emissions of TACs.

Refer to Figure 5 in Section 4.2, *Modeling*, for the location of all baseline emissions sources, including kitchen equipment.

Future Emissions

Under the proposed 2021 LRDP, the Aberdeen-Inverness residence hall dining facility would be decommissioned and replaced by the 830-seat Glasgow dining facility, identified as a recently-completed interim project immediately east of the Aberdeen-Inverness facility. Completion of UCR's North District project would also result in increased demand for residential dining seats. In total, residential dining seats on campus are anticipated to increase approximately 64.6 percent from 1,172 seats in 2018 to 1,929 seats in 2035 under the proposed 2021 LRDP. For this Programmatic HRA, it is assumed the Lothian dining facility is operating at capacity and emissions would be unchanged under the future scenario. Therefore, to obtain future emissions from the Glasgow dining facility, a growth factor of 64.6 percent was applied to the baseline Aberdeen-Inverness emissions, commensurate with the overall increase in residential dining seat capacity on campus in 2035.

In addition to expanded residential dining facilities, The Barn – a UCR Dining Services-operated restaurant and entertainment venue – is identified as an interim project, with its renovation and expansion completed in Spring 2020. Emissions from the expanded restaurant facility were included in the future scenario modeling. Emissions of TACs from this facility were estimated based on California Emissions Estimator Model (CalEEMod) outputs prepared in support of the 2021 LRDP's Greenhouse Gas Reduction Strategy (GHGRS). Based on the CalEEMod outputs, the restaurant component of The Barn is anticipated to consume approximately 0.91 mmscf of natural gas annually. While this consumption would account for all natural gas components of the restaurant, including gas-fired stoves and heating, this analysis conservatively assumes all natural gas consumption is associated with kitchen facilities. Annual emissions for 11 TACs were then estimated using the same emissions factors contained in the 2019 AER.

Table B-2 summarizes future emissions from Glasgow Dining Hall and The Barn kitchen sources under the proposed 2021 LRDP. Refer to Figure 6 in Section 4.2, *Modeling*, for the location of new or relocated future emissions sources, including kitchen equipment.

Internal Combustion Engines (Emergency Generators)

Baseline Emissions

UCR's 2019 AER includes 38 stationary internal combustion engines (emergency generators), including 36 diesel-fueled engines and two natural gas-fired engines[3]. These emergency generators are located throughout campus and generally serve critical research and infrastructure facilities, such as laboratories, data centers, the steam plant, and the campus physical plant. Given the nature of these sources as emergency back-up generators, emissions from such engines are typically short-term, sporadic, and unpredictable, driven by extenuating circumstances weather- or maintenance-induced power outages. However, routine testing and maintenance of emergency generators can result in sustained emissions of TACs. Therefore, existing emergency generators were modeled as point sources under the baseline scenario, with annual fuel throughput and TAC emissions from these generators reflecting those values reported in the 2019 AER. Table B-3 summarizes baseline TAC emissions from diesel-fueled emergency generator sources. Table B-4 summarizes baseline TAC emissions from the natural gas-fired emergency generator. Refer to Figure 5 in Section 4.2, *Modeling*, for the location of all baseline emissions sources, including generators.

Future Emissions

As described, the proposed 2021 LRDP would involve renovation, development, or expansion of Academic and Research, Academic Support, Student Life, and Other Facilities. Each of these facility categories may include buildings served by emergency generators. Under the future scenario, baseline emissions from existing diesel and natural gas-fired emergency generators on campus were assumed to continue at the same levels. Additionally, 37 future generator locations were identified and incorporated into the health risk modeling for the future scenario based on anticipated development and redevelopment sites on campus. Of these 37 future generator locations, five are associated with interim projects identified in Table 3 (Dundee-Glasgow, The Barn, Parking Structure 1, Student Success Center, and North District Phase 1). Finally, in addition to the 37 future generator locations identified based on anticipated development on-campus, three emergency generators permitted in 2019 and 2020, though not included in the 2019 AER, were modeled under the future scenario. These generators include a 903 brake-horsepower (bhp) generator replacing the existing generator at Pierce Hall, a 197 bhp generator at the UCR Police Station, and a 463 bhp generator at the Plant Growth Environments Facility.[4] As with existing generators under the baseline scenario, all future generators were modeled as point sources.

Uncertainty exists with respect to the capacity (in bhp), annual fuel consumption, and emissions for future generators. Therefore, future generator specifications and emissions were estimated based on data from existing generators on campus. The median capacity of existing generators on campus is approximately 587 bhp. A regression model was used to determine the relationship between capacity (in bhp) and annual fuel usage (in thousands of gallons). Based on the median existing generator capacity, future generators on campus would be expected to consume approximately 299.1 gallons of diesel fuel annually. Emissions factors used in the 2019 AER were then applied to this annual fuel throughput to estimate TAC emissions from future generators. For generators which have already been permitted but for which annual fuel consumption and emissions have not yet

[3] The 2019 AER reports two natural gas-fired emergency generators: one at the 400 Humanities/University Theatre and one at Chapman Hall East. However, the generator located at Chapman Hall reported no annual fuel consumption or emissions. As such, this generator source was excluded from health risk modeling for the baseline scenario.

[4] Both the Pierce Hall Renovations and Plant Growth Environments Facility are identified as interim projects. The 903 bhp generator at Pierce Hall replaces the 190 bhp generator at Pierce Hall modeled under the baseline scenario.

been reported (i.e., Dundee-Glasgow, Pierce Hall replacement generator, Plant Growth Environments Facility, and Police Station), the capacity (in bhp) of the permitted generator, rather than the median on-campus generator capacity of 587 bhp, was used to estimate annual fuel consumption and emissions. It should be noted that this approach likely results in a conservative estimate of future generator emissions, as future generators installed under the proposed 2021 LRDP would be expected to be more fuel efficient and lower-emitting than existing generators on campus, many of which were permitted over 10 years ago.

Table B-5 summarizes the annual and hourly emissions for future generators. All future generators were assumed to be diesel-fueled and operate for testing and maintenance for 50 hours per year. Refer to Figure 6 in Section 4.2, *Modeling*, for the location of new or relocated future emissions sources, including generators.

Boilers

Baseline Emissions

The 2019 AER identifies a total of 10 natural gas-fired boilers/water heaters on campus, with six classified as less than 10 million British thermal units (MMBTU) per hour and four classified as 10 to 100 MMBTU per hour. The four larger capacity boilers are located at the campus' Central Steam Plant. Four of the smaller capacity boilers/water heaters are located at Lothian and Aberdeen-Inverness residence halls and the remaining two are located at the Pentland Hills housing units. Natural gas-fired boilers/water heaters were modeled as point sources under the baseline scenario, with emissions reflecting those described in the 2019 AER. Table B-6 summarizes TAC emissions from existing natural gas-fired boilers/water heaters on campus under the baseline scenario. Refer to Figure 5 in Section 4.2, *Modeling*, for the location of all baseline emissions sources, including natural gas-fired boilers.

Future Emissions

Emissions from natural gas boilers/water heaters are not anticipated to increase substantially over the projected timeframe of the proposed 2021 LRDP. Smaller capacity boilers in Lothian and Aberdeen-Inverness residence halls serve their respective buildings and would not be expected to increase in use, fuel consumption, or emissions as these buildings are not increasing in area or capacity. Furthermore, the proposed 2021 LRDP states in a policy under Objective IS-NG1.1 that future projects shall not employ or expand demand for natural gas as an energy source, and UCR is committed to not expanding the use of natural gas in support of the UC Office of the President Carbon Neutrality Initiative. While the 2021 LRDP policy in conjunction with implementation of UC Sustainable Practice Policies are anticipated to reduce natural gas usage by the boilers, the extent of this decrease is not yet known. For these reasons, no growth or reduction factor for natural gas boiler emissions is proposed for the Programmatic HRA future scenario, and emissions from boilers/water heaters are assumed to remain at baseline levels.

Gasoline Dispensing Operations

Baseline Emissions

There are three gasoline storage and dispensing facilities on campus. Two such facilities are located on East Campus, including the largest facility at the campus Physical Plant (Fleet Services) with an annual throughput of 109,393.5 gallons in 2019 and a smaller facility serving at the campus Grounds operations with an annual throughput of 1,993.9 gallons. A third gasoline storage and dispensing facility with 2019 throughput of 9,445.2 gallons is located at the Agricultural Operations facility on West Campus.

The 2019 AER quantifies emissions of benzene from these three gasoline storage and dispensing facilities, which are included in this analysis. Current SCAQMD guidance for gas station HRAs recommends the use of emissions factors for naphthalene and ethylbenzene as well. While benzene is the primary driver of health risk associated with gasoline dispensing facilities, this analysis also incorporates emissions of naphthalene and ethylbenzene from the on-campus gasoline dispensing facilities for consistency with current SCAQMD guidance. Emissions factors for naphthalene and ethylbenzene are be based on those contained in SCAQMD's *Risk Assessment Procedures for Rules 1401, 1401.1, and 212 version 8.1* (SCAQMD 2017).

For further consistency with SCAQMD guidance, emissions from on-campus gasoline dispensing facilities were allocated to fuel tank loading and breathing emissions, modeled as point sources, and refueling, spillage, and hose permeation emissions, modeled as volume sources. Tank loading and breathing emissions were modeled at the location of the fuel tank and vent pipe, while refueling, spillage, and hose permeation emissions were modeled at the center of the refueling area.

Table B-7 summarizes benzene, ethylbenzene, and naphthalene emissions from gasoline storage and dispensing facilities on campus under the baseline scenario. Refer to Figure 5 in Section 4.2, *Modeling*, for the location of all baseline emissions sources, including gasoline dispensing facilities.

Future Emissions

No increase in campus area is anticipated under the proposed 2021 LRDP. Increased development within the existing campus footprint would not be expected to result in greater fuel consumption from the campus fleet. Under the UC Sustainable Practices Policy, 50 percent of all new light-duty vehicles within the campus fleet are anticipated to be zero emission vehicles by 2025.[5] Furthermore, as vehicles that are not electrified within UCR's fleet are replaced with newer, more efficient vehicles, gasoline throughput from campus dispensing facilities would be expected to decrease. Therefore, no growth factor for emissions from gasoline dispensing facilities is applied, and emissions from gasoline dispensing facilities are assumed to remain at baseline levels.

Laboratory Chemical Usage

Baseline Emissions

UCR is a major research university with specialized laboratory facilities. Some laboratory facilities require the use of chemicals with the potential to result in TAC emissions. The 2019 AER quantifies emissions from laboratory fume hoods based on methodology developed in a UC-commissioned report, *Development of an Emissions Estimating Technique for Research Laboratories* (ENSR Consulting and Engineering 1990), which determined that emissions from laboratory fume hoods account for approximately 6.74 percent of laboratory chemical usage. While the 2019 AER reports all emissions from laboratory fume hoods as a single source, in reality, fume hood emissions are distributed across campus research facilities. UCR tracks the number and location of fume hoods for laboratories across campus. For the baseline scenario, emissions from fume hoods were distributed

5 University of California. *Sustainable Practices Policy*. 2019. Available: <http://ucal.us/suspolicy>. Accessed July 8, 2020.

to each building containing at least five fume hoods designated for chemical use.[6] Overall fume hood emissions were distributed to each building proportionate to the number of fume hoods in the building. For air dispersion modeling purposes, fume hood emissions were modeled as volume sources. Table B-8 summarizes laboratory fume hood emissions from 29 campus laboratory facilities under the baseline scenario. Refer to Figure 5 for the location of all baseline emissions sources, including laboratory fume hoods.

Future Emissions

As laboratory space increases under the proposed 2021 LRDP, chemical use and, consequently, laboratory fume hood emissions, would be expected to increase as well. As described in Table 2 in Section 2, *Project Description*, both Research Lab & Service and Teaching Lab & Service facilities are anticipated to increase in gross square footage under the proposed 2021 LRDP. These two building types would be most likely to include wet lab space that would result in greater usage of lab chemicals. In total, Research Lab & Service and Teaching Lab & Service building area is anticipated to increase approximately 29.4 percent under the proposed 2021 LRDP, from 990,258 square feet in 2018 to 1,281,100 square feet in 2035. Therefore, a growth factor of 29.4 percent was applied to baseline laboratory fume hood emissions for the future scenario health risk modeling.

Because the precise locations of future laboratory buildings and emissions under the proposed 2021 LRDP are unknown at this time, increased emissions under the future scenario were applied to the existing fume hood sources on campus modeled under the baseline scenario. This assumption is reasonable, as all existing laboratory fume hoods are located in the Academic and Research portion of the 2021 LRDP Land Use plan, which would be most likely to include future laboratory space upon buildout of the proposed 2021 LRDP.

Table B-9 summarizes laboratory fume hood emissions from campus buildings under the future scenario.

Diesel-fueled Delivery Trucks

Baseline Emissions

UCR operations include the use of medium- and heavy-duty diesel trucks for delivery and various other services on campus. The services employed by UCR that involve the operation of diesel trucks on campus include hazardous waste pick-up, dining facilities deliveries, food trucks, municipal waste trash and refuse service, and Airgas delivery. Modeling was based on delivery route and service frequency provided by UCR for the above noted services. DPM generated from the delivery and service vehicles were calculated based on the annual and maximum hourly trips, the mileage traveled per trip based on the defined route for that delivery or service type, and emission factors for exhaust PM_{10} obtained from CARB's EMission FACtors (EMFAC2017) model.[7] Emission factors were weighted based on the vehicle class used for deliveries and services.

Based on the provided delivery and service frequency intervals, the number of annual and daily trips were calculated. The maximum trips per hour were conservatively estimated assuming that all

[6] While only facilities with at least five fume hoods designated for chemical use were considered, multiple greenhouse research facilities on campus include one to three fume hoods. Because greenhouse research facilities are generally clustered in close proximity to each other and their exclusion would have the potential to result in a substantial underestimation of localized TAC emissions, all greenhouse research facilities—regardless of the number of fume hoods they contain—were included in this Programmatic HRA.

[7] CARB. 2018. EMFAC2017 Volume III – Technical Documentation. Available: <https://www.arb.ca.gov/emfac/>. Accessed November 2020.

possible trips that could occur in a day occurred at the same hour. For routes with frequencies less than once per day, it was conservatively assumed that trips occurred on the same day. Table 4 presents the annual and maximum hourly trips and associated mileage by service type used for emissions calculations for the baseline scenario.

Table 4 Delivery and Service Vehicle Frequency – Baseline Scenario

Route Type[1]	Annual Trips (trips/year)[2]	Annual VMT (miles)[4]	Hourly (trips/hour)[3]	Hourly VMT (miles)[4]
Hazardous Waste	65	906	1.00	14
Dining Facilities	3,508	17,618	9.61	48
Chameleon Food Truck	2,808	13,642	7.69	39
Municipal Waste Trash/Refuse Service	676	13,015	1.85	9
Airgas	260	658	1.00	3

VMT = vehicle miles traveled

[1] Delivery and service frequency information was provided by UCR on October 29, 2020.

[2] Following assumptions for delivery routes were used based on information provided by UCR: The hazardous waste truck collects biohazard waste weekly, chemical waste monthly, and radioactive waste once a year. UCR provided a list of dining facility vendor and food truck delivery schedules by week and indicated that food trucks on average make two round trips on campus each delivery day; annual vendor and food truck trips are based on the total number of trips occurring in a week multiplied by 52 weeks in a year. One refuse truck operates 5 days a week, one single bin truck operates 5 days a week, and one recycle unit operates 3 days a week. Airgas is delivery once per day, this was assumed to occur M-F. Unless otherwise noted it is assumed that one round trip is made per day per delivery route.

[3] Maximum trips per hour were conservatively estimated that all possible trips that could occur in a day would occur at the same hour. For routes that occur less than once per day, it was conservatively assumed that they occurred on the same day.

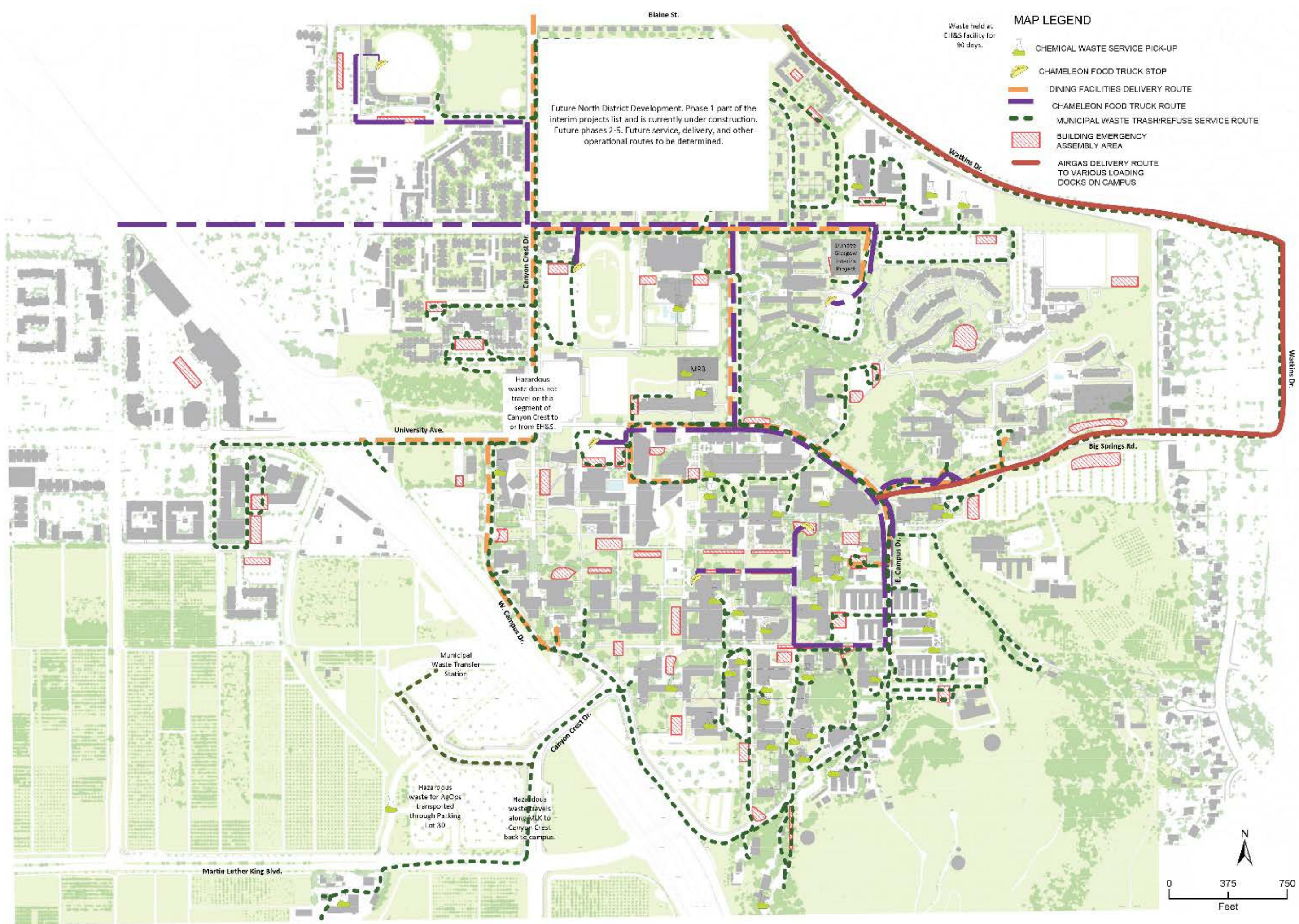
[4] Trip route distances were estimated using Google Earth and based on the "UCR Delivery and Service Routes" map provided by UCR presented in Figure 4. Annual and hourly vehicle miles traveled was based on the route distance for the 5 distinct delivery and service routes provided and the frequency of trips.

Figure 4 presents the delivery and service routes on and adjacent to UCR campus that were modeled for baseline emissions. The delivery and service routes were modeled as a series of volume sources such that the length did not extend greater than 10 times the width of the source. Because the routes were modeled as a series of sources, emissions for a given delivery or service route were attributed to the individual segments based on the percent the segment contributed to the overall route length. Over 300 individual volume sources were modeled to represent the various delivery and service routes. Therefore, emissions modeled for baseline conditions are presented in Table B-10 as the sum of DPM emissions by route. Refer to Figure 5 in Section 4.2, *Modeling*, for the location of all baseline emissions sources, including roadway segments.

Future Emissions

Development of campus space and growth in student population would result in an increase in delivery and other services for the campus. The growth rate of deliveries and services that use medium- and heavy-duty diesel trucks was developed from the Fehr & Peers transportation assessment prepared in support of the 2021 LRDP EIR. The Fehr & Peers transportation assessment is based on the RivTAM travel demand model modified based on UCR population data and reports the daily vehicle miles traveled (VMT) by vehicle class for the baseline scenario in 2018 and for the full buildout scenario (i.e., future scenario) under the 2021 LRDP in 2035. However, the RivTAM model is all encompassing of VMT associated with UCR and is not specific to the UCR delivery and service vehicles that are used for UCR operations. Because an HRA is based on localized emissions, the on-site measured routes and frequency was considered to be more appropriate than VMT

Figure 4 University Service and Delivery Routes



Source: UCR, 2020.

estimates by Fehr & Peers for determining localized DPM emissions. Therefore, to ensure that the diesel truck emissions evaluated in the future scenario were consistent with the baseline scenario and only included those vehicles causing the localized impact, future scenario emissions were calculated and modeled following the same methodology as the baseline scenario. Based on the VMT projections by Fehr & Peers between the baseline year and future scenario the percent growth in VMT by vehicle class was determined. These growth rates were then applied to the mileage traveled by vehicle class by route in the baseline scenario to estimate the increase in mileage traveled under the future scenario due to increased delivery and services provided. Table 5 presents the annual and maximum hourly trips and associated mileage by service type used for emission calculations for the future scenario.

Table 5 Delivery and Service Vehicle Frequency – Future Scenario

Route Type[1]	Annual Trips (trips/year)[2]	Annual VMT (miles)[4]	Hourly (trips/hour)[2,3]	Hourly VMT (miles)[4]
Hazardous Waste	126	1,756	2	27
Dining Facilities	6,697	33,636	18	92
Chameleon Food Truck	5,488	26,660	16	76
Municipal Waste Trash/Refuse Service	1,311	25,234	1	18
Airgas	504	1,277	2	5

VMT = vehicle miles traveled

[1] Delivery and service frequency information was provided by UCR on October 29, 2020.

[2] Growth rates from the baseline to 2035 with full LRDP buildout are based on VMT projections developed and the percentage change from 2018 projections, which are as follows: LDT2 (166% increase), MHDT (190%), HHDT (194%), LHDT2 (202%)

[3] Maximum trips per hour were conservatively estimated assuming that all possible trips that could occur in a day would occur at the same hour. For routes that occur less than once per day, it was conservatively assumed that they occurred on the same day.

[4] Trip route distances were estimated using Google Earth and based on the "UCR Delivery and Service Routes" map provided by UCR presented in Figure 4. Annual and hourly vehicle miles traveled was based on the route distance for the 5 distinct delivery and service routes provided and the frequency of trips.

Because it is unknown at this time how the precise routes for the delivery and services for UCR operations may change under the proposed 2021 LRDP, increased emissions under the future scenario were applied to the existing delivery and service routes as modeled under the baseline scenario. Diesel truck emissions modeled for the future scenario are presented in Table B-11 as the sum of DPM emissions by route. While delivery and service trips are anticipated to increase in frequency and result in increased VMT under the proposed 2021 LRDP, annual and hourly emissions of DPM are anticipated to decrease due to emissions reductions mandated by California law and captured in EMFAC2017 projections.

4.2 Modeling

Air Dispersion Modeling

Source Characterization

Sources were modeled as either point or volume sources, depending on the nature of the source. Point sources are applied to emissions sources released from stacks or isolated vents and were deemed most appropriate for on-campus kitchen, generator, boiler/water heater, and gasoline storage tank (breathing and loading) emissions. Volume sources are typically used to model releases from buildings or areas with multiple vents or releases and were deemed appropriate for laboratory fume hood emissions emanating from research buildings and gasoline dispensing facility refueling, spillage, and hose permeation sources. Additionally, emissions from diesel delivery trucks were modeled as a series of volume sources along the delivery route roadways, as described above.

Figure 5 shows the location of all sources modeled under the baseline scenario. Figure 6 shows kitchen and generator sources modeled under the future scenario, as these are the only sources with locational changes modeled under the proposed 2021 LRDP HRA.

Meteorology and Topography

Dispersion of TAC emissions was modeled using the Hotspots Analysis and Reporting Program version 2 (HARP 2), which incorporates the latest compiled version of the U.S. EPA's AERMOD atmospheric dispersion modeling system. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources. The AERMOD model requires hourly meteorological data consisting of wind vector, wind speed, temperature, stability class, and mixing height. Specific meteorology and terrain for the site were input to the model using the nearest available meteorological data set, Riverside Municipal Airport station (KRAL), located approximately 6.9 miles southwest of campus, and 10-meter Digital Elevation Model (DEM) data for the Riverside East Quadrangle. AERMOD's urban option was applied based on SCAQMD's population parameter for Riverside County of 2,189,641 (SCAQMD 2021).

Building Downwash

Buildings or structures can affect the dispersion of air and pollutants by interrupting airflow patterns or creating eddies or currents. AERMOD allows for buildings/structures to be incorporated into the model for dispersion of point source emissions through its Building Profile Input Program (BPIP), a building pre-processing tool, in order to account for the potential effects of building downwash on air dispersion patterns. Algorithms used to apply downwash affects in AERMOD only apply to point sources and are not applied to volume sources. Given the substantial number of buildings on campus and potential implications for pollutant dispersion on and around campus, the analysis incorporated profiles of 150 campus buildings adjacent to or within approximately 300 feet of any modeled point sources. Figure 7 shows the footprints of all buildings incorporated into AERMOD and their location relative to modeled point sources.

Receptors

AERMOD allows users to input discrete sensitive receptor locations to evaluate ground-level pollutant concentrations and health risk at individual points. Additionally, AERMOD allows users to input receptor networks through the use of grids, which provide multiple receptor points spanning a larger, defined area. Unlike discrete receptor points, receptor networks, or grids, allow users to assess patterns of health risk exposure over a particular area of interest. Receptor grids are defined by the number of points in each direction and the spacing between each point. Grids may be either Cartesian, forming a rectangular shape defined by an x- and y-axis, or polar, forming a circular pattern emanating outward from a particular point of interest. For this analysis, a total of nine Cartesian receptor grids and 22 discrete sensitive receptors were applied. Table 6 summarizes the dimensions and locations of sensitive receptors and grids applied in AERMOD. Figure 8 shows the location of all receptor grids and discrete sensitive receptor points considered in the analysis. In total, this analysis evaluates health risk at 6,363 receptors across campus and surrounding neighborhoods.

Figure 5 Baseline Scenario Emissions Sources

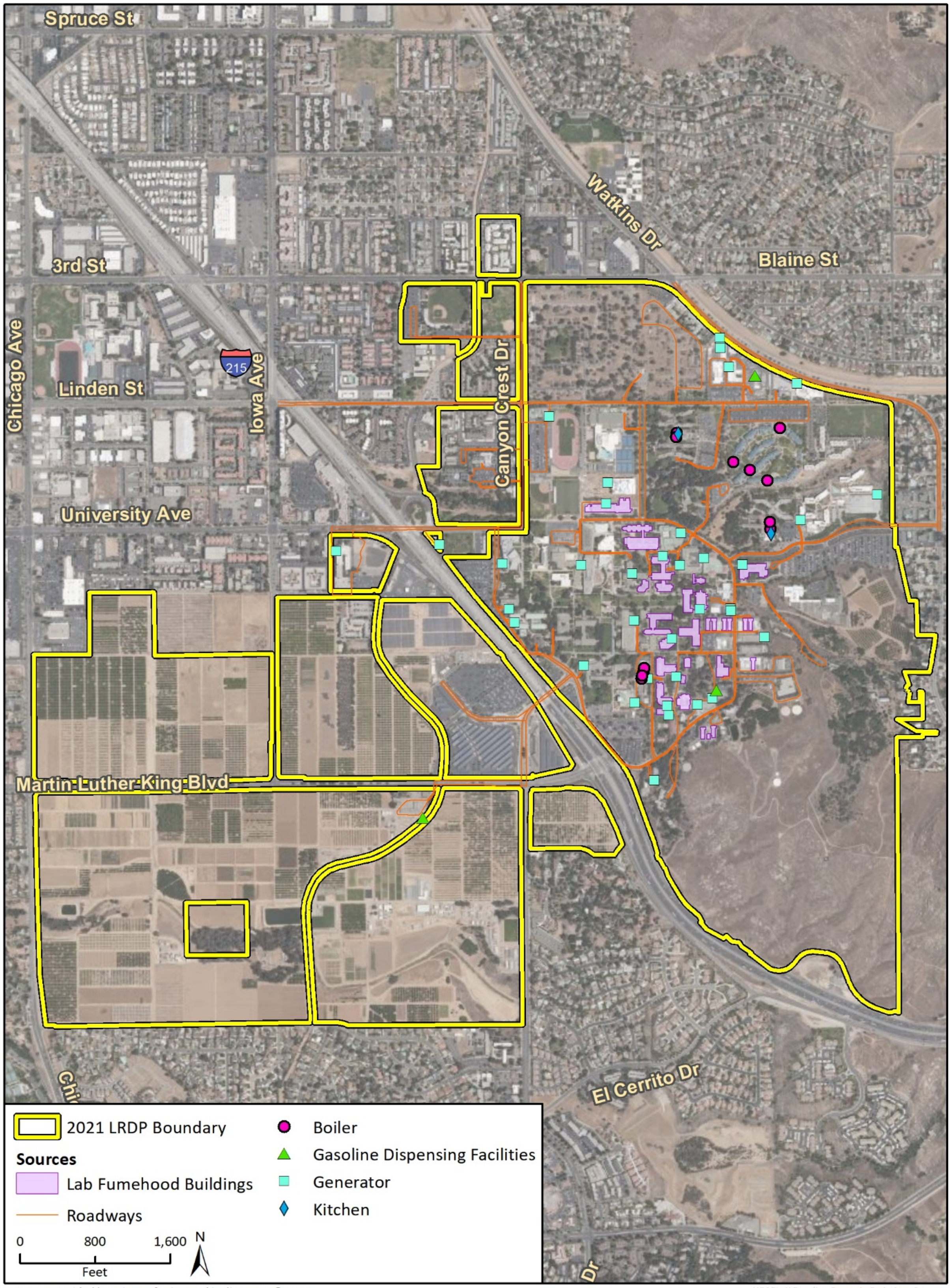


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Figure 6 New/Relocated Future Scenario Emissions Sources

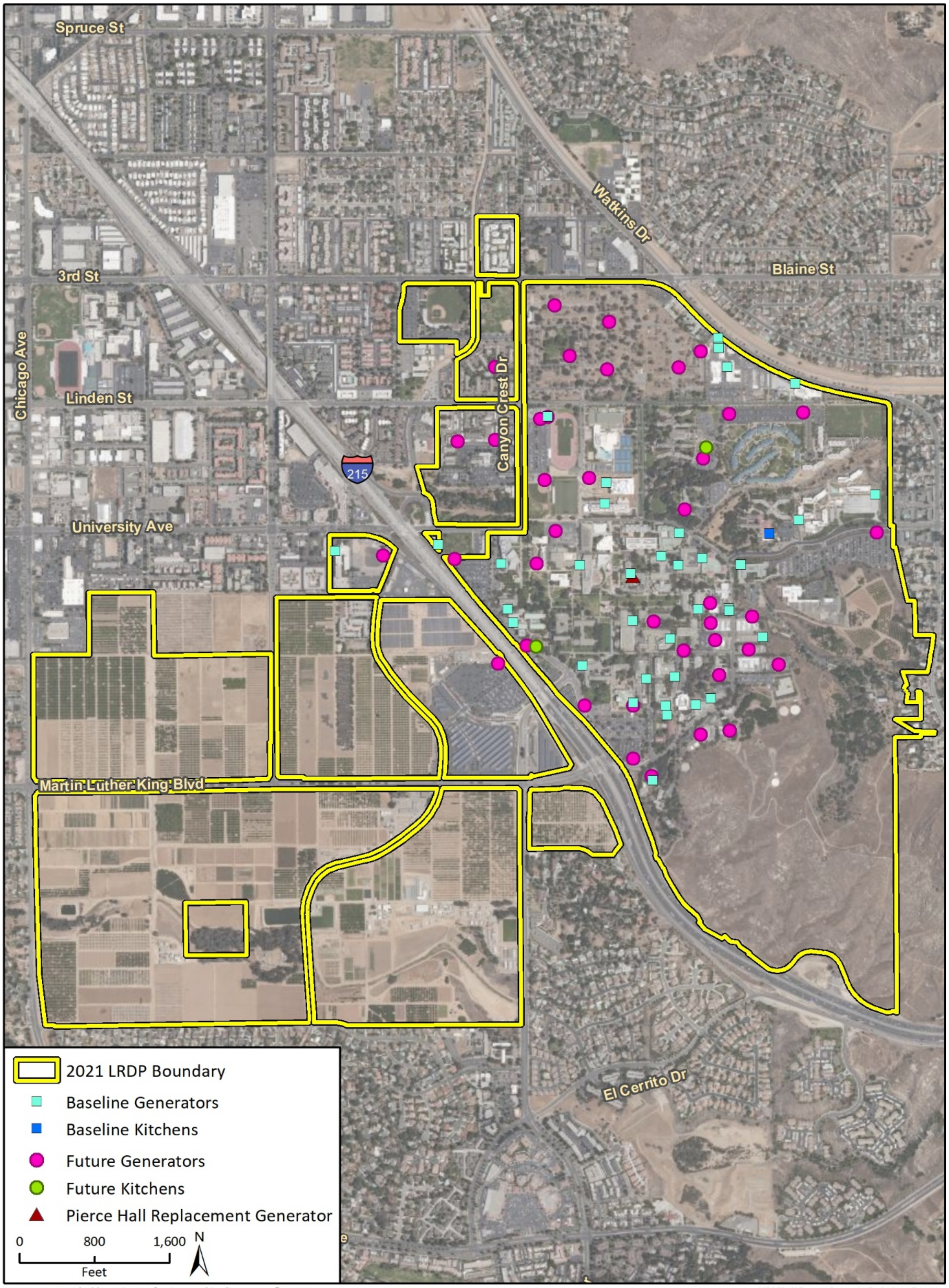

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Figure 7 Buildings Modeled for Downwash Effects

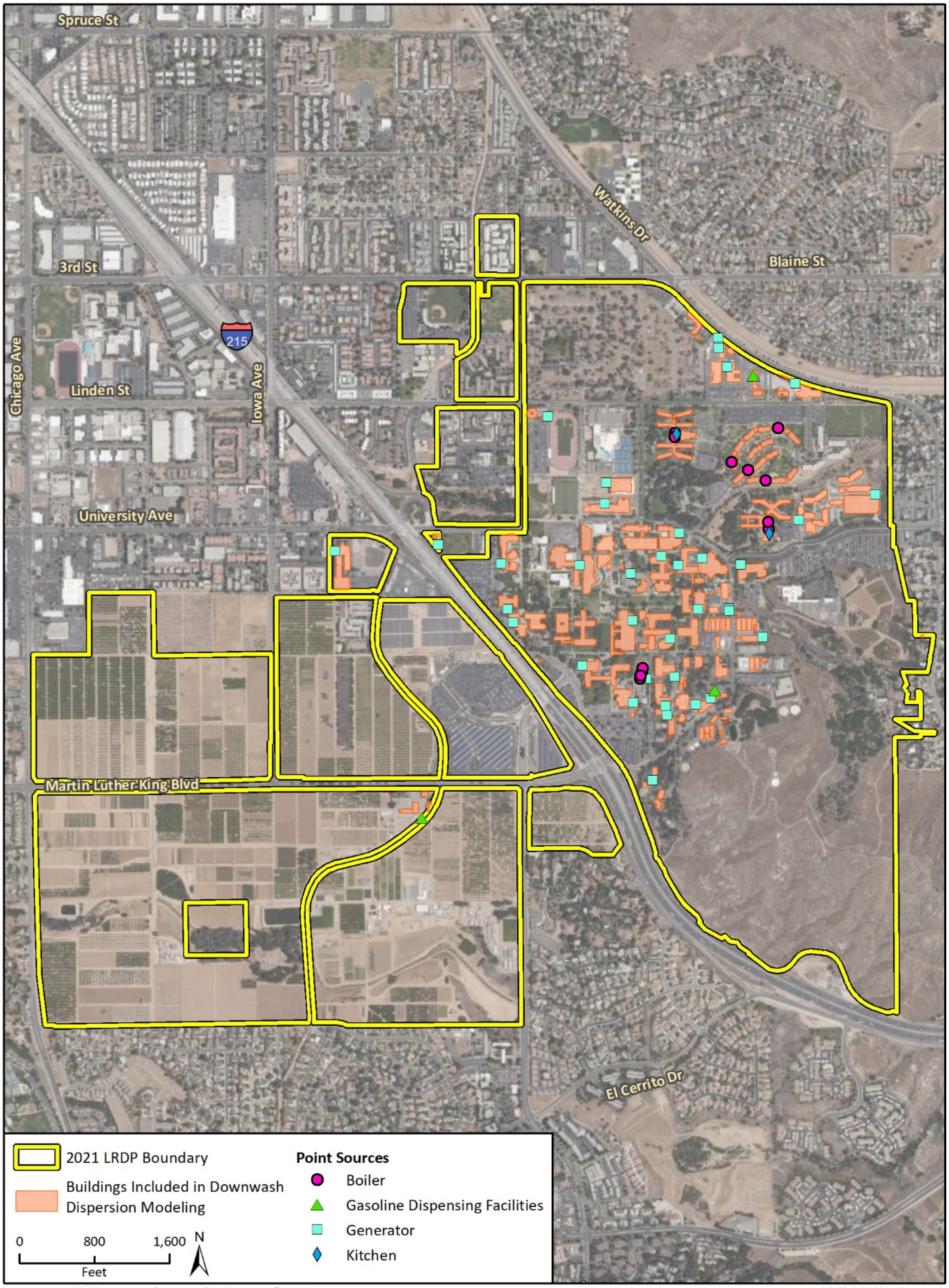

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Figure 8 Receptor Grids and Locations

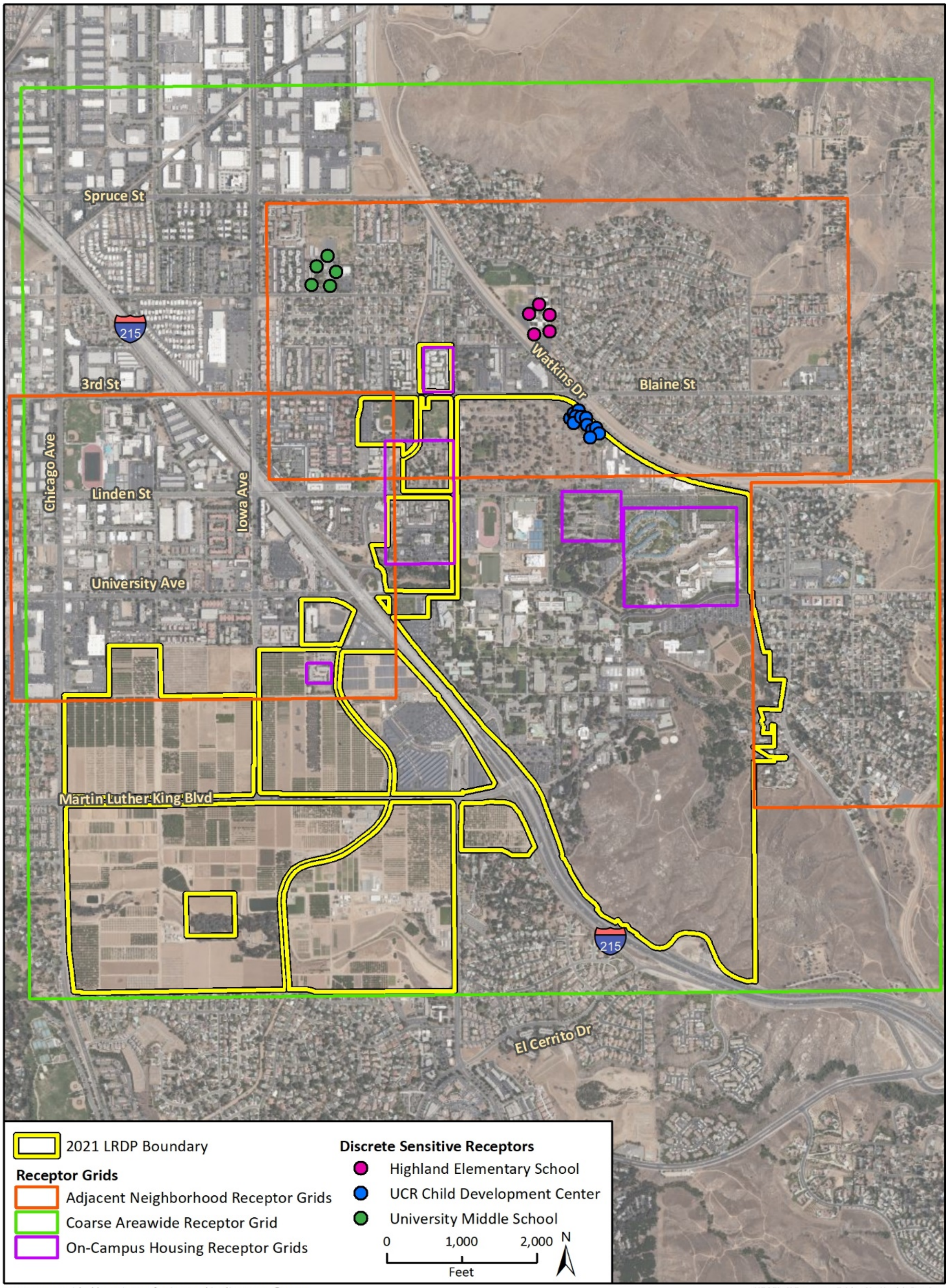

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Table 6 Grid and Sensitive Receptors

Location	Receptor Grid?	Grid Dimensions[1]	Grid Spacing (m)	Number of Points
Greater Campus Area				
Campus and Surrounding Neighborhoods	Yes	38 x 38	1,000	1,444
Off-Campus Neighborhoods				
University Avenue Corridor (West of Campus)	Yes	40 x 32	40	1,280
North Campus Neighborhoods (North of Linden Street)	Yes	60 x 40	40	1,800
Watkins Drive Corridor (East of Valencia Hill Drive)	Yes	20 x 34	40	680
On-Campus Residences				
Aberdeen-Inverness Residence Hall	Yes	13 x 11	20	143
Lothian, Glen Mor, and Pentland Hills Residence Halls	Yes	24 x 21	20	504
Oban and The Plaza Family Housing and Bannockburn Village	Yes	15 x 26	20	390
International Village	Yes	6 x 5	20	30
Stonehaven Student Housing	Yes	7 x 10	20	70
Discrete Sensitive Receptor Locations				
UCR Child Development Center	No	–	–	12
University Middle School[2]	No	–	–	5
Highland Elementary School[2]	No	–	–	5

[1] Dimensions are defined by number of points along the x-axis (east-west alignment) by number of points along the y-axis (north-south alignment).

[2] Located off-campus.

Health Risk Modeling

Upon completion of air dispersion modeling, health risk was estimated using CARB's HARP 2 model. Maximum cancer and non-cancer health risks were evaluated under both the baseline and future scenarios for on- and off-campus residents, on- and off-campus workers, and on-campus daycare facilities.

Health risk is a function of both the ground-level concentration of pollutants and the duration of exposure; greater concentrations and longer-term exposure generally result in greater risk. Other factors, such as age-sensitivity for younger populations and individual breathing rates, may also affect estimated health risk. While non-cancer chronic and acute health risks are calculated based on a one-year and one-hour exposure to TAC concentrations, respectively, carcinogenic risk may be calculated based on longer-term exposure durations. For example, SCAQMD recommends that residential cancer risk be evaluated over a 30-year exposure duration, while worker risk should be evaluated over a 25-year exposure duration (SCAQMD 2017). Shorter or longer exposure durations may be appropriate depending on source- or receptor-specific considerations.

In addition to exposure durations, HARP 2 allows users to apply fraction-of-time-at-home (FAH) values to provide more refined estimates of residential health risk. By applying FAH values, health risk calculations assume a receptor is not exposed to project-generated pollutant concentrations for a fixed percentage of the day during which they are not at their residence. SCAQMD recommends that a FAH of 73 percent be applied for ages 16 years or older; children under 16 years old should be conservatively assumed to attend a school or daycare nearby, therefore resulting in pollutant exposure at all times. Table 7 summarizes health risk exposure assumptions for each receptor scenario.

Table 7 Cancer Risk Exposure Assumptions

Receptor	Exposure Duration (years)	Intake Rate Percentile[1]	Starting Age of Exposure[2]	Fraction of Time at Home?[3]	Pathways Included[4]
Off-Campus Resident	30	RMP Using the Derived Method	3rd Trimester	1 (<16 years); 0.73 (>16 years)	Inhalation, Dermal, Soil, Mother's Milk, Homegrown Produce
On-Campus Resident	6[5]	RMP Using the Derived Method	16 years[6]	1[7]	Inhalation, Dermal, Soil, Mother's Milk, Homegrown Produce
Off-Campus/On-Campus Worker	25	OEHHA Derived Method	16 years[8]	N/A[9]	Inhalation, Soil, Dermal
On-Campus Daycare	6[10]	RMP Using the Derived Method	3rd Trimester	1	Inhalation, Soil, Dermal, Mother's Milk, Homegrown Produce

RMP = Risk Management Policy; OEHHA = Office of Environmental Health and Hazard Assessment

[1] South Coast Air Quality Management District Risk Assessment Procedures recommend residential cancer risk be evaluated using the RMP Using the Derived Method intake rate percentile. All other scenarios are recommended to use the OEHHA Derived Method (SCAQMD 2017).

[2] Describes the age at which exposure to pollutant concentrations from the project is assumed to begin. Residential exposure conservatively assumed to begin during the third trimester prior to birth.

[3] Describes the fraction of time residents are assumed to be at their home and exposed to pollutant concentrations.

[4] Describes the pathways of pollutant exposure. SCAQMD recommends inhalation, dermal, soil, mother's milk, and homegrown produce pathways be considered for residential exposure. Inhalation, soil, and dermal exposure are considered for worker exposure.

[5] A 30-year residential exposure duration is not appropriate for on-site residences, as individuals would not be expected to live in campus housing beyond their tenure as students at UCR. Therefore, an on-campus residential exposure duration of six years is proposed, consistent with how the University typically reports its graduation rate.

[6] Assumes on-campus residents are 16 years of age or older.

[7] Assumes on-campus residents are exposed to campus-generated pollutant concentrations at all times.

[8] Workers are assumed to be of working age (i.e., greater than 16 years old).

[9] Worker exposure automatically considers 8-hour exposure to pollutant concentrations.

[10] UCR Child Development Center provides infant care, preschool, and kindergarten classes. Therefore, on-campus daycare facilities were modeled assuming the six-year residential exposure duration, beginning during the third trimester prior to birth.

4.3 Significance Thresholds

This Programmatic HRA assesses the potential for the proposed 2021 LRDP to result in a significant health risk impact using SCAQMD health risk criteria. Pursuant to these criteria, the proposed 2021 LRDP would have a significant impact if it would result in:

- A Maximum Incremental Excess Cancer Risk greater than or equal to 10 in 1 million;
- A Chronic or Acute Hazard Index greater than or equal to 1.0; or
- A Cancer Burden greater than 0.5 cancer cases in areas greater than or equal to 1 in 1 million.

UCR contains multiple sources of TACs spanning the 1,108-acre campus. The campus complies with all existing regulatory requirements pertaining to emissions of TACs, including submittal of annual emissions reports and payment of TAC fees to SCAQMD and preparation of regular HRAs for operation of stationary emissions sources on campus in accordance with AB 2588 and SCAQMD Rule 1402 (*Control of Toxic Air Contaminants from Existing Sources)*. As described above, the proposed 2021 LRDP is expected to result in emissions increases from several sources on campus, while other sources would be expected to remain at baseline emission levels. UCR would continue to comply with all applicable regulations pertaining to emissions of TACs from existing or future sources, including notification and risk reduction requirements should facility-generated health risk exceed applicable standards pursuant to AB 2588 or SCAQMD Rule 1402.

This Programmatic HRA evaluates the potential for growth and development under the proposed 2021 LRDP to result in health risk impacts. To isolate, analyze, and disclose the effects of the proposed 2021 LRDP itself, this analysis focuses on the net increase in health risk between the baseline and future scenarios. This is a reasonable approach to analyze the health risks posed by implementation of the 2021 LRDP relative to baseline conditions to determine impact significance for the purposes of CEQA.

5 Impact Analysis

This section describes the results of health risk modeling for the baseline and future scenarios and determines the level of significance of potential health risk impacts.

5.1 Health Risk Results

The maximally exposed receptor is the modeled receptor experiencing the highest health risk under the exposure scenario being modeled. This Programmatic HRA identifies the off-campus and on-campus Maximally Exposed Individual Residents (MEIRs), as well as the off-campus and on-campus Maximally Exposed Individual Workers (MEIWs). Additionally, modeled receptors at the UCR Child Development Center were evaluated to identify the maximum health risk faced by children at the daycare facility. The maximally exposed receptors were determined through an iterative process evaluating potential receptors based on model-generated risk contours to ensure the maximum health risks were captured for each scenario.

Different TACs elicit different toxicological responses in the human body. As described in Section 3.4, *Health Risk*, TACs may be carcinogenic – resulting in an incremental excess cancer risk – and may also generate chronic and/or acute health problems. Similarly, different TACs disperse through the atmosphere differently depending on their unique physical properties. For example, emissions of particulate matter, such as DPM, will disperse differently than gaseous compounds. As a result, the MEIR for cancer, chronic, and acute risk may not occur at the same location.

Cancer Risk

Incremental excess cancer risk values at the off-campus and on-campus MEIR, MEIW, and UCR Child Development Center are described in Table 8. HARP 2 dispersion modeling outputs and health risk results are provided in Appendix C. As shown in Table 8, incremental excess cancer risks attributable to the proposed 2021 LRDP would not exceed the SCAQMD threshold of 10 in 1 million at the off- or on-campus MEIR, MEIW, or UCR Child Development Center. Cancer risk contours for off-campus residents, on-campus residents, and workers under the baseline and future scenarios are shown in Figure 9 through Figure 14.

Table 8 Cancer Risk Results

Scenario	Cancer Risk
Off-Campus Resident[1]	
Baseline Scenario	20.9 in 1 million
Future Scenario	25.8 in 1 million
Net Increase	4.9 in 1 million
SCAQMD Significance Threshold	10 in 1 million
Exceeds Threshold?	No
On-Campus Resident[2]	
Baseline Scenario	3.2 in 1 million
Future Scenario	3.5 in 1 million
Net Increase	0.3 in 1 million
SCAQMD Significance Threshold	10 in 1 million
Exceeds Threshold?	No
Off-Campus Worker[3]	
Baseline Scenario	1.1 in 1 million
Future Scenario	1.4 in 1 million
Net Increase	0.3 in 1 million
SCAQMD Significance Threshold	10 in 1 million
Exceeds Threshold?	No
On-Campus Worker[4]	
Baseline Scenario	14.0 in 1 million
Future Scenario	14.1 in 1 million
Net Increase	0.1 in 1 million
SCAQMD Significance Threshold	10 in 1 million
Exceeds Threshold?	No
Child Development Center[5]	
Baseline Scenario	3.7 in 1 million
Future Scenario	6.8 in 1 million
Net Increase	3.1 in 1 million
SCAQMD Significance Threshold	10 in 1 million
Exceeds Threshold?	No

[1] Evaluated over a 30-year exposure duration. Off-campus MEIR for cancer risk is located at residence near the intersection of Valencia Hill Drive and West Big Springs Road.

[2] Evaluated over a 6-year exposure duration. On-campus MEIR for cancer risk is located in Glen Mor Building H.

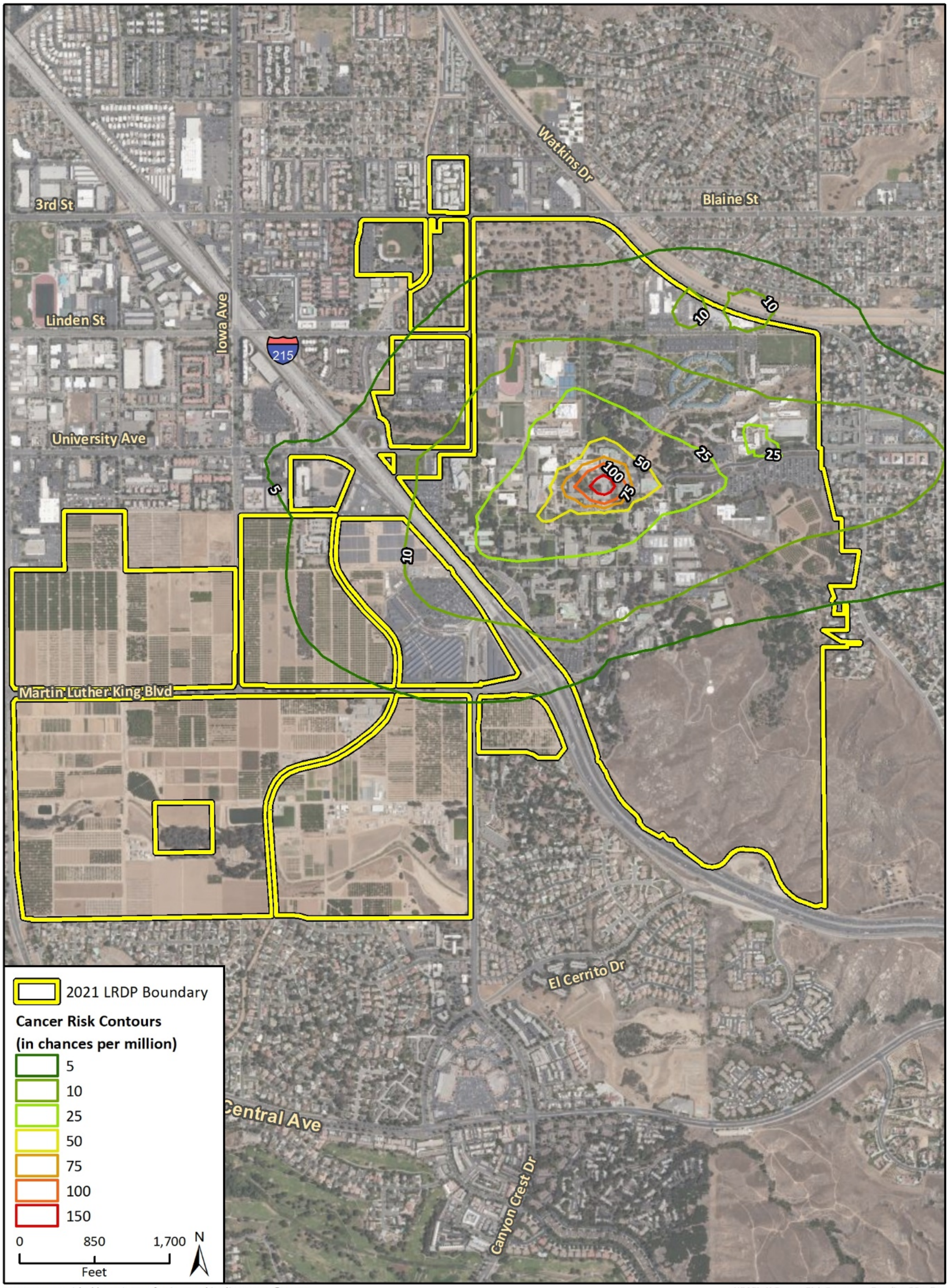
[3] Evaluated over 25-year exposure duration. Off-campus MEIW for cancer risk is located at commercial structure near the intersection of Watkins Drive and West Big Springs Road.

[4] Evaluated over 25-year exposure duration. On-campus MEIW for cancer risk is located at Geology building.

[5] Evaluated over 6-year exposure duration.

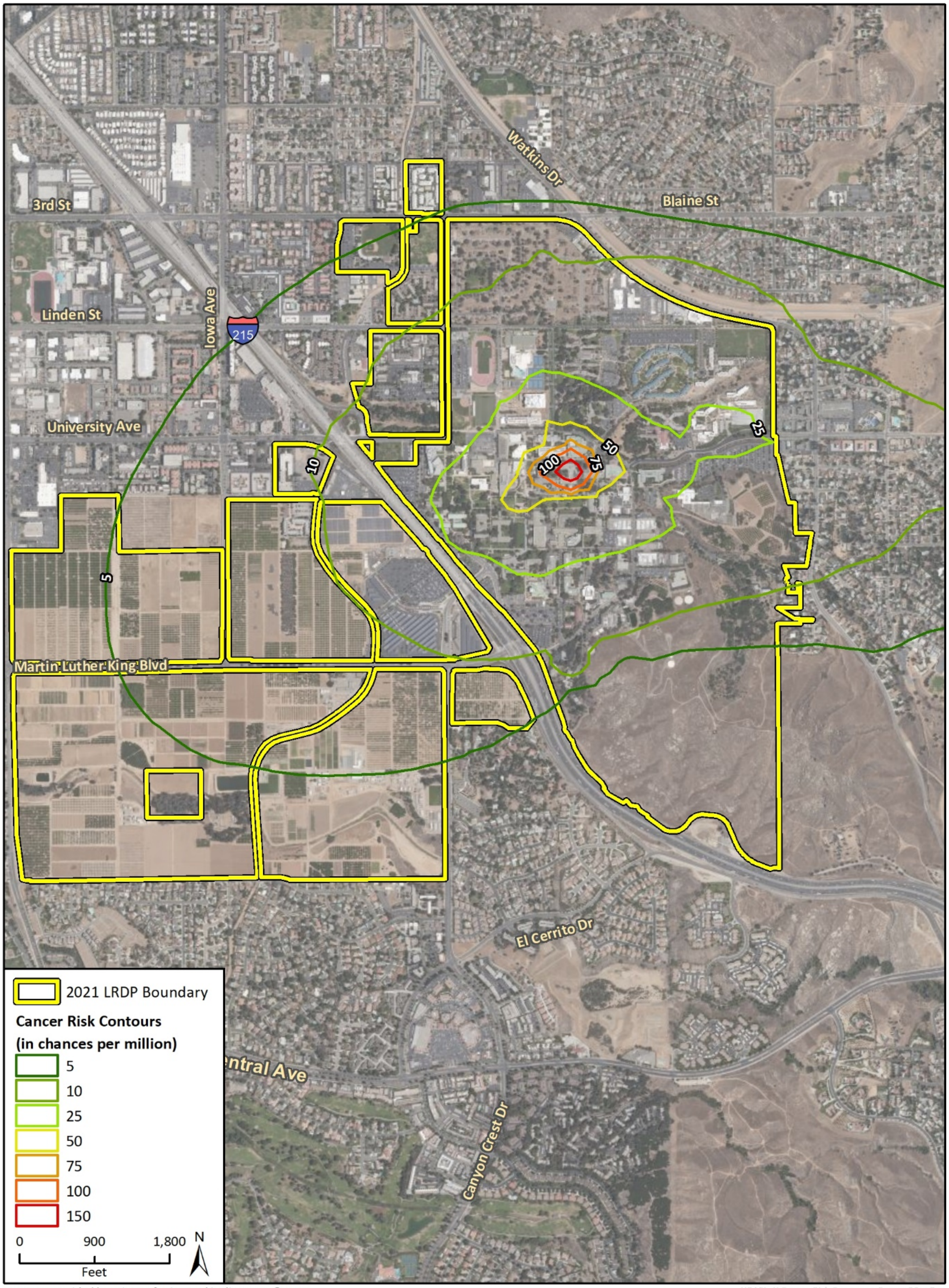
Health risk model outputs provided in Appendix C.

Figure 9 Off-Campus Residential Cancer Risk Contours – Baseline Scenario



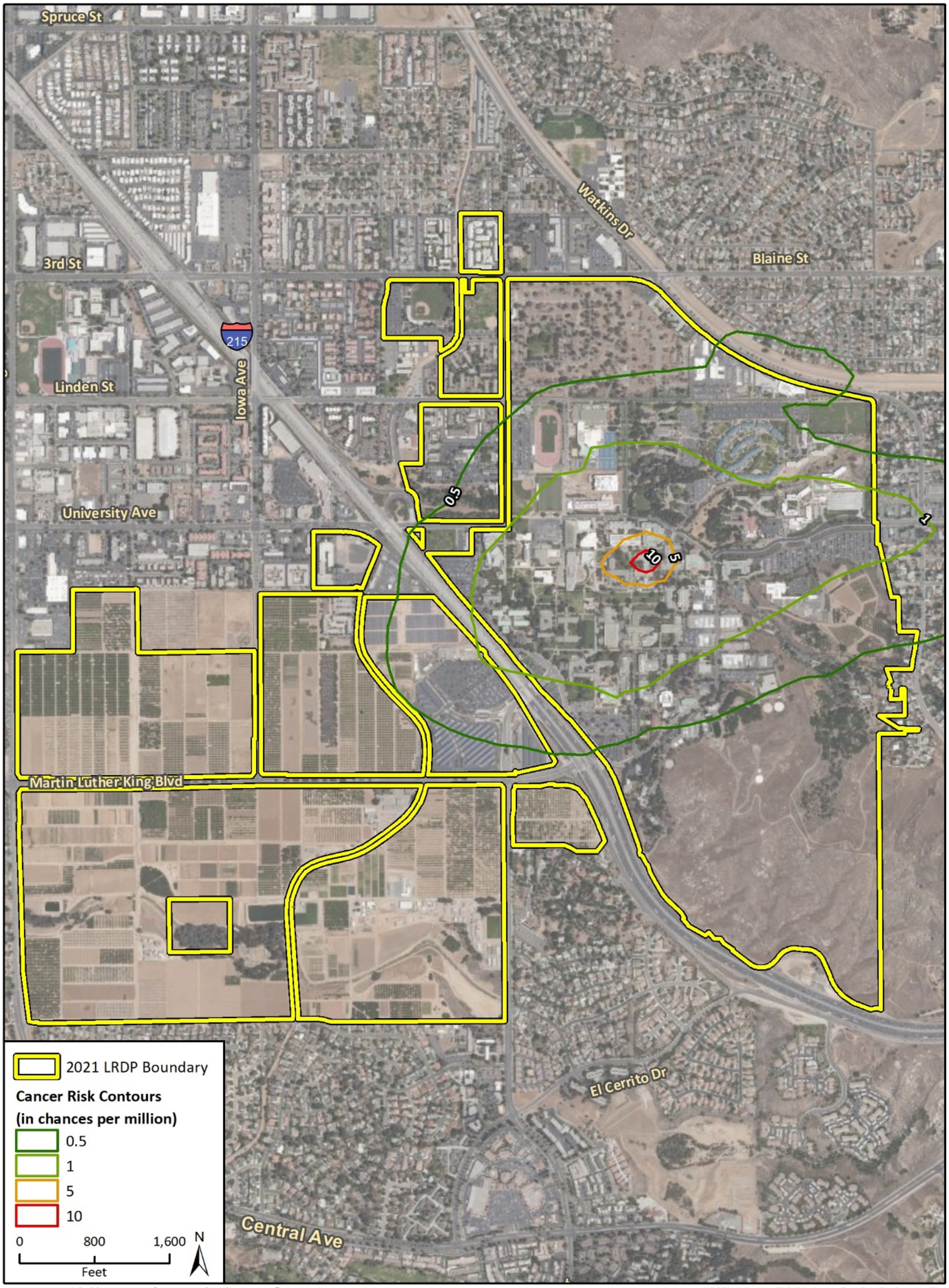
Imagery provided by Microsoft Bing and its licensors © 2021.

Figure 10 Off-Campus Residential Cancer Risk Contours – Future Scenario



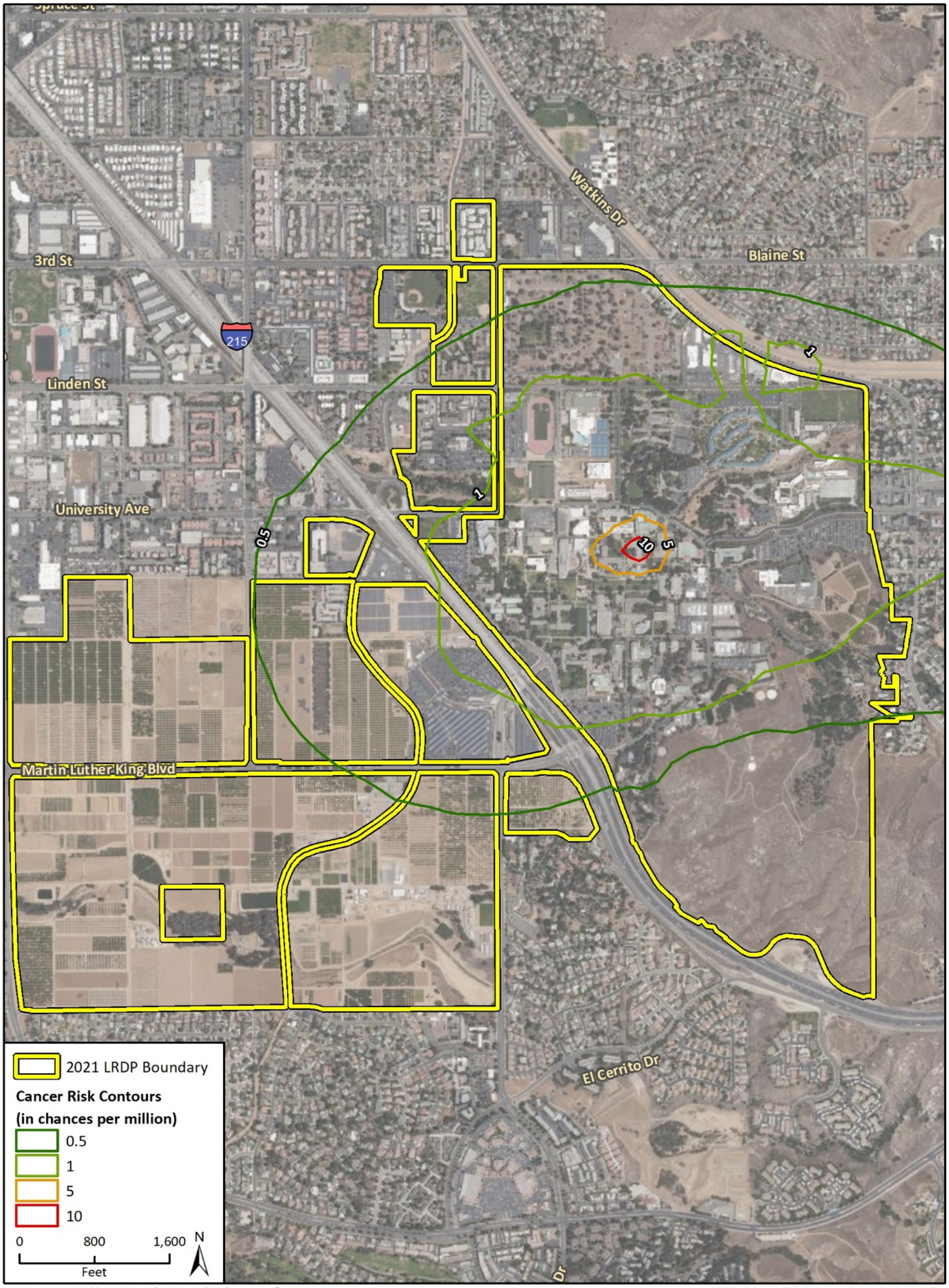
Imagery provided by Microsoft Bing and its licensors © 2021.

Figure 11 On-Campus Residential Cancer Risk Contours – Baseline Scenario



Imagery provided by Microsoft Bing and its licensors © 2021.

Figure 12 On-Campus Residential Cancer Risk Contours – Future Scenario



Imagery provided by Microsoft Bing and its licensors © 2021.

Figure 13 Worker Cancer Risk Contours – Baseline Scenario

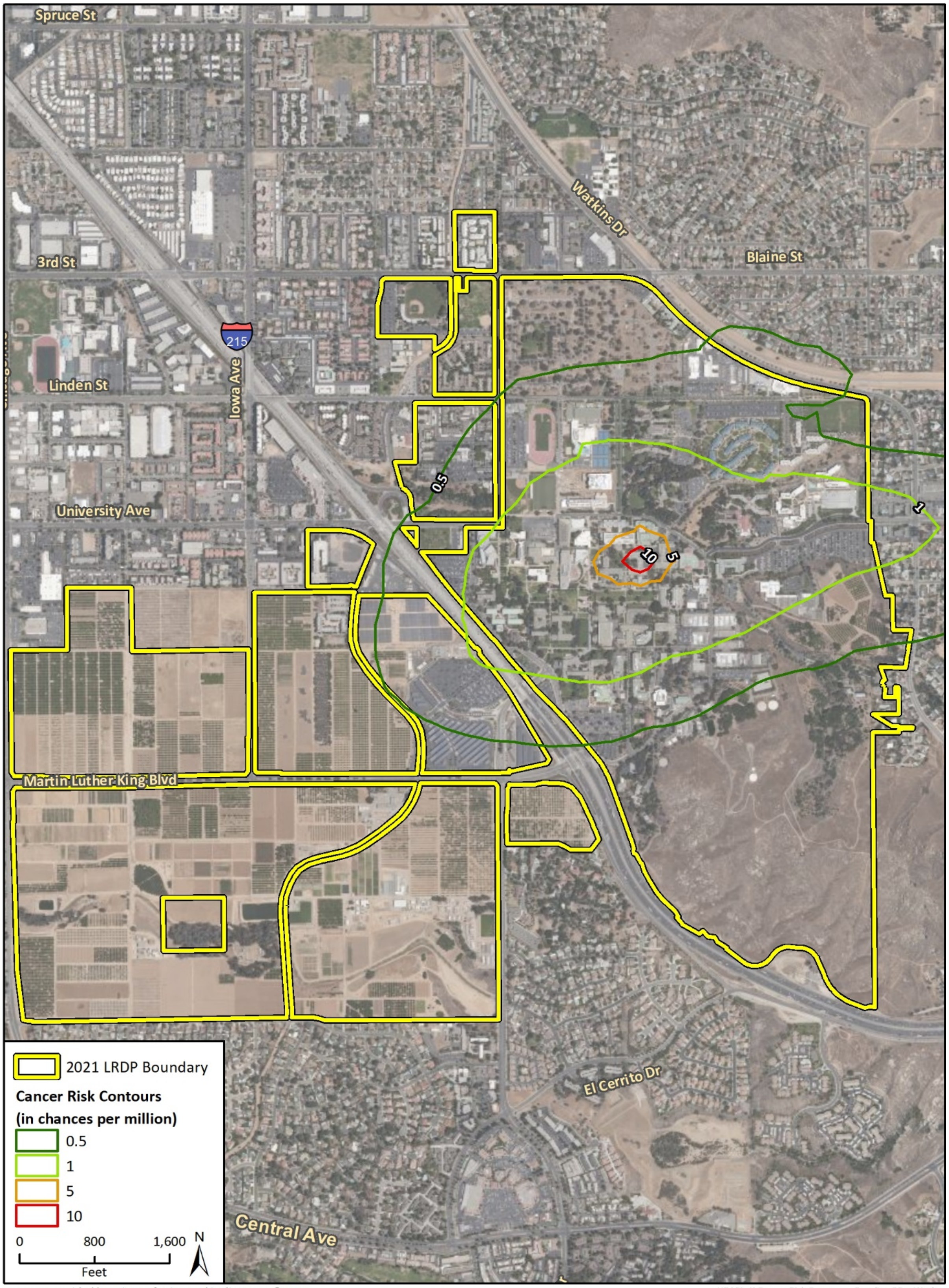


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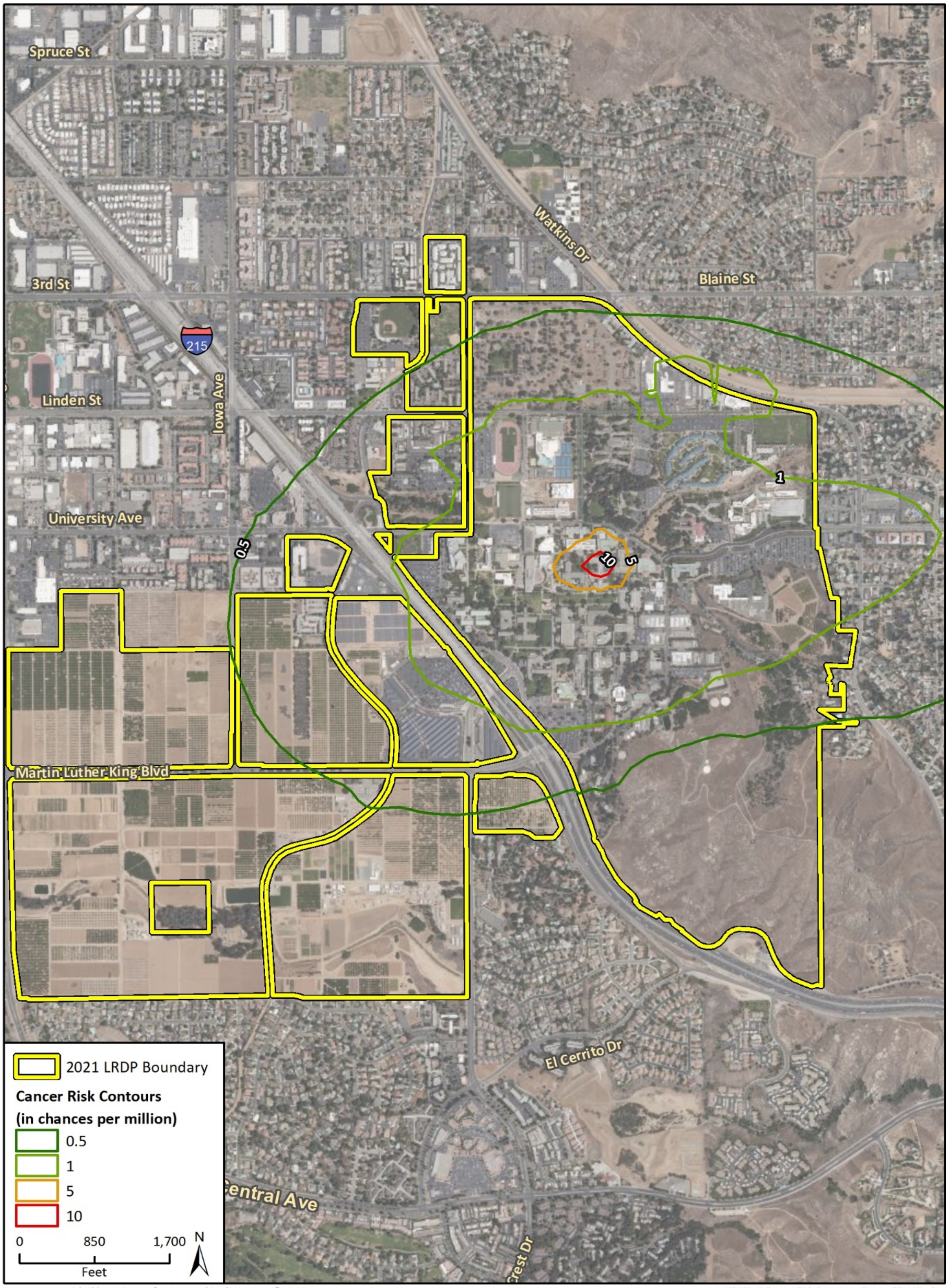
Figure 14 Worker Cancer Risk Contours – Future Scenario



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Non-Cancer Risk

Chronic Health Risk Impacts

Chronic hazard indices at the off-campus and on-campus MEIR, MEIW, and UCR Child Development Center are described in Table 9. HARP 2 dispersion modeling outputs and health risk results are provided in Appendix C. As shown in Table 9, chronic hazard indices under the proposed 2021 LRDP would not exceed the SCAQMD threshold of 1.0 at the off- or on-campus MEIR, MEIW, or UCR Child Development Center.

Table 9 Chronic Health Risk Results

Scenario	Chronic Hazard Index
Off-Campus Resident[1]	
Baseline Scenario	0.04
Future Scenario	0.06
Net Increase	0.02
SCAQMD Significance Threshold	1.0
Exceeds Threshold?	**No**
On-Campus Resident[2]	
Baseline Scenario	0.09
Future Scenario	0.11
Net Increase	0.02
SCAQMD Significance Threshold	1.0
Exceeds Threshold?	**No**
Off-Campus Worker[3]	
Baseline Scenario	0.01
Future Scenario	0.02
Net Increase	0.01
SCAQMD Significance Threshold	1.0
Exceeds Threshold?	**No**
On-Campus Worker[4]	
Baseline Scenario	0.13
Future Scenario	0.15
Net Increase	0.02
SCAQMD Significance Threshold	1.0
Exceeds Threshold?	**No**
Child Development Center	
Baseline Scenario	0.01
Future Scenario	0.02
Net Increase	0.01
SCAQMD Significance Threshold	1.0
Exceeds Threshold?	**No**

[1] Off-campus MEIR for chronic health risk is located in the rear/side yard of a single-family residence at the western terminus of West Broadbent Drive.

[2] On-campus MEIR for chronic health risk is located in the southern portion of Lothian Hall.

[3] Off-campus MEIW for chronic health risk is located at commercial structure near the intersection of Watkins Drive and West Big Springs Road.

[4] On-campus MEIW for chronic health risk is located at Geology building under baseline scenario and Science Lab 1 under future scenario.

Health risk model outputs provided in Appendix C.

Acute Health Risk Impacts

Acute hazard indices at the off-campus and on-campus MEIR, off-campus MEIW, and UCR Child Development Center are described in Table 10. HARP 2 dispersion modeling outputs and health risk results are provided in Appendix C. As shown in Table 10, acute hazard indices under the proposed 2021 LRDP would not exceed the SCAQMD threshold of 1.0 at the off- or on-campus MEIR, off-campus MEIW, or UCR Child Development Center.

Table 10 Acute Health Risk Results

Scenario	Acute Hazard Index
Off-Campus Resident[1]	
Baseline Scenario	0.10
Future Scenario	0.13
Net Increase	0.03
SCAQMD Significance Threshold	1.0
Exceeds Threshold?	**No**
On-Campus Resident[2]	
Baseline Scenario	0.23
Future Scenario	0.27
Net Increase	0.04
SCAQMD Significance Threshold	1.0
Exceeds Threshold?	**No**
Off-Campus Worker[3]	
Baseline Scenario	0.07
Future Scenario	0.11
Net Increase	0.04
SCAQMD Significance Threshold	1.0
Exceeds Threshold?	**No**
Child Development Center	
Baseline Scenario	0.10
Future Scenario	0.14
Net Increase	0.04
SCAQMD Significance Threshold	1.0
Exceeds Threshold?	**No**

[1] Off-campus MEIR for acute health risk is located in the rear yard of a single-family residence along West Campus View Drive, north of the campus Physical Plant.

[2] On-campus MEIR for acute health risk is located in the eastern portion of Lothian Hall.

[3] Off-campus MEIW for acute health risk is located at church near the intersection of University Avenue and West. Campus Drive.

Health risk model outputs provided in Appendix C.

This Programmatic HRA evaluates health risk from approximately 84 TACs, many of which are associated with emissions from laboratory fume hoods at UCR's various research facilities. The screening acute non-cancer risk calculated by HARP 2 as presented in this analysis is a conservative approximation. It is calculated by assuming that the contribution of risk from each emitting source is at its maximum at the same instant in time. For analyses that include more than one emitting source, such as this Programmatic HRA, the maximum hourly risk from each source is summed to give the screening value, as if they had all occurred at the same time. In reality, the time that the risk from each emitting source is at a maximum will differ depending on location and meteorology. Furthermore, this screening level acute risk value does not account for the various safety measures implemented at UCR when handling, storing, and using laboratory chemicals. UCR laboratories implement various safety measures related different programs such as biosafety, chemical safety, radiation/laser safety, and other related programs. These safety measures include utilizing lab fume hoods, safety goggles and personal protective equipment, and other safety measures that are described further in program-specific policies overseen by UCR Environment, Health & Safety (UCR 2021).

Unsurprisingly, health risk modeling as described in this Programmatic HRA identified the on-campus MEIW for acute health risk at campus laboratory facilities. However, for the reasons described above, this methodology results in an inflated acute hazard index for on-campus workers, given that standard laboratory safety procedures cannot be incorporated. Such screening values are not reflective of the true acute health risk posed to on-campus workers under baseline or future scenarios, and therefore, are not described further in this analysis. Nevertheless, health risk modeling indicates a net increase in acute hazard index of less than 0.1 for the on-campus MEIW between the baseline and future scenarios, below the SCAQMD significance threshold of 1.0.

5.2 Emissions Sources Not Quantified

In addition to the emissions sources characterized in this Programmatic HRA, campus operations include sources of emissions that were not quantified for this analysis, either due to their unpredictable or diffuse nature or because such emissions are not anticipated to continue or increase under buildout of the proposed 2021 LRDP. These sources are discussed qualitatively below.

Off-Road Vehicles/Equipment

The 2019 AER does not quantify emissions from diesel-powered off-road vehicles and equipment. UCR currently maintains a list of 11 diesel-powered off-road engines, as reported to CARB's Diesel Off-Road Online Reporting System (DOORS) registry. This list includes two off-highway tractors, one skid steer loader, and eight pieces of general industrial equipment ranging from 28 to 80 horsepower (hp). UCR estimates that this equipment is operated from as few as one to as many as 15 hours per week under baseline conditions.

The primary TAC associated with operation of diesel-powered off-road equipment is diesel particulate matter. Equipment used on an as-needed basis for building or hardscape maintenance projects is temporary in nature and emissions would be expected to diffuse quickly. The off-road vehicles and equipment identified above are primarily used for landscape maintenance across campus. Given the temporary use of such equipment without a defined area of consistent operation, localized TAC emission impacts are anticipated to be minimal. Further, minimal change or growth in landscaped area is anticipated under the proposed 2021 LRDP. As such, current use and emissions of off-road equipment is not anticipated to change. For these reasons, off-road emissions and potential health impacts under the baseline scenario were not modeled in this Programmatic HRA.

Painting Operations

According to the 2020 SCAQMD equipment list provided by UCR, one identified spray booth[8] is located at the Physical Plant paint shop on campus. Emissions from painting operations and/or spray booths have not been reported in UCR's AER for several years. Presently, the permitted spray booth at the Physical Plant is not operational. The spray booth has been out of commission for several years and there is no plan to re-instate operation in the future. Because the spray booths that remain on campus are not active, no such source was included in this Programmatic HRA.

Construction Activities

Construction-related activities would result in temporary emissions of DPM exhaust from off-road, heavy-duty diesel equipment for site preparation, grading, building construction, and other construction activities.

The dose of a contaminant to which the receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance or substances in the environment and the extent of exposure that person has with the substance. Dose is positively correlated with time, meaning that a longer exposure period generally results in a higher exposure level for the maximally exposed individual. The risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time.

Current models and methodologies for conducting health-risk assessments are associated with longer-term exposure periods of 9, 30, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities, resulting in difficulties in producing accurate estimates of health risk. Given the anticipated buildout of campus under the proposed 2021 LRDP, it is possible that construction activities may occur more regularly within the campus boundaries through 2035. However, individual projects would be located throughout the approximately 1,108-acre campus. Generation of DPM from individual construction projects under the proposed 2021 LRDP would occur in a single area for a relatively short period of time, limiting the potential for localized health risk impacts associated with construction.

The maximum DPM emissions would generally occur during site preparation and grading activities when heavy equipment is operating most consistently. These activities would typically be expected to last on the order of months for individual construction projects. DPM emissions would decrease for other construction activities such as building construction and architectural coating, as these activities would require less diesel-fueled construction equipment. Given that the maximum DPM emissions associated with construction would occur at a single site for a small fraction of the recommended health risk exposure period and that construction emissions would be dispersed across the greater, approximately 1,108-acre campus area, DPM generated by construction of individual project construction under the proposed 2021 LRDP would not create unsafe or potentially hazardous conditions for sensitive receptors.

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[8] For the purposes of the Programmatic HRA, emissions from spray booths refer to large scale, permitted painting and coating spray booths on campus. Various painting activities for academic purposes may occur on campus, such as those associated arts and theater programs. However, it is assumed that such activities are not of a scale or duration to trigger air quality permitting or substantially contribute to health risk on campus.

6 Limitations, Assumptions, and Conclusion

As noted in Section 5, *Impact Analysis*, implementation of the proposed 2021 LRDP would not expose on- or off-campus sensitive receptors or workers to health risks in excess of applicable SCAQMD thresholds.

The analysis contained herein is conducted at a programmatic level and, as such, is subject to limitations. First, the precise location of all sources of TACs on-campus under the future scenario is not known. This analysis makes reasonable assumptions regarding the location of future TAC emissions sources; for example, potential locations of new emergency generators were sited based on potential areas planned for development or redevelopment, and emissions sources associated with interim projects were sited at their known, respective locations. Nevertheless, the potential exists for new sources to be located outside of sites contemplated in this Programmatic HRA during buildout of the proposed 2021 LRDP.

Second, there remains uncertainty as to the rate and extent TAC emissions will grow on-campus. This analysis applies growth factors to emissions sources based on reasonable proxies (e.g., laboratory fume hood emissions increasing relative to the increase in wet laboratory space). However, it is possible that emissions may increase or decrease at rates faster or slower than those anticipated in this Programmatic HRA.

Projects implemented under the proposed 2021 LRDP that include new sources of TACs will be required to undergo the appropriate level of project-specific environmental review to determine their consistency with the conclusions of the 2021 LRDP EIR, including this Programmatic HRA. Furthermore, new or altered sources of TACs would remain subject to all applicable State and air district regulations, including AB 2588 and SCAQMD New Source Review and Rule 1402 (*Control of Toxic Air Contaminants from Existing Sources*). Sources of TACs exceeding air district health risk standards would be required to implement risk reduction measures to minimize potential health risks to sensitive receptors.

Furthermore, this Programmatic HRA employs the following conservative assumptions to alleviate uncertainty inherent to a programmatic analysis:

- The analysis conservatively analyzes exposure of residents, workers, and students at existing building edges. Realistically, residents, workers, and students on and near campus spend a substantial portion of their time indoors, separated from existing and future emissions sources and modeled ground-level concentrations by walls, windows, and doors, which would reduce exposure.
- The analysis assumes no use of air filtration systems at any buildings on or surrounding the campus under baseline or future scenarios. Pursuant to the 2019 California Energy Code, Minimum Efficiency Reporting Value (MERV) 13 filtration is required in HVAC systems for new residential construction, effective January 1, 2020. Other MERV-rated filtration systems may already be in place at existing residential or non-residential buildings on- or off-campus. Use of such filters would result in a substantial reduction in health risk at these receptors relative to the values presented in this report due to the efficiency of such filters at trapping particulate-based TACs, such as DPM.
- Where specific information regarding future emissions sources is not known, this analysis uses data from existing emissions sources on-campus to characterize future sources. For example,

emissions from all future emergency generators are based on typical capacity (in bhp), fuel consumption, and emissions from existing generators on campus. In reality, future emissions sources would likely employ new, more efficient control technology and may replace older, less efficient equipment. Furthermore, some sources of TAC emissions—such as gasoline dispensing facilities and natural gas boilers/water heaters—may decrease under the proposed 2021 LRDP due to increasingly efficient vehicles and electrification of building heating systems. Nevertheless, this analysis does not factor in emissions reductions under the future scenario for these sources and assumes such emissions would remain at baseline levels, resulting in an inherently conservative analysis.

Despite these conservative assumptions, the analysis contained herein determines that health risk impacts associated with implementation of the proposed 2021 LRDP would not exceed SCAQMD thresholds.

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Appendix A

2019 Annual Emissions Report

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South Coast

AQMD

Annual Emission Report

Reporting Year: **2019**

Print Date: **03/11/2020**

Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

StatusUpdate

Facility ID	49387
Facility Shutdown Date	N/A
Change of Ownership Date	N/A
Change in Equipment Location Date	N/A
Emissions are zero for this year's report, or emissions reduced by 50%	N/A
Exemption Request	N/A
Use of alternative Calculation methodology	N/A
Other	N/A
Refund Request	N/A

South Coast

AQMD

Annual Emission Report

Reporting Year: **2019**

Print Date: **03/11/2020**

Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

External Combustion Process List Overview

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Fuel	Fuel Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES31		467189	P1	Boiler 10-100 MMBTU/HR	Natural Gas	57.140000	mmscf	EF	lbs/ mmscf	5.500000		4.215960	0.600000	84.000000	7.600000
								Emissions	lbs	314.27		240.90	34.28	4,799.76	434.26
ES31		467189	P2	Boiler 10-100 MMBTU/HR	Propane	0.000000	M gal	EF	lbs/ M gal	0.260000		12.800000	4.600000	3.200000	0.280000
								Emissions	lbs	0.00		0.00	0.00	0.00	0.00
ES40		543160	P1	Boiler <10 MMBTU/HR	Natural Gas	0.190000	mmscf	EF	lbs/ mmscf	5.500000		15.100000	0.600000	84.000000	7.600000
								Emissions	lbs	1.05		2.87	0.11	15.96	1.44
ES41		543162	P1	Boiler <10 MMBTU/HR	Natural Gas	7.900000	mmscf	EF	lbs/ mmscf	5.500000		34.400000	0.600000	84.000000	7.600000
								Emissions	lbs	43.45		271.76	4.74	663.60	60.04
ES42		543163	P1	Boiler <10 MMBTU/HR	Natural Gas	7.900000	mmscf	EF	lbs/ mmscf	5.500000		34.400000	0.600000	84.000000	7.600000
								Emissions	lbs	43.45		271.76	4.74	663.60	60.04
ES43		546715	P1	Boiler 10-100 MMBTU/HR	Natural Gas	56.300000	mmscf	EF	lbs/ mmscf	5.500000		5.132680	0.600000	84.000000	7.600000
								Emissions	lbs	309.65		288.97	33.78	4,729.20	427.88
ES44		546716	P1	Boiler 10-100 MMBTU/HR	Natural Gas	47.210000	mmscf	EF	lbs/ mmscf	5.500000		8.172840	0.600000	84.000000	7.600000
								Emissions	lbs	259.66		385.84	28.33	3,965.64	358.80
ES49		551422	P1	Boiler 10-100 MMBTU/HR	Natural Gas	183.330000	mmscf	EF	lbs/ mmscf	5.500000		4.021380	0.600000	84.000000	7.600000
								Emissions	lbs	1,008.32		737.24	110.00	15,399.70	1,393.31

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Fuel	Fuel Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES52		553959	P1	Boiler <10 MMBTU/HR	Natural Gas	11.470000	mmscf	EF	lbs/ mmscf	5.500000		24.600000	0.600000	84.000000	7.600000
								Emissions	lbs	63.09		282.16	6.88	963.48	87.17
ES56			P1	Oven <10 MMBTU/HR	Natural Gas	1.310000	mmscf	EF	lbs/ mmscf	7.000000		130.000000	0.600000	35.000000	7.500000
								Emissions	lbs	9.17		170.30	0.79	45.85	9.83
ES57			P1	Oven <10 MMBTU/HR	Natural Gas	1.320000	mmscf	EF	lbs/ mmscf	7.000000		130.000000	0.600000	35.000000	7.500000
								Emissions	lbs	9.24		171.60	0.79	46.20	9.90
ES58			P1	Boiler <10 MMBTU/HR	Natural Gas	4.320000	mmscf	EF	lbs/ mmscf	5.500000		100.000000	0.600000	84.000000	7.600000
								Emissions	lbs	23.76		432.00	2.59	362.88	32.83
ES59			P1	Boiler <10 MMBTU/HR	Natural Gas	2.070000	mmscf	EF	lbs/ mmscf	5.500000		100.000000	0.600000	84.000000	7.600000
								Emissions	lbs	11.39		207.00	1.24	173.88	15.73

		ROG	SPOG	NOx	SOx	CO	PM
Total Emissions	lbs	2,096.48		3,462.40	228.28	31,829.75	2,891.24
Total Emissions	tons	1.05	0.00	1.73	0.11	15.91	1.45

South Coast

AQMD

Annual Emission Report

Reporting Year: **2019**

Print Date: **03/11/2020**

Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

Internal Combustion Process List Overview

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Fuel	Fuel Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES4		447071	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	1.029450	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	38.60		482.81	0.22	105.00	34.49
ES5		447072	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.418250	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	15.68		196.16	0.09	42.66	14.01
ES6		447073	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.118780	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	4.45		55.71	0.02	12.12	3.98
ES7		450411	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.020730	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	0.78		9.72	0.00	2.11	0.69
ES8		450427	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.008670	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	0.33		4.07	0.00	0.88	0.29
ES9		450429	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Natural Gas	0.004536	mmscf	EF	lbs/ mmscf	120.000000		4,162.000000	0.600000	323.000000	10.000000
								Emissions	lbs	0.54		18.88	0.00	1.47	0.05
ES10		450431	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Natural Gas	0.000000	mmscf	EF	lbs/ mmscf	120.000000		4,162.000000	0.600000	323.000000	10.000000
								Emissions	lbs	0.00		0.00	0.00	0.00	0.00
ES11		450434	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.059980	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	2.25		28.13	0.01	6.12	2.01

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Fuel	Fuel Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES12		450435	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.099850	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	3.74		46.83	0.02	10.18	3.34
ES13		450436	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.316890	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	11.88		148.62	0.07	32.32	10.62
ES14		450437	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.080010	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	3.00		37.52	0.02	8.16	2.68
ES15		450438	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.011630	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	0.44		5.45	0.00	1.19	0.39
ES16		450439	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.660330	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	24.76		309.70	0.14	67.35	22.12
ES17		450440	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.446170	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	16.73		209.25	0.09	45.51	14.95
ES18		450441	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.155680	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	5.84		73.01	0.03	15.88	5.22
ES19		450443	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.077530	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	2.91		36.36	0.02	7.91	2.60
ES20		450444	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.026950	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	1.01		12.64	0.01	2.75	0.90
ES21		450445	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	1.050000	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	39.38		492.45	0.22	107.10	35.18
ES22		450446	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	1.319460	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	49.48		618.83	0.28	134.59	44.20
ES23		450447	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.197190	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	7.39		92.48	0.04	20.11	6.61
ES24		450448	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.177500	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	6.66		83.25	0.04	18.11	5.95

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Fuel	Fuel Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES25		456729	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.078360	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	2.94		36.75	0.02	7.99	2.63
ES26		456730	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	1.711770	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	64.19		802.82	0.36	174.60	57.34
ES27		456731	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.017720	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	0.66		8.31	0.00	1.81	0.59
ES28		461065	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.025650	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	0.96		12.03	0.01	2.62	0.86
ES29		466716	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.550600	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	20.65		258.23	0.12	56.16	18.45
ES30		466717	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.367660	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	13.79		172.43	0.08	37.50	12.32
ES33		469717	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.069960	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	2.62		32.81	0.01	7.14	2.34
ES34		470516	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.042780	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	1.60		20.06	0.01	4.36	1.43
ES35		479835	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.928030	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	34.80		435.25	0.19	94.66	31.09
ES37		507767	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.506080	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	18.98		237.35	0.11	51.62	16.95
ES38		510988	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.123650	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	4.64		57.99	0.03	12.61	4.14
ES47		551184	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	1.118060	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	41.93		524.37	0.23	114.04	37.46
ES48		551186	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.035910	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	1.35		16.84	0.01	3.66	1.20

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Fuel	Fuel Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES51		553940	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.059240	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	2.22		27.78	0.01	6.04	1.98
ES53		560806	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.357830	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	13.42		167.82	0.08	36.50	11.99
ES65		577485	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	0.892890	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	33.48		418.77	0.19	91.07	29.91
ES66		597017	P1	Stationary I.C. Engines, 4 Stroke-Lean Burn	Distillate Fuel Oil No. 2	1.150970	M gal	EF	lbs/ M gal	37.500000		469.000000	0.210000	102.000000	33.500000
								Emissions	lbs	43.16		539.81	0.24	117.40	38.56

		ROG	SPOG	NOx	SOx	CO	PM
Total Emissions	lbs	537.25		6,731.30	3.01	1,461.31	479.50
Total Emissions	tons	0.27	0.00	3.37	0.00	0.73	0.24

South Coast

AQMD

Annual Emission Report

Reporting Year: **2019**

Print Date: **03/11/2020**

Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

Other Use of Organics Process List Overview

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Material Activity Code	Material Description	Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES60			P2	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	107-06-2	183.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	12.33					
ES60			P3	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	123-91-1	181.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	12.20					
ES60			P5	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	50-00-0	529.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	35.65					
ES60			P6	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	56-23-5	130.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	8.76					
ES60			P7	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	71-43-2	228.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	15.37					
ES60			P12	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	75-09-2	3,021.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P13	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	75-21-8	1.600000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.11					
ES60			P14	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	7664-41-7	1,197.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Material Activity Code	Material Description	Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES60			P15	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	79-01-6	93.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	6.27					
ES60			P16	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	120-12-7	8.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.54					
ES60			P17	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	129-00-0	2.500000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.17					
ES60			P21	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	83-32-9	1.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.07					
ES60			P22	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	85-01-8	1.900000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.13					
ES60			P23	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	86-73-7	2.900000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.20					
ES60			P24	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	91-20-3	35.300000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	2.38					
ES60			P28	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	106-93-4	29.600000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	2.00					
ES60			P44	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	7440-43-9	3.810000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P73	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	127-18-4	13.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P82	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	91-57-6	2.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.13					
ES60			P83	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	75-69-4	6.000000	lbs	EF	lbs/ lbs		0.0674				
									Emissions	lbs		0.40				
ES60			P84	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	75-71-8	0.000000	lbs	EF	lbs/ lbs		0.0674				
									Emissions	lbs		0.00				

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Material Activity Code	Material Description	Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES60			P85	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	76-13-1	13.000000	lbs	EF	lbs/ lbs		0.0674				
									Emissions	lbs		0.88				
ES60			P86	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	71-55-6	0.000000	lbs	EF	lbs/ lbs		0.0674				
									Emissions	lbs		0.00				
ES60			P87	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	7440-38-2	0.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P88	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	106-99-0	9.200000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.62					
ES60			P89	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	7439-92-1	2.500000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P90	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	75-01-4	0.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.00					
ES60			P91	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	7440-41-7	0.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P92	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	69 51796 Urethane {Ethyl carbamate]	3.200000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.22					
ES60			P93	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	43 58899 Lindane {gamma-Hexachlorocyclohexane}	0.200000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.01					
ES60			P94	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	51 67561 Methanol	4,558.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	307.21					
ES60			P95	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	35 67663 Chloroform	2,336.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	157.45					
ES60			P96	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	62 75569 Propylene oxide	14.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.94					
ES60			P97	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	25 79005 1,1,2-Trichloroethane {Vinyl trichloride}	4.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.27					

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Material Activity Code	Material Description	Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES60			P98	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	24 79345 1,1,2,2-Tetrachloroethane	8.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.54					
ES60			P99	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	48 101688 Methylene diphenyl diisocyanate {MDI} [POM]	1.200000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.08					
ES60			P100	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	61 101779 4,4'-Methylenedianiline (and its dichloride) [POM]	0.900000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.06					
ES60			P101	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	57 106467 p-Dichlorobenzene {1,4-Dichlorobenzene}	6.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.40					
ES60			P102	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	30 107028 Acrolein	5.120000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.35					
ES60			P103	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	31 107131 Acrylonitrile	5.100000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.34					
ES60			P104	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	54 108101 Methyl isobutyl ketone {Hexone}	59.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	3.98					
ES60			P105	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	68 108883 Toluene	1,051.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	70.84					
ES60			P106	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	41 109864 Ethylene glycol monomethyl ether	15.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	1.01					
ES60			P107	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	44 110543 Hexane	1,529.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	103.06					
ES60			P108	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	41 110714 Ethylene glycol dimethyl ether	100.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	6.74					
ES60			P109	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	41 110805 Ethylene glycol monoethyl ether	88.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	5.93					
ES60			P110	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	41 112492 Triethylene glycol dimethyl ether	134.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	9.03					

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Material Activity Code	Material Description	Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES60			P111	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	42 118741 Hexachlorobenzene	0.400000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.03					
ES60			P112	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	19 208968 Acenaphthylene [PAH, POM]	0.500000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.03					
ES60			P113	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	45 302012 Hydrazine	2.920000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P114	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	43 319846 alpha-Hexachlorocyclohexane	1.100000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.07					
ES60			P115	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	48 822060 Hexamethylene-1,6-diisocyanate	0.060000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	0.00					
ES60			P116	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	65 1310732 Sodium hydroxide	1,194.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P117	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	60 1314563 Phosphorus pentoxide	0.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P118	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	70 1330207 Xylenes	557.000000	lbs	EF	lbs/ lbs	0.067400					
									Emissions	lbs	37.54					
ES60			P119	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	49 7439965 Manganese	1.600000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P120	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	50 7439976 Mercury	15.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P121	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	17 7440020 Nickel	0.900000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P122	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	36 74400508 Copper	19.400000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P123	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	50 7487947 Mercuric chloride	12.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Material Activity Code	Material Description	Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES60			P124	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	37 7631869 Crystalline silica	5.800000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P125	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	46 7647010 Hydrochloric acid	8,656.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P126	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	60 7664382 Phosphoric acid	687.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P127	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	73 7664393 Hydrogen fluoride (hydrofluoric acid)	150.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P128	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	67 7664939 Sulfuric acid	915.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P129	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	59 7723140 Phosphorus	0.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P130	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	64 7782492 Selenium	2.200000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P131	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	34 7782505 Chlorine	1.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P132	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	67 8014957 Oleum	14.300000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES60			P133	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	60 10026138 Phosphorus pentachloride	0.000000	lbs	EF	lbs/ lbs						
									Emissions	lbs						
ES61			P1	Other evaporative sources	Others : Regulated Specific Organic Emissions : Other : Chlorodifluoromethane (HCFC-22)	R-22 CAS 1104	306.940000	lbs	EF	lbs/ lbs		1				
									Emissions	lbs		306.94				
ES61			P2	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	R-12 75-71-8	0.000000	lbs	EF	lbs/ lbs		1				
									Emissions	lbs		0.00				
ES61			P4	Other evaporative sources	Others : Usage of Organic Contained Materials : Other : Specialty Material	CFC-113 76-13-1	0.000000	lbs	EF	lbs/ lbs		1				
									Emissions	lbs		0.00				

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Material Activity Code	Material Description	Usage	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES61			P5	Other evaporative sources	Others : Regulated Specific Organic Emissions : Other : Tetrafluororethane (HFC-134a)	R-134a 811-97-2 1,1,1,2 -Tetrafluorethane	880.700000	lbs	EF	lbs/ lbs		1				
									Emissions	lbs		880.70				
ES61			P6	Other evaporative sources	Others : Regulated Specific Organic Emissions : Other : 1,1,1-Trifluoroethane (HFC-143a)	R-404A R-125/143a/134a (44±2/52±1/4±2)	144.190000	lbs	EF	lbs/ lbs		1				
									Emissions	lbs		144.19				
ES61			P7	Other evaporative sources	Others : Regulated Specific Organic Emissions : Other : Tetrafluororethane (HFC-134a)	R-407C R-32/125/134a (23±2/25±2/52±2)	178.480000	lbs	EF	lbs/ lbs		1				
									Emissions	lbs		178.48				
ES61			P8	Other evaporative sources	Others : Regulated Specific Organic Emissions : Other : Chlorodifluoromethane (HCFC-22)	R-410A R-22/152a/124 (53±2/13+.5,-1.5/34±1)	0.000000	lbs	EF	lbs/ lbs		1				
									Emissions	lbs		0.00				

	Units	ROG	SPOG	NOx	SOx	CO	PM
Total Emissions	lbs	803.06	1,511.59				
Total Emissions	tons	0.40	0.76	0.00	0.00	0.00	0.00

Annual Emission Report

Reporting Year: **2019**

Print Date: **03/11/2020**

Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

Storage Tanks Process List Overview

AER Device ID	Permit Device ID	A/N	Process ID	Equipment	Product	Throughput	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM
ES36		489973	P1	Underground Small storage tank - <10,000 gallons	Gasoline (RVP 7)	109.393500	M gal	EF	lbs/ M gal	1.440000					
								Emissions	lbs	157.53					
ES54		566114	P1	Storage tank and Dispensing	Gasoline (RVP 7)	1.993900	M gal	EF	lbs/ M gal	0.843000					
								Emissions	lbs	1.68					
ES54		566114	P2	Storage tank and Dispensing	Distillate fuel oil no. 2	2.910200	M gal	EF	lbs/ M gal	0.028000					
								Emissions	lbs	0.08					
ES55		566115	P1	Storage tank and Dispensing	Gasoline (RVP 7)	9.445200	M gal	EF	lbs/ M gal	0.843000					
								Emissions	lbs	7.96					
ES55		566115	P2	Storage tank and Dispensing	Distillate fuel oil no. 2	4.122000	M gal	EF	lbs/ M gal	0.028000					
								Emissions	lbs	0.12					

		ROG	SPOG	NOx	SOx	CO	PM
Total Emissions	lbs	167.37					
Total Emissions	tons	0.08	0.00	0.00	0.00	0.00	0.00

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Annual Emission Report

Reporting Year: **2019**

Print Date: **03/11/2020**

Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

Other Process Emissions Process List Overview

AER Device ID	Permit Device ID	A/N	Process ID	Activity	Throughput	Units		Criteria Pollutant Units	ROG	SPOG	NOx	SOx	CO	PM	Permit Equipment Description
ES62			P1	Miscellaneous Operations and Services : Cooling Towers : Comfort Cooling (HVAC) : Natural Draft	14.260000	MMgal/day	EF	lbs/ MMgal/day						117.356000	
							Emissions	lbs						1,673.50	
ES63			P1	Miscellaneous Operations and Services : Cooling Towers : Comfort Cooling (HVAC) : Natural Draft	8.930000	MMgal/day	EF	lbs/ MMgal/day						120.736000	
							Emissions	lbs						1,078.17	
ES64			P1	Miscellaneous Operations and Services : Cooling Towers : Comfort Cooling (HVAC) : Natural Draft	13.540000	MMgal/day	EF	lbs/ MMgal/day						189.511000	
							Emissions	lbs						2,565.98	

		ROG	SPOG	NOx	SOx	CO	PM	Permit Equipment Description
Total Emissions	lbs						5,317.65	
Total Emissions	tons	0.00	0.00	0.00	0.00	0.00	2.66	

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Annual Emission Report

Reporting Year: **2019**

Print Date: **03/11/2020**

Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

Criteria Pollutants Permitted Emissions Summary

	VOC (tons)	SPOG (tons)	NOx (tons)	NOx RECLAIM (tons)	SOx (tons)	SOx RECLAIM (tons)	CO (tons)	PM (tons)
External Combustion	1.02	0.00	1.24	0.00	0.11	0.00	15.60	1.41
Internal Combustion	0.27	0.00	3.37	0.00	0.00	0.00	0.73	0.24
Spray Coating/ Spray Booth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Use of Organics	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Storage Tanks	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Components	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Process Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shutdown/Startup/Turnaround and Upsets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Permitted Emissions	**1.37**	**0.00**	**4.61**	**0.00**	**0.11**	**0.00**	**16.33**	**1.65**

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Annual Emission Report

Reporting Year: **2019**

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Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

Criteria Pollutants Non-Permitted Emissions Summary

	VOC (tons)	SPOG (tons)	NOx (tons)	NOx RECLAIM (tons)	SOx (tons)	SOx RECLAIM (tons)	CO (tons)	PM (tons)
External Combustion	0.03	0.00	0.49	0.00	0.00	0.00	0.31	0.03
Internal Combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spray Coating/ Spray Booth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Use of Organics	0.40	0.76	0.00	0.00	0.00	0.00	0.00	0.00
Storage Tanks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Components	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Process Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.66
Shutdown/Startup/Turnaround and Upsets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Non-Permitted Emissions	**0.43**	**0.76**	**0.49**	**0.00**	**0.00**	**0.00**	**0.31**	**2.69**

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Annual Emission Report

Reporting Year: **2019**

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Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

Toxic Air Contaminants (TAC) / Ozone Depleting Compounds (ODC) Emissions and Fees Summary

For detailed TAC Records please see related "AER TAC Report" Excel file

Annual Emission Report

Reporting Year: **2019**

Print Date: **03/11/2020**

Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

Other Toxic Air Contaminants (TAC) Emissions Summary Applicable to AB2588 Facility

For detailed TAC Records please see related “AER TAC Report” Excel file

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Annual Emission Report

Reporting Year: **2019**

Print Date: **03/11/2020**

Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

Total Emissions and Fees

Submittal Date: No later than March 17 2020	Total Permitted Emissions (tons)	Total Non-Permitted Emissions (tons)	Total RECLAIM Emissions (tons)	Total Emission (tons)	Total Emissions/ Subject To Fee (tons)	Emissions Fees Due
Organic Gasses	1.37	0.43		1.80	0.00	$0.00
Specific Organics	0.00	0.76		0.76	0.00	$0.00
Nitrogen Oxides	4.61	0.49	0.00	5.10	5.00	$757.10
Sulfur Oxides	0.11	0.00	0.00	0.11	0.00	$0.00
Carbon Monoxide	16.33	0.31		16.64	0.00	$0.00
Particulate Matter	1.65	2.69		4.34	4.00	$494.78

1. TOTAL EMISSION FEES FOR ALL CRITERIA POLLUTANTS	$1,251.88
2. TOXIC AIR CONTAMINANTS/ OZONE DEPLETER FEES (Total amount from Form TACS or DC)	$9,677.02

TAC Fees Breakdown	
Facility Flat Fee:	$78.03
CPWE Emission Fees:	$2700.00
Ammonia & Depleting Compounds (ODC) Fees:	$402.89
Per Device Fees (total devices with fees 38):	$6496.10
	$9677.02

3. TOTAL FEES DUE	$10,928.90
4. INSTALLMENTS PAID FOR 2019 - (if any) -- All Criteria Pollutants	$0.00
5. INSTALLMENTS PAID FOR 2019 - (if any) -- Toxic Air Contaminants/Ozone Depleters	$0.00
6. BALANCE DUE (Line 3 - Line 4 - Line 5)	$10,928.90
7. LATE PAYMENT SURCHARGE	$0.00
8. AMOUNT DUE	**$10,928.90**

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Annual Emission Report

Reporting Year: **2019**

Facility Id: **49387**

Print Date: **03/11/2020**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

Electronic Certification Sheet

Information

NAICS code:

AB2588 Filing Period: Yes

RECLAIM: No

Facility Operating Status: Operating

Classified As Small Business: No

Business Operating Hours

Hours/Day; 8

Days/Week: 5

Weeks/Year: 50

AB2588 Receptor Distance

Worker (ft):

Residential(ft):

Brief Description of Operation

Research and academic

Equipment Location Address

Facility Name:
UNIV CAL, RIVERSIDE
900 UNIVERSITY AVE
RIVERSIDE, CA 92521

Mailing Information

Facility Name:
UNIV CAL, RIVERSIDE
900 UNIVERSITY AVE
RIVERSIDE, CA 92521

Contact Information

Name:	Amanda Grey	Phone:	951 827-2416
Title:	Environmental Programs Manager	Fax:	951 827-5122
E-mail:	amanda.grey@ucr.edu		

Preparer Information

Name:	Amanda Grey	Phone:	951 827-2416
Title:	Environmental Programs Manager	Fax:	951 827-5122
E-mail:	amanda.grey@ucr.edu		

Authorized Person Information

Name:	Sheila Hedayati	Phone:	951 827-4378
Title:	Executive Director, Environmental Health & Safety	Fax:	951 827-5122
E-mail:	sheila.hedayati@ucr.edu		

I declare under penalty of perjury that the data submitted truly represents throughput and emissions for this reporting period, and that the emission factors represent the best available data for my company in the calculation of annual emission figures.

[x] I acknowledge that I have read the South Coast AQMD Certification Statement.*

[x] I agree on the responsibility for this AER Report Submission in accordance with Certification Statement.*

South Coast

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Annual Emission Report

Reporting Year: **2019**

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Facility Id: **49387**

Facility Name **UNIV CAL, RIVERSIDE**

Facility Type: **Schools and Educational Institutions**

AER Submittal Confirmation

Thank you for submitting your Annual Emissions Report for Facility ID: 49387.

Please print the AER Payment Voucher and include the check for emission fees due if applicable and mail them to the SCAQMD.

AER Payment Voucher and check are first received and processed by Bank of America for check deposits, return receipts for certified mails will be stamped by Bank of America rather than AQMD. Please mail the required AER Payment Voucher and check to the following address:

South Coast Air Quality Management District
Annual Emission Reporting Program
File No. 54493
Los Angeles, CA 90074-4493

* To avoid late payment surcharges, all mails must be postmarked by the Post Office on or before March 17, 2020

NOTE: For any overnight delivery, example FedEx, please use the following address:

Bank of America Lockbox Services
Lockbox LAC-054493
2706 Media Center Drive
Los Angeles, CA. 90065

If you wish to use a messenger (or hand deliver), the package should be delivered to the cashier's booth at AQMD Headquarters at the address listed below in Diamond Bar on or before 5:00 p.m. March 17, 2020
Please note that AQMD is closed on Mondays.

South Coast Air Quality Management District
ATTN: Finance Cashier
Annual Emission Reporting Program
21865 Copley Drive
Diamond Bar, CA 91765-4178

TAC Code	TAC Name	CAS #	AER Device ID	Equipment Code	Equipment Description	Process Type	Process ID	Total Emissions	Throughput Type	Throughput Type Description	Throughput Value	Throughput UnitID	Throughput Unit Name	Control Efficiency	Emission Factor
12	Formaldehyde	50000	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.77693	I	Input	1029.45	100	GALLONS		1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00010294	I	Input	1029.45	100	GALLONS		0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00164712	I	Input	1029.45	100	GALLONS		0.0016
15	Lead compounds (inorganic)	7439921	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00854443	I	Input	1029.45	100	GALLONS		0.0083
4	Butadiene [1,3]	106990	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.223802	I	Input	1029.45	100	GALLONS		0.2174
5	Cadmium	7440439	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00154418	I	Input	1029.45	100	GALLONS		0.0015
17	Nickel	7440020	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00401486	I	Input	1029.45	100	GALLONS		0.0039
19	PAHs [PAH, POM]	1151	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0372661	I	Input	1029.45	100	GALLONS		0.0362
2	Benzene	71432	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.191787	I	Input	1029.45	100	GALLONS		0.1863
19	Naphthalene [PAH, POM]	91203	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0202802	I	Input	1029.45	100	GALLONS		0.0197
32	Ammonia	7664417	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	2.9854	I	Input	1029.45	100	GALLONS		2.9
29	Acetaldehyde	75070	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.806368	I	Input	1029.45	100	GALLONS		0.7833
30	Acrolein	107028	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0348984	I	Input	1029.45	100	GALLONS		0.0339
36	Copper	7440508	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00422074	I	Input	1029.45	100	GALLONS		0.0041
40	Ethyl benzene	100414	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.011221	I	Input	1029.45	100	GALLONS		0.0109
44	Hexane	110543	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0276922	I	Input	1029.45	100	GALLONS		0.0269
46	Hydrochloric acid	7647010	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.191787	I	Input	1029.45	100	GALLONS		0.1863
49	Manganese	7439965	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00319129	I	Input	1029.45	100	GALLONS		0.0031
50	Mercury	7439976	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0020589	I	Input	1029.45	100	GALLONS		0.002
64	Selenium	7782492	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00226479	I	Input	1029.45	100	GALLONS		0.0022
68	Toluene	108883	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.108504	I	Input	1029.45	100	GALLONS		0.1054
70	Xylenes	1330207	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0436487	I	Input	1029.45	100	GALLONS		0.0424
72	Diesel exhaust particulates	9901	ES4	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	34.4866	I	Input	1029.45	100	GALLONS		33.5
2	Benzene	71432	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.07792	I	Input	418.25	100	GALLONS		0.1863
4	Butadiene [1,3]	106990	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0909275	I	Input	418.25	100	GALLONS		0.2174
5	Cadmium	7440439	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00062737	I	Input	418.25	100	GALLONS		0.0015
13	Chromium, hexavalent (and compounds)	18540299	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00004182	I	Input	418.25	100	GALLONS		0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0006692	I	Input	418.25	100	GALLONS		0.0016
15	Lead compounds (inorganic)	7439921	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00347148	I	Input	418.25	100	GALLONS		0.0083
17	Nickel	7440020	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00163118	I	Input	418.25	100	GALLONS		0.0039
19	PAHs [PAH, POM]	1151	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0151406	I	Input	418.25	100	GALLONS		0.0362
19	Naphthalene [PAH, POM]	91203	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00823952	I	Input	418.25	100	GALLONS		0.0197
12	Formaldehyde	50000	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.721941	I	Input	418.25	100	GALLONS		1.7261
32	Ammonia	7664417	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.21292	I	Input	418.25	100	GALLONS		2.9
29	Acetaldehyde	75070	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.327615	I	Input	418.25	100	GALLONS		0.7833
30	Acrolein	107028	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0141787	I	Input	418.25	100	GALLONS		0.0339
36	Copper	7440508	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00171482	I	Input	418.25	100	GALLONS		0.0041
40	Ethyl benzene	100414	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00455892	I	Input	418.25	100	GALLONS		0.0109
44	Hexane	110543	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0112509	I	Input	418.25	100	GALLONS		0.0269
46	Hydrochloric acid	7647010	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.07792	I	Input	418.25	100	GALLONS		0.1863
49	Manganese	7439965	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00129657	I	Input	418.25	100	GALLONS		0.0031
50	Mercury	7439976	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0008365	I	Input	418.25	100	GALLONS		0.002
64	Selenium	7782492	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00092015	I	Input	418.25	100	GALLONS		0.0022
68	Toluene	108883	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0440836	I	Input	418.25	100	GALLONS		0.1054
70	Xylenes	1330207	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0177338	I	Input	418.25	100	GALLONS		0.0424
72	Diesel exhaust particulates	9901	ES5	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	14.0114	I	Input	418.25	100	GALLONS		33.5
19	Naphthalene [PAH, POM]	91203	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00233997	I	Input	118.78	100	GALLONS		0.0197
13	Chromium, hexavalent (and compounds)	18540299	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00001187	I	Input	118.78	100	GALLONS		0.0001
17	Nickel	7440020	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00046324	I	Input	118.78	100	GALLONS		0.0039
2	Benzene	71432	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0221287	I	Input	118.78	100	GALLONS		0.1863
14	Arsenic and Compounds (inorganic)	7440382	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00019004	I	Input	118.78	100	GALLONS		0.0016
15	Lead compounds (inorganic)	7439921	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00098587	I	Input	118.78	100	GALLONS		0.0083
19	PAHs [PAH, POM]	1151	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00429984	I	Input	118.78	100	GALLONS		0.0362
12	Formaldehyde	50000	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.205026	I	Input	118.78	100	GALLONS		1.7261
4	Butadiene [1,3]	106990	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0258228	I	Input	118.78	100	GALLONS		0.2174
5	Cadmium	7440439	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00017817	I	Input	118.78	100	GALLONS		0.0015
32	Ammonia	7664417	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.344462	I	Input	118.78	100	GALLONS		2.9
29	Acetaldehyde	75070	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0930404	I	Input	118.78	100	GALLONS		0.7833
30	Acrolein	107028	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00402664	I	Input	118.78	100	GALLONS		0.0339
36	Copper	7440508	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00048699	I	Input	118.78	100	GALLONS		0.0041
40	Ethyl benzene	100414	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0012947	I	Input	118.78	100	GALLONS		0.0109
44	Hexane	110543	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00319518	I	Input	118.78	100	GALLONS		0.0269
46	Hydrochloric acid	7647010	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0221287	I	Input	118.78	100	GALLONS		0.1863
49	Manganese	7439965	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00036821	I	Input	118.78	100	GALLONS		0.0031
50	Mercury	7439976	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00023756	I	Input	118.78	100	GALLONS		0.002
64	Selenium	7782492	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00026131	I	Input	118.78	100	GALLONS		0.0022
68	Toluene	108883	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0125194	I	Input	118.78	100	GALLONS		0.1054
70	Xylenes	1330207	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00503627	I	Input	118.78	100	GALLONS		0.0424
72	Diesel exhaust particulates	9901	ES6	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	3.97913	I	Input	118.78	100	GALLONS		33.5
4	Butadiene [1,3]	106990	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0045067	I	Input	20.73	100	GALLONS		0.2174
5	Cadmium	7440439	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003109	I	Input	20.73	100	GALLONS		0.0015
2	Benzene	71432	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.003862	I	Input	20.73	100	GALLONS		0.1863
14	Arsenic and Compounds (inorganic)	7440382	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003316	I	Input	20.73	100	GALLONS		0.0016
15	Lead compounds (inorganic)	7439921	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00017205	I	Input	20.73	100	GALLONS		0.0083
12	Formaldehyde	50000	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0357821	I	Input	20.73	100	GALLONS		1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000207	I	Input	20.73	100	GALLONS		0.0001
17	Nickel	7440020	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00008084	I	Input	20.73	100	GALLONS		0.0039
19	PAHs [PAH, POM]	1151	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00075042	I	Input	20.73	100	GALLONS		0.0362
19	Naphthalene [PAH, POM]	91203	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00040838	I	Input	20.73	100	GALLONS		0.0197
32	Ammonia	7664417	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.060117	I	Input	20.73	100	GALLONS		2.9
29	Acetaldehyde	75070	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0162378	I	Input	20.73	100	GALLONS		0.7833
30	Acrolein	107028	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00070274	I	Input	20.73	100	GALLONS		0.0339
36	Copper	7440508	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00008499	I	Input	20.73	100	GALLONS		0.0041
40	Ethyl benzene	100414	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00022595	I	Input	20.73	100	GALLONS		0.0109
44	Hexane	110543	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00055763	I	Input	20.73	100	GALLONS		0.0269
46	Hydrochloric acid	7647010	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.003862	I	Input	20.73	100	GALLONS		0.1863
49	Manganese	7439965	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00006426	I	Input	20.73	100	GALLONS		0.0031
50	Mercury	7439976	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00004146	I	Input	20.73	100	GALLONS		0.002
64	Selenium	7782492	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0000456	I	Input	20.73	100	GALLONS		0.0022
68	Toluene	108883	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00218494	I	Input	20.73	100	GALLONS		0.1054
70	Xylenes	1330207	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00087895	I	Input	20.73	100	GALLONS		0.0424
72	Diesel exhaust particulates	9901	ES7	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.694455	I	Input	20.73	100	GALLONS		33.5
19	Naphthalene [PAH, POM]	91203	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00017079	I	Input	8.67	100	GALLONS		0.0197
32	Ammonia	7664417	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.025143	I	Input	8.67	100	GALLONS		2.9
17	Nickel	7440020	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003381	I	Input	8.67	100	GALLONS		0.0039
19	PAHs [PAH, POM]	1151	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00031385	I	Input	8.67	100	GALLONS		0.0362
12	Formaldehyde	50000	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0149653	I	Input	8.67	100	GALLONS		1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000086	I	Input	8.67	100	GALLONS		0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00001387	I	Input	8.67	100	GALLONS		0.0016
15	Lead compounds (inorganic)	7439921	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00007196	I	Input	8.67	100	GALLONS		0.0083
2	Benzene	71432	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00161522	I	Input	8.67	100	GALLONS		0.1863
4	Butadiene [1,3]	106990	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00188486	I	Input	8.67	100	GALLONS		0.2174
5	Cadmium	7440439	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.000013	I	Input	8.67	100	GALLONS		0.0015
29	Acetaldehyde	75070	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00679121	I	Input	8.67	100	GALLONS		0.7833
30	Acrolein	107028	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00029391	I	Input	8.67	100	GALLONS		0.0339
36	Copper	7440508	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003554	I	Input	8.67	100	GALLONS		0.0041
40	Ethyl benzene	100414	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0000945	I	Input	8.67	100	GALLONS		0.0109
44	Hexane	110543	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00023322	I	Input	8.67	100	GALLONS		0.0269
46	Hydrochloric acid	7647010	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00161522	I	Input	8.67	100	GALLONS		0.1863

49	Manganese	7439965	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00002687	I	Input	8.67	100	GALLONS	0.0031
50	Mercury	7439976	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00001734	I	Input	8.67	100	GALLONS	0.002
64	Selenium	7782492	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00001907	I	Input	8.67	100	GALLONS	0.0022
68	Toluene	108883	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00091381	I	Input	8.67	100	GALLONS	0.1054
70	Xylenes	1330207	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0003676	I	Input	8.67	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES8	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.290445	I	Input	8.67	100	GALLONS	33.5
19	Acenaphthylene [PAH, POM]	208968	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00002558	I	Input	4536	96	STANDARD CUBIC FEET	0.0056406
9	Ethylene dibromide {1,2-Dibromoethane}	106934	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00020496	I	Input	4536	96	STANDARD CUBIC FEET	0.045186
10	Ethylene dichloride {1,2-Dichloroethane}	107062	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00010919	I	Input	4536	96	STANDARD CUBIC FEET	0.024072
12	Formaldehyde	50000	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.244291	I	Input	4536	96	STANDARD CUBIC FEET	53.856
16	Methylene chloride {Dichloromethane}	75092	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00009253	I	Input	4536	96	STANDARD CUBIC FEET	0.0204
2	Benzene	71432	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00203576	I	Input	4536	96	STANDARD CUBIC FEET	0.4488
4	Butadiene [1,3]	106990	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00123533	I	Input	4536	96	STANDARD CUBIC FEET	0.27234
6	Carbon tetrachloride	56235	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0001698	I	Input	4536	96	STANDARD CUBIC FEET	0.037434
19	Fluorene [PAH, POM]	86737	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00002623	I	Input	4536	96	STANDARD CUBIC FEET	0.0057834
19	Naphthalene [PAH, POM]	91203	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00034422	I	Input	4536	96	STANDARD CUBIC FEET	0.075888
19	Acenaphthene [PAH, POM]	83329	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000578	I	Input	4536	96	STANDARD CUBIC FEET	0.001275
19	Phenanthrene [PAH, POM]	85018	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00004811	I	Input	4536	96	STANDARD CUBIC FEET	0.010608
19	2-Methyl naphthalene [PAH, POM]	91576	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0001536	I	Input	4536	96	STANDARD CUBIC FEET	0.033864
19	Pyrene [PAH, POM]	129000	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000629	I	Input	4536	96	STANDARD CUBIC FEET	0.0013872
19	Benzo[g,h,i]perylene [PAH, POM]	191242	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000191	I	Input	4536	96	STANDARD CUBIC FEET	0.00042228
19	Benzo[e]pyrene [PAH, POM]	192972	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000192	I	Input	4536	96	STANDARD CUBIC FEET	0.0004233
19	Chrysene [PAH, POM]	218019	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0000032	I	Input	4536	96	STANDARD CUBIC FEET	0.00070686
21	Vinyl chloride	75014	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00006893	I	Input	4536	96	STANDARD CUBIC FEET	0.015198
32	Ammonia	7664417	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.081648	I	Input	4536	96	STANDARD CUBIC FEET	18
19	Benzo[b]fluoranthene [PAH, POM]	205992	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000076	I	Input	4536	96	STANDARD CUBIC FEET	0.00016932
19	Fluoranthene [PAH, POM]	206440	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000513	I	Input	4536	96	STANDARD CUBIC FEET	0.0011322
24	1,1,2,2-Tetrachloroethane	79345	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00018506	I	Input	4536	96	STANDARD CUBIC FEET	0.0408
25	1,1,2-Trichloroethane {Vinyl trichloride}	79005	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00014713	I	Input	4536	96	STANDARD CUBIC FEET	0.032436
26	1,2,4-Trimethylbenzene	95636	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00006616	I	Input	4536	96	STANDARD CUBIC FEET	0.014586
27	1,2-Dichloropropane {Propylene dichloride}	78875	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00012445	I	Input	4536	96	STANDARD CUBIC FEET	0.027438
28	1,3-Dichloropropene	542756	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00012214	I	Input	4536	96	STANDARD CUBIC FEET	0.026928
29	Acetaldehyde	75070	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0386794	I	Input	4536	96	STANDARD CUBIC FEET	8.5272
30	Acrolein	107028	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0237813	I	Input	4536	96	STANDARD CUBIC FEET	5.2428
35	Chloroform	67663	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00013186	I	Input	4536	96	STANDARD CUBIC FEET	0.02907
40	Ethyl benzene	100414	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00018368	I	Input	4536	96	STANDARD CUBIC FEET	0.040494
44	Hexane	110543	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00513566	I	Input	4536	96	STANDARD CUBIC FEET	1.1322
51	Methanol	67561	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0115668	I	Input	4536	96	STANDARD CUBIC FEET	2.55
66	Styrene	100425	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00010919	I	Input	4536	96	STANDARD CUBIC FEET	0.024072
68	Toluene	108883	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0018877	I	Input	4536	96	STANDARD CUBIC FEET	0.41616
70	Xylenes	1330207	ES9	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00085131	I	Input	4536	96	STANDARD CUBIC FEET	0.18768
19	Benzo[e]pyrene [PAH, POM]	192972	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.0004233
19	Benzo[b]fluoranthene [PAH, POM]	205992	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.00016932
19	Naphthalene [PAH, POM]	91203	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.075888
19	2-Methyl naphthalene [PAH, POM]	91576	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.033864
19	Pyrene [PAH, POM]	129000	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.0013872
19	Benzo[g,h,i]perylene [PAH, POM]	191242	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.00042228
2	Benzene	71432	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.4488
4	Butadiene [1,3]	106990	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.27234
6	Carbon tetrachloride	56235	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.037434
9	Ethylene dibromide {1,2-Dibromoethane}	106934	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.045186
10	Ethylene dichloride {1,2-Dichloroethane}	107062	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.024072
12	Formaldehyde	50000	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	53.856
16	Methylene chloride {Dichloromethane}	75092	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.0204
19	Acenaphthene [PAH, POM]	83329	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.001275
19	Phenanthrene [PAH, POM]	85018	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.010608
19	Fluorene [PAH, POM]	86737	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.0057834
19	Fluoranthene [PAH, POM]	206440	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.0011322
19	Acenaphthylene [PAH, POM]	208968	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.0056406
19	Chrysene [PAH, POM]	218019	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.00070686
21	Vinyl chloride	75014	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.015198
32	Ammonia	7664417	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	18
24	1,1,2,2-Tetrachloroethane	79345	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.0408
25	1,1,2-Trichloroethane {Vinyl trichloride}	79005	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.032436
26	1,2,4-Trimethylbenzene	95636	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.014586
27	1,2-Dichloropropane {Propylene dichloride}	78875	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.027438
28	1,3-Dichloropropene	542756	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.026928
29	Acetaldehyde	75070	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	8.5272
30	Acrolein	107028	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	5.2428
35	Chloroform	67663	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.02907
40	Ethyl benzene	100414	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.040494
44	Hexane	110543	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	1.1322
51	Methanol	67561	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	2.55
66	Styrene	100425	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.024072
68	Toluene	108883	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.41616
70	Xylenes	1330207	ES10	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0	I	Input	0	96	STANDARD CUBIC FEET	0.18768
2	Benzene	71432	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0111743	I	Input	59.98	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0130397	I	Input	59.98	100	GALLONS	0.2174
5	Cadmium	7440439	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00008997	I	Input	59.98	100	GALLONS	0.0015
32	Ammonia	7664417	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.173942	I	Input	59.98	100	GALLONS	2.9
14	Arsenic and Compounds (inorganic)	7440382	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00009596	I	Input	59.98	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00049783	I	Input	59.98	100	GALLONS	0.0083
17	Nickel	7440020	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00023392	I	Input	59.98	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00217128	I	Input	59.98	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00118161	I	Input	59.98	100	GALLONS	0.0197
12	Formaldehyde	50000	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.103531	I	Input	59.98	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000599	I	Input	59.98	100	GALLONS	0.0001
29	Acetaldehyde	75070	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0469823	I	Input	59.98	100	GALLONS	0.7833
30	Acrolein	107028	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00203332	I	Input	59.98	100	GALLONS	0.0339
36	Copper	7440508	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00024591	I	Input	59.98	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00065378	I	Input	59.98	100	GALLONS	0.0109
44	Hexane	110543	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00161346	I	Input	59.98	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0111743	I	Input	59.98	100	GALLONS	0.1863
49	Manganese	7439965	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00018593	I	Input	59.98	100	GALLONS	0.0031
50	Mercury	7439976	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00011996	I	Input	59.98	100	GALLONS	0.002
64	Selenium	7782492	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00013195	I	Input	59.98	100	GALLONS	0.0022
68	Toluene	108883	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00632189	I	Input	59.98	100	GALLONS	0.1054
70	Xylenes	1330207	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00254315	I	Input	59.98	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES11	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	2.00933	I	Input	59.98	100	GALLONS	33.5
32	Ammonia	7664417	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.289565	I	Input	99.85	100	GALLONS	2.9
15	Lead compounds (inorganic)	7439921	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00082875	I	Input	99.85	100	GALLONS	0.0083
17	Nickel	7440020	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00038941	I	Input	99.85	100	GALLONS	0.0039
12	Formaldehyde	50000	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.172351	I	Input	99.85	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000998	I	Input	99.85	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00015976	I	Input	99.85	100	GALLONS	0.0016
2	Benzene	71432	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0186021	I	Input	99.85	100	GALLONS	0.1863
19	Naphthalene [PAH, POM]	91203	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00196704	I	Input	99.85	100	GALLONS	0.0197
5	Cadmium	7440439	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00014977	I	Input	99.85	100	GALLONS	0.0015
19	PAHs [PAH, POM]	1151	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00361457	I	Input	99.85	100	GALLONS	0.0362
4	Butadiene [1,3]	106990	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0217074	I	Input	99.85	100	GALLONS	0.2174

29	Acetaldehyde	75070	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0782125	I	Input	99.85	100	GALLONS	0.7833
30	Acrolein	107028	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00338492	I	Input	99.85	100	GALLONS	0.0339
36	Copper	7440508	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00040938	I	Input	99.85	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00108836	I	Input	99.85	100	GALLONS	0.0109
44	Hexane	110543	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00268596	I	Input	99.85	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0186021	I	Input	99.85	100	GALLONS	0.1863
49	Manganese	7439965	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00030953	I	Input	99.85	100	GALLONS	0.0031
50	Mercury	7439976	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0001997	I	Input	99.85	100	GALLONS	0.002
64	Selenium	7782492	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00021967	I	Input	99.85	100	GALLONS	0.0022
68	Toluene	108883	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0105242	I	Input	99.85	100	GALLONS	0.1054
70	Xylenes	1330207	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00423364	I	Input	99.85	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES12	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	3.34498	I	Input	99.85	100	GALLONS	33.5
15	Lead compounds (inorganic)	7439921	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00263019	I	Input	316.89	100	GALLONS	0.0083
17	Nickel	7440020	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00123587	I	Input	316.89	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0114714	I	Input	316.89	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00624273	I	Input	316.89	100	GALLONS	0.0197
2	Benzene	71432	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0590366	I	Input	316.89	100	GALLONS	0.1863
14	Arsenic and Compounds (inorganic)	7440382	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00050702	I	Input	316.89	100	GALLONS	0.0016
4	Butadiene [1,3]	106990	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0688919	I	Input	316.89	100	GALLONS	0.2174
5	Cadmium	7440439	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00047533	I	Input	316.89	100	GALLONS	0.0015
12	Formaldehyde	50000	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.546984	I	Input	316.89	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003168	I	Input	316.89	100	GALLONS	0.0001
32	Ammonia	7664417	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.918981	I	Input	316.89	100	GALLONS	2.9
29	Acetaldehyde	75070	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.24822	I	Input	316.89	100	GALLONS	0.7833
30	Acrolein	107028	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0107426	I	Input	316.89	100	GALLONS	0.0339
36	Copper	7440508	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00129925	I	Input	316.89	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0034541	I	Input	316.89	100	GALLONS	0.0109
44	Hexane	110543	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00852434	I	Input	316.89	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0590366	I	Input	316.89	100	GALLONS	0.1863
49	Manganese	7439965	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00098235	I	Input	316.89	100	GALLONS	0.0031
50	Mercury	7439976	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00063378	I	Input	316.89	100	GALLONS	0.002
64	Selenium	7782492	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00069715	I	Input	316.89	100	GALLONS	0.0022
68	Toluene	108883	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0334002	I	Input	316.89	100	GALLONS	0.1054
70	Xylenes	1330207	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0134361	I	Input	316.89	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES13	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	10.6158	I	Input	316.89	100	GALLONS	33.5
15	Lead compounds (inorganic)	7439921	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00066408	I	Input	80.01	100	GALLONS	0.0083
12	Formaldehyde	50000	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.138105	I	Input	80.01	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.000008	I	Input	80.01	100	GALLONS	0.0001
17	Nickel	7440020	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00031203	I	Input	80.01	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00289636	I	Input	80.01	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0015762	I	Input	80.01	100	GALLONS	0.0197
32	Ammonia	7664417	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.232029	I	Input	80.01	100	GALLONS	2.9
2	Benzene	71432	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0149059	I	Input	80.01	100	GALLONS	0.1863
14	Arsenic and Compounds (inorganic)	7440382	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00012801	I	Input	80.01	100	GALLONS	0.0016
4	Butadiene [1,3]	106990	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0173942	I	Input	80.01	100	GALLONS	0.2174
5	Cadmium	7440439	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00012001	I	Input	80.01	100	GALLONS	0.0015
29	Acetaldehyde	75070	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0626718	I	Input	80.01	100	GALLONS	0.7833
30	Acrolein	107028	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00271234	I	Input	80.01	100	GALLONS	0.0339
36	Copper	7440508	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00032804	I	Input	80.01	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0008721	I	Input	80.01	100	GALLONS	0.0109
44	Hexane	110543	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00215227	I	Input	80.01	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0149059	I	Input	80.01	100	GALLONS	0.1863
49	Manganese	7439965	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00024803	I	Input	80.01	100	GALLONS	0.0031
50	Mercury	7439976	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00016002	I	Input	80.01	100	GALLONS	0.002
64	Selenium	7782492	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00017602	I	Input	80.01	100	GALLONS	0.0022
68	Toluene	108883	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00843305	I	Input	80.01	100	GALLONS	0.1054
70	Xylenes	1330207	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00339242	I	Input	80.01	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES14	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	2.68034	I	Input	80.01	100	GALLONS	33.5
17	Nickel	7440020	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00004535	I	Input	11.63	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.000421	I	Input	11.63	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00022911	I	Input	11.63	100	GALLONS	0.0197
2	Benzene	71432	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00216667	I	Input	11.63	100	GALLONS	0.1863
12	Formaldehyde	50000	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0200745	I	Input	11.63	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000116	I	Input	11.63	100	GALLONS	0.0001
32	Ammonia	7664417	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.033727	I	Input	11.63	100	GALLONS	2.9
15	Lead compounds (inorganic)	7439921	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00009652	I	Input	11.63	100	GALLONS	0.0083
14	Arsenic and Compounds (inorganic)	7440382	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0000186	I	Input	11.63	100	GALLONS	0.0016
4	Butadiene [1,3]	106990	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00252836	I	Input	11.63	100	GALLONS	0.2174
5	Cadmium	7440439	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00001744	I	Input	11.63	100	GALLONS	0.0015
29	Acetaldehyde	75070	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00910978	I	Input	11.63	100	GALLONS	0.7833
30	Acrolein	107028	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00039425	I	Input	11.63	100	GALLONS	0.0339
36	Copper	7440508	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00004768	I	Input	11.63	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00012676	I	Input	11.63	100	GALLONS	0.0109
44	Hexane	110543	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00031284	I	Input	11.63	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00216667	I	Input	11.63	100	GALLONS	0.1863
49	Manganese	7439965	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003605	I	Input	11.63	100	GALLONS	0.0031
50	Mercury	7439976	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00002326	I	Input	11.63	100	GALLONS	0.002
64	Selenium	7782492	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00002558	I	Input	11.63	100	GALLONS	0.0022
68	Toluene	108883	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0012258	I	Input	11.63	100	GALLONS	0.1054
70	Xylenes	1330207	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00049311	I	Input	11.63	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES15	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.389605	I	Input	11.63	100	GALLONS	33.5
2	Benzene	71432	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.123019	I	Input	660.33	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.143556	I	Input	660.33	100	GALLONS	0.2174
5	Cadmium	7440439	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00099049	I	Input	660.33	100	GALLONS	0.0015
12	Formaldehyde	50000	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.1398	I	Input	660.33	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00006603	I	Input	660.33	100	GALLONS	0.0001
32	Ammonia	7664417	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.91496	I	Input	660.33	100	GALLONS	2.9
19	PAHs [PAH, POM]	1151	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0239039	I	Input	660.33	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0130085	I	Input	660.33	100	GALLONS	0.0197
15	Lead compounds (inorganic)	7439921	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00548074	I	Input	660.33	100	GALLONS	0.0083
17	Nickel	7440020	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00257529	I	Input	660.33	100	GALLONS	0.0039
14	Arsenic and Compounds (inorganic)	7440382	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00105653	I	Input	660.33	100	GALLONS	0.0016
29	Acetaldehyde	75070	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.517236	I	Input	660.33	100	GALLONS	0.7833
30	Acrolein	107028	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0223852	I	Input	660.33	100	GALLONS	0.0339
36	Copper	7440508	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00270735	I	Input	660.33	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0071976	I	Input	660.33	100	GALLONS	0.0109
44	Hexane	110543	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0177629	I	Input	660.33	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.123019	I	Input	660.33	100	GALLONS	0.1863
49	Manganese	7439965	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00204702	I	Input	660.33	100	GALLONS	0.0031
50	Mercury	7439976	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00132066	I	Input	660.33	100	GALLONS	0.002
64	Selenium	7782492	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00145273	I	Input	660.33	100	GALLONS	0.0022
68	Toluene	108883	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0695988	I	Input	660.33	100	GALLONS	0.1054
70	Xylenes	1330207	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.027998	I	Input	660.33	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES16	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	22.1211	I	Input	660.33	100	GALLONS	33.5
19	Naphthalene [PAH, POM]	91203	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00878955	I	Input	446.17	100	GALLONS	0.0197
32	Ammonia	7664417	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.29389	I	Input	446.17	100	GALLONS	2.9
12	Formaldehyde	50000	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.770134	I	Input	446.17	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00004461	I	Input	446.17	100	GALLONS	0.0001
2	Benzene	71432	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0831215	I	Input	446.17	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0969974	I	Input	446.17	100	GALLONS	0.2174

5	Cadmium	7440439	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00066925	I	Input	446.17	100	GALLONS	0.0015
14	Arsenic and Compounds (inorganic)	7440382	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00071387	I	Input	446.17	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00370321	I	Input	446.17	100	GALLONS	0.0083
17	Nickel	7440020	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00174006	I	Input	446.17	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0161514	I	Input	446.17	100	GALLONS	0.0362
29	Acetaldehyde	75070	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.349485	I	Input	446.17	100	GALLONS	0.7833
30	Acrolein	107028	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0151252	I	Input	446.17	100	GALLONS	0.0339
36	Copper	7440508	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0018293	I	Input	446.17	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00486325	I	Input	446.17	100	GALLONS	0.0109
44	Hexane	110543	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.012002	I	Input	446.17	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0831215	I	Input	446.17	100	GALLONS	0.1863
49	Manganese	7439965	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00138313	I	Input	446.17	100	GALLONS	0.0031
50	Mercury	7439976	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00089234	I	Input	446.17	100	GALLONS	0.002
64	Selenium	7782492	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00098157	I	Input	446.17	100	GALLONS	0.0022
68	Toluene	108883	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0470263	I	Input	446.17	100	GALLONS	0.1054
70	Xylenes	1330207	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0189176	I	Input	446.17	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES17	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	14.9467	I	Input	446.17	100	GALLONS	33.5
17	Nickel	7440020	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00060715	I	Input	155.68	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00563562	I	Input	155.68	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0030669	I	Input	155.68	100	GALLONS	0.0197
32	Ammonia	7664417	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.451472	I	Input	155.68	100	GALLONS	2.9
2	Benzene	71432	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0290032	I	Input	155.68	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0338448	I	Input	155.68	100	GALLONS	0.2174
15	Lead compounds (inorganic)	7439921	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00129214	I	Input	155.68	100	GALLONS	0.0083
13	Chromium, hexavalent (and compounds)	18540299	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00001556	I	Input	155.68	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00024908	I	Input	155.68	100	GALLONS	0.0016
5	Cadmium	7440439	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00023352	I	Input	155.68	100	GALLONS	0.0015
12	Formaldehyde	50000	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.268719	I	Input	155.68	100	GALLONS	1.7261
29	Acetaldehyde	75070	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.121944	I	Input	155.68	100	GALLONS	0.7833
30	Acrolein	107028	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00527755	I	Input	155.68	100	GALLONS	0.0339
36	Copper	7440508	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00063828	I	Input	155.68	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00169691	I	Input	155.68	100	GALLONS	0.0109
44	Hexane	110543	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00418779	I	Input	155.68	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0290032	I	Input	155.68	100	GALLONS	0.1863
49	Manganese	7439965	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0004826	I	Input	155.68	100	GALLONS	0.0031
50	Mercury	7439976	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00031136	I	Input	155.68	100	GALLONS	0.002
64	Selenium	7782492	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00034249	I	Input	155.68	100	GALLONS	0.0022
68	Toluene	108883	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0164087	I	Input	155.68	100	GALLONS	0.1054
70	Xylenes	1330207	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00660083	I	Input	155.68	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES18	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	5.21528	I	Input	155.68	100	GALLONS	33.5
14	Arsenic and Compounds (inorganic)	7440382	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00012404	I	Input	77.53	100	GALLONS	0.0016
12	Formaldehyde	50000	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.133825	I	Input	77.53	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000775	I	Input	77.53	100	GALLONS	0.0001
5	Cadmium	7440439	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00011629	I	Input	77.53	100	GALLONS	0.0015
2	Benzene	71432	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0144438	I	Input	77.53	100	GALLONS	0.1863
15	Lead compounds (inorganic)	7439921	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00064349	I	Input	77.53	100	GALLONS	0.0083
19	PAHs [PAH, POM]	1151	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00280659	I	Input	77.53	100	GALLONS	0.0362
4	Butadiene [1,3]	106990	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.016855	I	Input	77.53	100	GALLONS	0.2174
19	Naphthalene [PAH, POM]	91203	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00152734	I	Input	77.53	100	GALLONS	0.0197
17	Nickel	7440020	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00030236	I	Input	77.53	100	GALLONS	0.0039
32	Ammonia	7664417	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.224837	I	Input	77.53	100	GALLONS	2.9
29	Acetaldehyde	75070	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0607292	I	Input	77.53	100	GALLONS	0.7833
30	Acrolein	107028	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00262827	I	Input	77.53	100	GALLONS	0.0339
36	Copper	7440508	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00031787	I	Input	77.53	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00084507	I	Input	77.53	100	GALLONS	0.0109
44	Hexane	110543	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00208556	I	Input	77.53	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0144438	I	Input	77.53	100	GALLONS	0.1863
49	Manganese	7439965	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00024034	I	Input	77.53	100	GALLONS	0.0031
50	Mercury	7439976	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00015506	I	Input	77.53	100	GALLONS	0.002
64	Selenium	7782492	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00017056	I	Input	77.53	100	GALLONS	0.0022
68	Toluene	108883	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00817166	I	Input	77.53	100	GALLONS	0.1054
70	Xylenes	1330207	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00328727	I	Input	77.53	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES19	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	2.59726	I	Input	77.53	100	GALLONS	33.5
14	Arsenic and Compounds (inorganic)	7440382	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00004312	I	Input	26.95	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00022368	I	Input	26.95	100	GALLONS	0.0083
17	Nickel	7440020	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0001051	I	Input	26.95	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00097559	I	Input	26.95	100	GALLONS	0.0362
12	Formaldehyde	50000	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0465184	I	Input	26.95	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000269	I	Input	26.95	100	GALLONS	0.0001
32	Ammonia	7664417	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.078155	I	Input	26.95	100	GALLONS	2.9
19	Naphthalene [PAH, POM]	91203	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00053091	I	Input	26.95	100	GALLONS	0.0197
2	Benzene	71432	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00502078	I	Input	26.95	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00585893	I	Input	26.95	100	GALLONS	0.2174
5	Cadmium	7440439	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00004042	I	Input	26.95	100	GALLONS	0.0015
29	Acetaldehyde	75070	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0211099	I	Input	26.95	100	GALLONS	0.7833
30	Acrolein	107028	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0009136	I	Input	26.95	100	GALLONS	0.0339
36	Copper	7440508	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00011049	I	Input	26.95	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00029375	I	Input	26.95	100	GALLONS	0.0109
44	Hexane	110543	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00072495	I	Input	26.95	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00502078	I	Input	26.95	100	GALLONS	0.1863
49	Manganese	7439965	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00008354	I	Input	26.95	100	GALLONS	0.0031
50	Mercury	7439976	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0000539	I	Input	26.95	100	GALLONS	0.002
64	Selenium	7782492	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00005929	I	Input	26.95	100	GALLONS	0.0022
68	Toluene	108883	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00284053	I	Input	26.95	100	GALLONS	0.1054
70	Xylenes	1330207	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00114268	I	Input	26.95	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES20	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.902825	I	Input	26.95	100	GALLONS	33.5
2	Benzene	71432	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.195615	I	Input	1050	100	GALLONS	0.1863
14	Arsenic and Compounds (inorganic)	7440382	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00168	I	Input	1050	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.008715	I	Input	1050	100	GALLONS	0.0083
12	Formaldehyde	50000	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.8124	I	Input	1050	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.000105	I	Input	1050	100	GALLONS	0.0001
4	Butadiene [1,3]	106990	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.22827	I	Input	1050	100	GALLONS	0.2174
5	Cadmium	7440439	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.001575	I	Input	1050	100	GALLONS	0.0015
17	Nickel	7440020	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.004095	I	Input	1050	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.03801	I	Input	1050	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.020685	I	Input	1050	100	GALLONS	0.0197
32	Ammonia	7664417	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	3.045	I	Input	1050	100	GALLONS	2.9
29	Acetaldehyde	75070	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.822465	I	Input	1050	100	GALLONS	0.7833
30	Acrolein	107028	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.035595	I	Input	1050	100	GALLONS	0.0339
36	Copper	7440508	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.004305	I	Input	1050	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.011445	I	Input	1050	100	GALLONS	0.0109
44	Hexane	110543	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.028245	I	Input	1050	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.195615	I	Input	1050	100	GALLONS	0.1863
49	Manganese	7439965	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.003255	I	Input	1050	100	GALLONS	0.0031
50	Mercury	7439976	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0021	I	Input	1050	100	GALLONS	0.002
64	Selenium	7782492	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00231	I	Input	1050	100	GALLONS	0.0022
68	Toluene	108883	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.11067	I	Input	1050	100	GALLONS	0.1054
70	Xylenes	1330207	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.04452	I	Input	1050	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES21	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	35.175	I	Input	1050	100	GALLONS	33.5
19	Naphthalene [PAH, POM]	91203	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0259934	I	Input	1319.46	100	GALLONS	0.0197

32	Ammonia	7664417	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	3.82643	I	Input	1319.46	100	GALLONS	2.9
13	Chromium, hexavalent (and compounds)	18540299	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00013194	I	Input	1319.46	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00211114	I	Input	1319.46	100	GALLONS	0.0016
2	Benzene	71432	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.245815	I	Input	1319.46	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.286851	I	Input	1319.46	100	GALLONS	0.2174
19	PAHs [PAH, POM]	1151	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0477645	I	Input	1319.46	100	GALLONS	0.0362
5	Cadmium	7440439	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00197919	I	Input	1319.46	100	GALLONS	0.0015
12	Formaldehyde	50000	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	2.27752	I	Input	1319.46	100	GALLONS	1.7261
15	Lead compounds (inorganic)	7439921	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0109515	I	Input	1319.46	100	GALLONS	0.0083
17	Nickel	7440020	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00514589	I	Input	1319.46	100	GALLONS	0.0039
29	Acetaldehyde	75070	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.03353	I	Input	1319.46	100	GALLONS	0.7833
30	Acrolein	107028	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0447297	I	Input	1319.46	100	GALLONS	0.0339
36	Copper	7440508	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00540979	I	Input	1319.46	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0143821	I	Input	1319.46	100	GALLONS	0.0109
44	Hexane	110543	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0354935	I	Input	1319.46	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.245815	I	Input	1319.46	100	GALLONS	0.1863
49	Manganese	7439965	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00409033	I	Input	1319.46	100	GALLONS	0.0031
50	Mercury	7439976	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00263892	I	Input	1319.46	100	GALLONS	0.002
64	Selenium	7782492	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00290281	I	Input	1319.46	100	GALLONS	0.0022
68	Toluene	108883	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.139071	I	Input	1319.46	100	GALLONS	0.1054
70	Xylenes	1330207	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0559451	I	Input	1319.46	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES22	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	44.2019	I	Input	1319.46	100	GALLONS	33.5
13	Chromium, hexavalent (and compounds)	18540299	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00001971	I	Input	197.19	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0003155	I	Input	197.19	100	GALLONS	0.0016
19	Naphthalene [PAH, POM]	91203	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00388464	I	Input	197.19	100	GALLONS	0.0197
32	Ammonia	7664417	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.571851	I	Input	197.19	100	GALLONS	2.9
5	Cadmium	7440439	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00029578	I	Input	197.19	100	GALLONS	0.0015
12	Formaldehyde	50000	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.34037	I	Input	197.19	100	GALLONS	1.7261
19	PAHs [PAH, POM]	1151	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00713828	I	Input	197.19	100	GALLONS	0.0362
15	Lead compounds (inorganic)	7439921	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00163668	I	Input	197.19	100	GALLONS	0.0083
17	Nickel	7440020	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00076904	I	Input	197.19	100	GALLONS	0.0039
4	Butadiene [1,3]	106990	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0428691	I	Input	197.19	100	GALLONS	0.2174
2	Benzene	71432	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0367365	I	Input	197.19	100	GALLONS	0.1863
29	Acetaldehyde	75070	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.154459	I	Input	197.19	100	GALLONS	0.7833
30	Acrolein	107028	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00668474	I	Input	197.19	100	GALLONS	0.0339
36	Copper	7440508	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00080847	I	Input	197.19	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00214937	I	Input	197.19	100	GALLONS	0.0109
44	Hexane	110543	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00530441	I	Input	197.19	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0367365	I	Input	197.19	100	GALLONS	0.1863
49	Manganese	7439965	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00061128	I	Input	197.19	100	GALLONS	0.0031
50	Mercury	7439976	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00039438	I	Input	197.19	100	GALLONS	0.002
64	Selenium	7782492	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00043381	I	Input	197.19	100	GALLONS	0.0022
68	Toluene	108883	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0207838	I	Input	197.19	100	GALLONS	0.1054
70	Xylenes	1330207	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00836086	I	Input	197.19	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES23	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	6.60586	I	Input	197.19	100	GALLONS	33.5
5	Cadmium	7440439	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00026625	I	Input	177.5	100	GALLONS	0.0015
12	Formaldehyde	50000	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.306383	I	Input	177.5	100	GALLONS	1.7261
32	Ammonia	7664417	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.51475	I	Input	177.5	100	GALLONS	2.9
4	Butadiene [1,3]	106990	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0385885	I	Input	177.5	100	GALLONS	0.2174
19	PAHs [PAH, POM]	1151	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0064255	I	Input	177.5	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00349675	I	Input	177.5	100	GALLONS	0.0197
2	Benzene	71432	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0330682	I	Input	177.5	100	GALLONS	0.1863
14	Arsenic and Compounds (inorganic)	7440382	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.000284	I	Input	177.5	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00147325	I	Input	177.5	100	GALLONS	0.0083
13	Chromium, hexavalent (and compounds)	18540299	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00001775	I	Input	177.5	100	GALLONS	0.0001
17	Nickel	7440020	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00069225	I	Input	177.5	100	GALLONS	0.0039
29	Acetaldehyde	75070	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.139036	I	Input	177.5	100	GALLONS	0.7833
30	Acrolein	107028	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00601725	I	Input	177.5	100	GALLONS	0.0339
36	Copper	7440508	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00072775	I	Input	177.5	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00193475	I	Input	177.5	100	GALLONS	0.0109
44	Hexane	110543	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00477475	I	Input	177.5	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0330682	I	Input	177.5	100	GALLONS	0.1863
49	Manganese	7439965	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00055025	I	Input	177.5	100	GALLONS	0.0031
50	Mercury	7439976	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.000355	I	Input	177.5	100	GALLONS	0.002
64	Selenium	7782492	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0003905	I	Input	177.5	100	GALLONS	0.0022
68	Toluene	108883	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0187085	I	Input	177.5	100	GALLONS	0.1054
70	Xylenes	1330207	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.007526	I	Input	177.5	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES24	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	5.94625	I	Input	177.5	100	GALLONS	33.5
14	Arsenic and Compounds (inorganic)	7440382	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00012537	I	Input	78.36	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00065038	I	Input	78.36	100	GALLONS	0.0083
17	Nickel	7440020	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0003056	I	Input	78.36	100	GALLONS	0.0039
13	Chromium, hexavalent (and compounds)	18540299	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000783	I	Input	78.36	100	GALLONS	0.0001
19	PAHs [PAH, POM]	1151	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00283663	I	Input	78.36	100	GALLONS	0.0362
12	Formaldehyde	50000	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.135257	I	Input	78.36	100	GALLONS	1.7261
19	Naphthalene [PAH, POM]	91203	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00154369	I	Input	78.36	100	GALLONS	0.0197
32	Ammonia	7664417	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.227244	I	Input	78.36	100	GALLONS	2.9
2	Benzene	71432	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0145985	I	Input	78.36	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0170355	I	Input	78.36	100	GALLONS	0.2174
5	Cadmium	7440439	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00011754	I	Input	78.36	100	GALLONS	0.0015
29	Acetaldehyde	75070	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0613794	I	Input	78.36	100	GALLONS	0.7833
30	Acrolein	107028	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0026564	I	Input	78.36	100	GALLONS	0.0339
36	Copper	7440508	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00032127	I	Input	78.36	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00085412	I	Input	78.36	100	GALLONS	0.0109
44	Hexane	110543	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00210788	I	Input	78.36	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0145985	I	Input	78.36	100	GALLONS	0.1863
49	Manganese	7439965	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00024291	I	Input	78.36	100	GALLONS	0.0031
50	Mercury	7439976	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00015672	I	Input	78.36	100	GALLONS	0.002
64	Selenium	7782492	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00017239	I	Input	78.36	100	GALLONS	0.0022
68	Toluene	108883	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00825914	I	Input	78.36	100	GALLONS	0.1054
70	Xylenes	1330207	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00332246	I	Input	78.36	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES25	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	2.62506	I	Input	78.36	100	GALLONS	33.5
19	Naphthalene [PAH, POM]	91203	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0337219	I	Input	1711.77	100	GALLONS	0.0197
32	Ammonia	7664417	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	4.96413	I	Input	1711.77	100	GALLONS	2.9
17	Nickel	7440020	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0066759	I	Input	1711.77	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0619661	I	Input	1711.77	100	GALLONS	0.0362
15	Lead compounds (inorganic)	7439921	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0142077	I	Input	1711.77	100	GALLONS	0.0083
12	Formaldehyde	50000	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	2.95469	I	Input	1711.77	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00017117	I	Input	1711.77	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00273883	I	Input	1711.77	100	GALLONS	0.0016
4	Butadiene [1,3]	106990	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.372139	I	Input	1711.77	100	GALLONS	0.2174
5	Cadmium	7440439	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00256765	I	Input	1711.77	100	GALLONS	0.0015
2	Benzene	71432	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.318903	I	Input	1711.77	100	GALLONS	0.1863
29	Acetaldehyde	75070	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.34083	I	Input	1711.77	100	GALLONS	0.7833
30	Acrolein	107028	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.058029	I	Input	1711.77	100	GALLONS	0.0339
36	Copper	7440508	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00701826	I	Input	1711.77	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0186583	I	Input	1711.77	100	GALLONS	0.0109
44	Hexane	110543	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0460466	I	Input	1711.77	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.318903	I	Input	1711.77	100	GALLONS	0.1863
49	Manganese	7439965	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00530649	I	Input	1711.77	100	GALLONS	0.0031
50	Mercury	7439976	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00342354	I	Input	1711.77	100	GALLONS	0.002

64	Selenium	7782492	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00376589	I	Input	1711.77	100	GALLONS	0.0022
68	Toluene	108883	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.180421	I	Input	1711.77	100	GALLONS	0.1054
70	Xylenes	1330207	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.072579	I	Input	1711.77	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES26	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	57.3443	I	Input	1711.77	100	GALLONS	33.5
2	Benzene	71432	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00330124	I	Input	17.72	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00385233	I	Input	17.72	100	GALLONS	0.2174
32	Ammonia	7664417	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.051388	I	Input	17.72	100	GALLONS	2.9
19	PAHs [PAH, POM]	1151	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00064146	I	Input	17.72	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00034908	I	Input	17.72	100	GALLONS	0.0197
12	Formaldehyde	50000	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0305865	I	Input	17.72	100	GALLONS	1.7261
17	Nickel	7440020	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0000691	I	Input	17.72	100	GALLONS	0.0039
5	Cadmium	7440439	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00002658	I	Input	17.72	100	GALLONS	0.0015
13	Chromium, hexavalent (and compounds)	18540299	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000177	I	Input	17.72	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00002835	I	Input	17.72	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00014707	I	Input	17.72	100	GALLONS	0.0083
29	Acetaldehyde	75070	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0138801	I	Input	17.72	100	GALLONS	0.7833
30	Acrolein	107028	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0006007	I	Input	17.72	100	GALLONS	0.0339
36	Copper	7440508	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00007265	I	Input	17.72	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00019314	I	Input	17.72	100	GALLONS	0.0109
44	Hexane	110543	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00047666	I	Input	17.72	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00330124	I	Input	17.72	100	GALLONS	0.1863
49	Manganese	7439965	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00005493	I	Input	17.72	100	GALLONS	0.0031
50	Mercury	7439976	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003544	I	Input	17.72	100	GALLONS	0.002
64	Selenium	7782492	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003898	I	Input	17.72	100	GALLONS	0.0022
68	Toluene	108883	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00186769	I	Input	17.72	100	GALLONS	0.1054
70	Xylenes	1330207	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00075132	I	Input	17.72	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES27	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.59362	I	Input	17.72	100	GALLONS	33.5
13	Chromium, hexavalent (and compounds)	18540299	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000256	I	Input	25.65	100	GALLONS	0.0001
19	PAHs [PAH, POM]	1151	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00092853	I	Input	25.65	100	GALLONS	0.0362
5	Cadmium	7440439	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003847	I	Input	25.65	100	GALLONS	0.0015
12	Formaldehyde	50000	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0442745	I	Input	25.65	100	GALLONS	1.7261
4	Butadiene [1,3]	106990	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00557631	I	Input	25.65	100	GALLONS	0.2174
14	Arsenic and Compounds (inorganic)	7440382	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00004104	I	Input	25.65	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00021289	I	Input	25.65	100	GALLONS	0.0083
17	Nickel	7440020	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00010003	I	Input	25.65	100	GALLONS	0.0039
32	Ammonia	7664417	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.074385	I	Input	25.65	100	GALLONS	2.9
19	Naphthalene [PAH, POM]	91203	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0005053	I	Input	25.65	100	GALLONS	0.0197
2	Benzene	71432	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0047786	I	Input	25.65	100	GALLONS	0.1863
29	Acetaldehyde	75070	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0200916	I	Input	25.65	100	GALLONS	0.7833
30	Acrolein	107028	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00086953	I	Input	25.65	100	GALLONS	0.0339
36	Copper	7440508	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00010516	I	Input	25.65	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00027958	I	Input	25.65	100	GALLONS	0.0109
44	Hexane	110543	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00068998	I	Input	25.65	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0047786	I	Input	25.65	100	GALLONS	0.1863
49	Manganese	7439965	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00007951	I	Input	25.65	100	GALLONS	0.0031
50	Mercury	7439976	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0000513	I	Input	25.65	100	GALLONS	0.002
64	Selenium	7782492	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00005643	I	Input	25.65	100	GALLONS	0.0022
68	Toluene	108883	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00270351	I	Input	25.65	100	GALLONS	0.1054
70	Xylenes	1330207	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00108756	I	Input	25.65	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES28	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.859275	I	Input	25.65	100	GALLONS	33.5
19	PAHs [PAH, POM]	1151	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0199317	I	Input	550.6	100	GALLONS	0.0362
15	Lead compounds (inorganic)	7439921	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00456998	I	Input	550.6	100	GALLONS	0.0083
19	Naphthalene [PAH, POM]	91203	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0108468	I	Input	550.6	100	GALLONS	0.0197
32	Ammonia	7664417	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.59674	I	Input	550.6	100	GALLONS	2.9
12	Formaldehyde	50000	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.950391	I	Input	550.6	100	GALLONS	1.7261
17	Nickel	7440020	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00214734	I	Input	550.6	100	GALLONS	0.0039
5	Cadmium	7440439	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0008259	I	Input	550.6	100	GALLONS	0.0015
4	Butadiene [1,3]	106990	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.1197	I	Input	550.6	100	GALLONS	0.2174
2	Benzene	71432	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.102577	I	Input	550.6	100	GALLONS	0.1863
13	Chromium, hexavalent (and compounds)	18540299	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00005506	I	Input	550.6	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00088096	I	Input	550.6	100	GALLONS	0.0016
29	Acetaldehyde	75070	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.431285	I	Input	550.6	100	GALLONS	0.7833
30	Acrolein	107028	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0186653	I	Input	550.6	100	GALLONS	0.0339
36	Copper	7440508	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00225746	I	Input	550.6	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00600154	I	Input	550.6	100	GALLONS	0.0109
44	Hexane	110543	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0148111	I	Input	550.6	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.102577	I	Input	550.6	100	GALLONS	0.1863
49	Manganese	7439965	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00170686	I	Input	550.6	100	GALLONS	0.0031
50	Mercury	7439976	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0011012	I	Input	550.6	100	GALLONS	0.002
64	Selenium	7782492	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00121132	I	Input	550.6	100	GALLONS	0.0022
68	Toluene	108883	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0580332	I	Input	550.6	100	GALLONS	0.1054
70	Xylenes	1330207	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0233454	I	Input	550.6	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES29	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	18.4451	I	Input	550.6	100	GALLONS	33.5
32	Ammonia	7664417	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.06621	I	Input	367.66	100	GALLONS	2.9
19	Naphthalene [PAH, POM]	91203	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0072429	I	Input	367.66	100	GALLONS	0.0197
19	PAHs [PAH, POM]	1151	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0133093	I	Input	367.66	100	GALLONS	0.0362
13	Chromium, hexavalent (and compounds)	18540299	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003676	I	Input	367.66	100	GALLONS	0.0001
17	Nickel	7440020	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00143387	I	Input	367.66	100	GALLONS	0.0039
5	Cadmium	7440439	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00055149	I	Input	367.66	100	GALLONS	0.0015
12	Formaldehyde	50000	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.634618	I	Input	367.66	100	GALLONS	1.7261
2	Benzene	71432	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0684951	I	Input	367.66	100	GALLONS	0.1863
14	Arsenic and Compounds (inorganic)	7440382	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00058825	I	Input	367.66	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00305158	I	Input	367.66	100	GALLONS	0.0083
4	Butadiene [1,3]	106990	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0799293	I	Input	367.66	100	GALLONS	0.2174
29	Acetaldehyde	75070	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.287988	I	Input	367.66	100	GALLONS	0.7833
30	Acrolein	107028	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0124637	I	Input	367.66	100	GALLONS	0.0339
36	Copper	7440508	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00150741	I	Input	367.66	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00400749	I	Input	367.66	100	GALLONS	0.0109
44	Hexane	110543	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00989005	I	Input	367.66	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0684951	I	Input	367.66	100	GALLONS	0.1863
49	Manganese	7439965	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00113975	I	Input	367.66	100	GALLONS	0.0031
50	Mercury	7439976	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00073532	I	Input	367.66	100	GALLONS	0.002
64	Selenium	7782492	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00080885	I	Input	367.66	100	GALLONS	0.0022
68	Toluene	108883	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0387514	I	Input	367.66	100	GALLONS	0.1054
70	Xylenes	1330207	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0155888	I	Input	367.66	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES30	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	12.3166	I	Input	367.66	100	GALLONS	33.5
2	Benzene	71432	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.331412	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	0.0058
12	Formaldehyde	50000	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.702822	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	0.0123
19	PAHs [PAH, POM]	1151	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.005714	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	0.0001
32	Ammonia	7664417	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	1028.52	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	18
19	Naphthalene [PAH, POM]	91203	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.017142	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	0.0003
29	Acetaldehyde	75070	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.177134	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	0.0031
30	Acrolein	107028	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.154278	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	0.0027
40	Ethyl benzene	100414	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.394266	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	0.0069
44	Hexane	110543	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.262844	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	0.0046
68	Toluene	108883	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	1.51421	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	0.0265
70	Xylenes	1330207	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	1.12566	I	Input	57.14	38	MILLION STANDARD CUBIC FEET	0.0197
32	Ammonia	7664417	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	0.3
2	Benzene	71432	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	0.000514608
19	Naphthalene [PAH, POM]	91203	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	2.66176E-05

12	Formaldehyde	50000	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	0.00109132
19	PAHs [PAH, POM]	1151	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	8.87255E-06
29	Acetaldehyde	75070	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	0.000275049
30	Acrolein	107028	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	0.000239559
40	Ethyl benzene	100414	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	0.000612206
44	Hexane	110543	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	0.000408137
68	Toluene	108883	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	0.00235123
70	Xylenes	1330207	ES31	1b	Boiler 10-100 MMBTU/HR	External Combustion	P2	0	I	Input	0	43	GALLONS	0.00174789
2	Benzene	71432	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0130335	I	Input	69.96	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0152093	I	Input	69.96	100	GALLONS	0.2174
5	Cadmium	7440439	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00010494	I	Input	69.96	100	GALLONS	0.0015
12	Formaldehyde	50000	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.120758	I	Input	69.96	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000699	I	Input	69.96	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00011193	I	Input	69.96	100	GALLONS	0.0016
32	Ammonia	7664417	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.202884	I	Input	69.96	100	GALLONS	2.9
19	PAHs [PAH, POM]	1151	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00253255	I	Input	69.96	100	GALLONS	0.0362
15	Lead compounds (inorganic)	7439921	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00058066	I	Input	69.96	100	GALLONS	0.0083
17	Nickel	7440020	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00027284	I	Input	69.96	100	GALLONS	0.0039
19	Naphthalene [PAH, POM]	91203	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00137821	I	Input	69.96	100	GALLONS	0.0197
29	Acetaldehyde	75070	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0547997	I	Input	69.96	100	GALLONS	0.7833
30	Acrolein	107028	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00237164	I	Input	69.96	100	GALLONS	0.0339
36	Copper	7440508	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00028683	I	Input	69.96	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00076256	I	Input	69.96	100	GALLONS	0.0109
44	Hexane	110543	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00188192	I	Input	69.96	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0130335	I	Input	69.96	100	GALLONS	0.1863
49	Manganese	7439965	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00021687	I	Input	69.96	100	GALLONS	0.0031
50	Mercury	7439976	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00013992	I	Input	69.96	100	GALLONS	0.002
64	Selenium	7782492	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00015391	I	Input	69.96	100	GALLONS	0.0022
68	Toluene	108883	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00737378	I	Input	69.96	100	GALLONS	0.1054
70	Xylenes	1330207	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0029663	I	Input	69.96	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES33	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	2.34366	I	Input	69.96	100	GALLONS	33.5
14	Arsenic and Compounds (inorganic)	7440382	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00006844	I	Input	42.78	100	GALLONS	0.0016
32	Ammonia	7664417	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.124062	I	Input	42.78	100	GALLONS	2.9
15	Lead compounds (inorganic)	7439921	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00035507	I	Input	42.78	100	GALLONS	0.0083
2	Benzene	71432	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00796991	I	Input	42.78	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00930037	I	Input	42.78	100	GALLONS	0.2174
5	Cadmium	7440439	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00006417	I	Input	42.78	100	GALLONS	0.0015
19	PAHs [PAH, POM]	1151	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00154864	I	Input	42.78	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00084276	I	Input	42.78	100	GALLONS	0.0197
17	Nickel	7440020	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00016684	I	Input	42.78	100	GALLONS	0.0039
13	Chromium, hexavalent (and compounds)	18540299	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000427	I	Input	42.78	100	GALLONS	0.0001
12	Formaldehyde	50000	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0738426	I	Input	42.78	100	GALLONS	1.7261
29	Acetaldehyde	75070	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0335096	I	Input	42.78	100	GALLONS	0.7833
30	Acrolein	107028	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00145024	I	Input	42.78	100	GALLONS	0.0339
36	Copper	7440508	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00017539	I	Input	42.78	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0004663	I	Input	42.78	100	GALLONS	0.0109
44	Hexane	110543	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00115078	I	Input	42.78	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00796991	I	Input	42.78	100	GALLONS	0.1863
49	Manganese	7439965	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00013261	I	Input	42.78	100	GALLONS	0.0031
50	Mercury	7439976	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00008556	I	Input	42.78	100	GALLONS	0.002
64	Selenium	7782492	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00009411	I	Input	42.78	100	GALLONS	0.0022
68	Toluene	108883	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00450901	I	Input	42.78	100	GALLONS	0.1054
70	Xylenes	1330207	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00181387	I	Input	42.78	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES34	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.43313	I	Input	42.78	100	GALLONS	33.5
32	Ammonia	7664417	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	2.69129	I	Input	928.03	100	GALLONS	2.9
12	Formaldehyde	50000	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.60187	I	Input	928.03	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0000928	I	Input	928.03	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00148485	I	Input	928.03	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00770265	I	Input	928.03	100	GALLONS	0.0083
17	Nickel	7440020	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00361932	I	Input	928.03	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0335947	I	Input	928.03	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0182822	I	Input	928.03	100	GALLONS	0.0197
5	Cadmium	7440439	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00139204	I	Input	928.03	100	GALLONS	0.0015
2	Benzene	71432	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.172892	I	Input	928.03	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.201754	I	Input	928.03	100	GALLONS	0.2174
29	Acetaldehyde	75070	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.726926	I	Input	928.03	100	GALLONS	0.7833
30	Acrolein	107028	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0314602	I	Input	928.03	100	GALLONS	0.0339
36	Copper	7440508	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00380492	I	Input	928.03	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0101155	I	Input	928.03	100	GALLONS	0.0109
44	Hexane	110543	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.024964	I	Input	928.03	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.172892	I	Input	928.03	100	GALLONS	0.1863
49	Manganese	7439965	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00287689	I	Input	928.03	100	GALLONS	0.0031
50	Mercury	7439976	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00185606	I	Input	928.03	100	GALLONS	0.002
64	Selenium	7782492	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00204167	I	Input	928.03	100	GALLONS	0.0022
68	Toluene	108883	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0978144	I	Input	928.03	100	GALLONS	0.1054
70	Xylenes	1330207	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0393485	I	Input	928.03	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES35	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	31.089	I	Input	928.03	100	GALLONS	33.5
2	Benzene	71432	ES36	24	Underground Small storage tank - <10,000 gallons	Storage Tanks	P1	2.83548	I	Input	109.3935	51	1000 GALLONS	0.02592
4	Butadiene [1,3]	106990	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.110022	I	Input	506.08	100	GALLONS	0.2174
5	Cadmium	7440439	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00075912	I	Input	506.08	100	GALLONS	0.0015
12	Formaldehyde	50000	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.873545	I	Input	506.08	100	GALLONS	1.7261
2	Benzene	71432	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0942827	I	Input	506.08	100	GALLONS	0.1863
19	Naphthalene [PAH, POM]	91203	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00996978	I	Input	506.08	100	GALLONS	0.0197
32	Ammonia	7664417	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.46763	I	Input	506.08	100	GALLONS	2.9
14	Arsenic and Compounds (inorganic)	7440382	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00080972	I	Input	506.08	100	GALLONS	0.0016
19	PAHs [PAH, POM]	1151	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0183201	I	Input	506.08	100	GALLONS	0.0362
15	Lead compounds (inorganic)	7439921	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00420046	I	Input	506.08	100	GALLONS	0.0083
17	Nickel	7440020	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00197371	I	Input	506.08	100	GALLONS	0.0039
13	Chromium, hexavalent (and compounds)	18540299	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0000506	I	Input	506.08	100	GALLONS	0.0001
29	Acetaldehyde	75070	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.396412	I	Input	506.08	100	GALLONS	0.7833
30	Acrolein	107028	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0171561	I	Input	506.08	100	GALLONS	0.0339
36	Copper	7440508	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00207493	I	Input	506.08	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00551627	I	Input	506.08	100	GALLONS	0.0109
44	Hexane	110543	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0136136	I	Input	506.08	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0942827	I	Input	506.08	100	GALLONS	0.1863
49	Manganese	7439965	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00156885	I	Input	506.08	100	GALLONS	0.0031
50	Mercury	7439976	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00101216	I	Input	506.08	100	GALLONS	0.002
64	Selenium	7782492	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00111338	I	Input	506.08	100	GALLONS	0.0022
68	Toluene	108883	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0533408	I	Input	506.08	100	GALLONS	0.1054
70	Xylenes	1330207	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0214578	I	Input	506.08	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES37	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	16.9537	I	Input	506.08	100	GALLONS	33.5
12	Formaldehyde	50000	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.213432	I	Input	123.65	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00001236	I	Input	123.65	100	GALLONS	0.0001
4	Butadiene [1,3]	106990	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0268815	I	Input	123.65	100	GALLONS	0.2174
5	Cadmium	7440439	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00018547	I	Input	123.65	100	GALLONS	0.0015
14	Arsenic and Compounds (inorganic)	7440382	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00019784	I	Input	123.65	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0010263	I	Input	123.65	100	GALLONS	0.0083
2	Benzene	71432	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.023036	I	Input	123.65	100	GALLONS	0.1863
19	Naphthalene [PAH, POM]	91203	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0024359	I	Input	123.65	100	GALLONS	0.0197
32	Ammonia	7664417	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.358585	I	Input	123.65	100	GALLONS	2.9

17	Nickel	7440020	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00048223	I	Input	123.65	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00447613	I	Input	123.65	100	GALLONS	0.0362
29	Acetaldehyde	75070	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.096855	I	Input	123.65	100	GALLONS	0.7833
30	Acrolein	107028	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00419174	I	Input	123.65	100	GALLONS	0.0339
36	Copper	7440508	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00050696	I	Input	123.65	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00134778	I	Input	123.65	100	GALLONS	0.0109
44	Hexane	110543	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00332618	I	Input	123.65	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.023036	I	Input	123.65	100	GALLONS	0.1863
49	Manganese	7439965	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00038331	I	Input	123.65	100	GALLONS	0.0031
50	Mercury	7439976	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0002473	I	Input	123.65	100	GALLONS	0.002
64	Selenium	7782492	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00027203	I	Input	123.65	100	GALLONS	0.0022
68	Toluene	108883	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0130327	I	Input	123.65	100	GALLONS	0.1054
70	Xylenes	1330207	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00524276	I	Input	123.65	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES38	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	4.14227	I	Input	123.65	100	GALLONS	33.5
12	Formaldehyde	50000	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.00323	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	0.017
19	PAHs [PAH, POM]	1151	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.000019	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	0.0001
2	Benzene	71432	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.00152	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	0.008
19	Naphthalene [PAH, POM]	91203	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.000057	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	0.0003
32	Ammonia	7664417	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	3.42	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	18
29	Acetaldehyde	75070	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.000817	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	0.0043
30	Acrolein	107028	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.000513	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	0.0027
40	Ethyl benzene	100414	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.001805	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	0.0095
44	Hexane	110543	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.001197	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	0.0063
68	Toluene	108883	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.006954	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	0.0366
70	Xylenes	1330207	ES40	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.005168	I	Input	0.19	38	MILLION STANDARD CUBIC FEET	0.0272
32	Ammonia	7664417	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	142.2	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	18
2	Benzene	71432	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.0632	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.008
12	Formaldehyde	50000	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.1343	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.017
19	PAHs [PAH, POM]	1151	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.00079	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0001
19	Naphthalene [PAH, POM]	91203	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.00237	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0003
29	Acetaldehyde	75070	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.03397	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0043
30	Acrolein	107028	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.02133	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0027
40	Ethyl benzene	100414	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.07505	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0095
44	Hexane	110543	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.04977	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0063
68	Toluene	108883	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.28914	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0366
70	Xylenes	1330207	ES41	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.21488	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0272
32	Ammonia	7664417	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	142.2	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	18
2	Benzene	71432	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.0632	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.008
12	Formaldehyde	50000	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.1343	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.017
19	PAHs [PAH, POM]	1151	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.00079	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0001
19	Naphthalene [PAH, POM]	91203	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.00237	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0003
29	Acetaldehyde	75070	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.03397	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0043
30	Acrolein	107028	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.02133	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0027
40	Ethyl benzene	100414	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.07505	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0095
44	Hexane	110543	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.04977	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0063
68	Toluene	108883	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.28914	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0366
70	Xylenes	1330207	ES42	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.21488	I	Input	7.9	38	MILLION STANDARD CUBIC FEET	0.0272
19	Naphthalene [PAH, POM]	91203	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.01689	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	0.0003
12	Formaldehyde	50000	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.69249	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	0.0123
19	PAHs [PAH, POM]	1151	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.00563	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	0.0001
2	Benzene	71432	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.32654	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	0.0058
32	Ammonia	7664417	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	1013.4	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	18
29	Acetaldehyde	75070	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.17453	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	0.0031
30	Acrolein	107028	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.15201	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	0.0027
40	Ethyl benzene	100414	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.38847	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	0.0069
44	Hexane	110543	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.25898	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	0.0046
68	Toluene	108883	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	1.49195	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	0.0265
70	Xylenes	1330207	ES43	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	1.10911	I	Input	56.3	38	MILLION STANDARD CUBIC FEET	0.0197
2	Benzene	71432	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.273818	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	0.0058
12	Formaldehyde	50000	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.580683	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	0.0123
19	Naphthalene [PAH, POM]	91203	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.014163	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	0.0003
32	Ammonia	7664417	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	849.78	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	18
19	PAHs [PAH, POM]	1151	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.004721	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	0.0001
29	Acetaldehyde	75070	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.146351	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	0.0031
30	Acrolein	107028	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.127467	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	0.0027
40	Ethyl benzene	100414	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.325749	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	0.0069
44	Hexane	110543	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.217166	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	0.0046
68	Toluene	108883	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	1.25107	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	0.0265
70	Xylenes	1330207	ES44	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.930037	I	Input	47.21	38	MILLION STANDARD CUBIC FEET	0.0197
2	Benzene	71432	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	1.06331	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	0.0058
32	Ammonia	7664417	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	3299.94	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	18
12	Formaldehyde	50000	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	2.25496	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	0.0123
19	PAHs [PAH, POM]	1151	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.018333	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	0.0001
19	Naphthalene [PAH, POM]	91203	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.054999	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	0.0003
29	Acetaldehyde	75070	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.568323	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	0.0031
30	Acrolein	107028	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.494991	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	0.0027
40	Ethyl benzene	100414	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	1.26498	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	0.0069
44	Hexane	110543	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	0.843318	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	0.0046
68	Toluene	108883	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	4.85824	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	0.0265
70	Xylenes	1330207	ES49	1b	Boiler 10-100 MMBTU/HR	External Combustion	P1	3.6116	I	Input	183.33	38	MILLION STANDARD CUBIC FEET	0.0197
17	Nickel	7440020	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00023103	I	Input	59.24	100	GALLONS	0.0039
4	Butadiene [1,3]	106990	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0128788	I	Input	59.24	100	GALLONS	0.2174
5	Cadmium	7440439	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00008886	I	Input	59.24	100	GALLONS	0.0015
2	Benzene	71432	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0110364	I	Input	59.24	100	GALLONS	0.1863
14	Arsenic and Compounds (inorganic)	7440382	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00009478	I	Input	59.24	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00049169	I	Input	59.24	100	GALLONS	0.0083
19	PAHs [PAH, POM]	1151	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00214449	I	Input	59.24	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00116703	I	Input	59.24	100	GALLONS	0.0197
32	Ammonia	7664417	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.171796	I	Input	59.24	100	GALLONS	2.9
12	Formaldehyde	50000	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.102254	I	Input	59.24	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000592	I	Input	59.24	100	GALLONS	0.0001
29	Acetaldehyde	75070	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0464027	I	Input	59.24	100	GALLONS	0.7833
30	Acrolein	107028	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00200824	I	Input	59.24	100	GALLONS	0.0339
36	Copper	7440508	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00024288	I	Input	59.24	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00064571	I	Input	59.24	100	GALLONS	0.0109
44	Hexane	110543	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00159356	I	Input	59.24	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0110364	I	Input	59.24	100	GALLONS	0.1863
49	Manganese	7439965	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00018364	I	Input	59.24	100	GALLONS	0.0031
50	Mercury	7439976	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00011848	I	Input	59.24	100	GALLONS	0.002
64	Selenium	7782492	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00013032	I	Input	59.24	100	GALLONS	0.0022
68	Toluene	108883	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0062439	I	Input	59.24	100	GALLONS	0.1054
70	Xylenes	1330207	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00251178	I	Input	59.24	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES51	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.98454	I	Input	59.24	100	GALLONS	33.5
32	Ammonia	7664417	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	206.46	I	Input	11.47	38	MILLION STANDARD CUBIC FEET	18
19	Naphthalene [PAH, POM]	91203	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.003441	I	Input	11.47	38	MILLION STANDARD CUBIC FEET	0.0003
12	Formaldehyde	50000	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.19499	I	Input	11.47	38	MILLION STANDARD CUBIC FEET	0.017
19	PAHs [PAH, POM]	1151	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.001147	I	Input	11.47	38	MILLION STANDARD CUBIC FEET	0.0001
2	Benzene	71432	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.09176	I	Input	11.47	38	MILLION STANDARD CUBIC FEET	0.008
29	Acetaldehyde	75070	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.049321	I	Input	11.47	38	MILLION STANDARD CUBIC FEET	0.0043
30	Acrolein	107028	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.030969	I	Input	11.47	38	MILLION STANDARD CUBIC FEET	0.0027

40	Ethyl benzene	100414	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.108965	I	Input	11.47	38	MILLION STANDARD CUBIC FEET		0.0095
44	Hexane	110543	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.072261	I	Input	11.47	38	MILLION STANDARD CUBIC FEET		0.0063
68	Toluene	108883	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.419802	I	Input	11.47	38	MILLION STANDARD CUBIC FEET		0.0366
70	Xylenes	1330207	ES52	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.311984	I	Input	11.47	38	MILLION STANDARD CUBIC FEET		0.0272
2	Benzene	71432	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0666637	I	Input	357.83	100	GALLONS		0.1863
14	Arsenic and Compounds (inorganic)	7440382	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00057252	I	Input	357.83	100	GALLONS		0.0016
15	Lead compounds (inorganic)	7439921	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00296999	I	Input	357.83	100	GALLONS		0.0083
4	Butadiene [1,3]	106990	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0777922	I	Input	357.83	100	GALLONS		0.2174
5	Cadmium	7440439	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00053674	I	Input	357.83	100	GALLONS		0.0015
19	PAHs [PAH, POM]	1151	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0129534	I	Input	357.83	100	GALLONS		0.0362
19	Naphthalene [PAH, POM]	91203	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00704925	I	Input	357.83	100	GALLONS		0.0197
32	Ammonia	7664417	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.03771	I	Input	357.83	100	GALLONS		2.9
13	Chromium, hexavalent (and compounds)	18540299	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00003578	I	Input	357.83	100	GALLONS		0.0001
12	Formaldehyde	50000	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.61765	I	Input	357.83	100	GALLONS		1.7261
17	Nickel	7440020	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00139554	I	Input	357.83	100	GALLONS		0.0039
29	Acetaldehyde	75070	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.280288	I	Input	357.83	100	GALLONS		0.7833
30	Acrolein	107028	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0121304	I	Input	357.83	100	GALLONS		0.0339
36	Copper	7440508	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0014671	I	Input	357.83	100	GALLONS		0.0041
40	Ethyl benzene	100414	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00390035	I	Input	357.83	100	GALLONS		0.0109
44	Hexane	110543	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00962563	I	Input	357.83	100	GALLONS		0.0269
46	Hydrochloric acid	7647010	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0666637	I	Input	357.83	100	GALLONS		0.1863
49	Manganese	7439965	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00110927	I	Input	357.83	100	GALLONS		0.0031
50	Mercury	7439976	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00071566	I	Input	357.83	100	GALLONS		0.002
64	Selenium	7782492	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00078722	I	Input	357.83	100	GALLONS		0.0022
68	Toluene	108883	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0377153	I	Input	357.83	100	GALLONS		0.1054
70	Xylenes	1330207	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.015172	I	Input	357.83	100	GALLONS		0.0424
72	Diesel exhaust particulates	9901	ES53	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	11.9873	I	Input	357.83	100	GALLONS		33.5
2	Benzene	71432	ES54	22	Storage tank and Dispensing	Storage Tanks	P1	0.0287122	I	Input	1.9939	51	1000 GALLONS		0.0144
2	Benzene	71432	ES55	22	Storage tank and Dispensing	Storage Tanks	P1	0.136011	I	Input	9.4452	51	1000 GALLONS		0.0144
19	PAHs [PAH, POM]	1151	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.000131	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		0.0001
19	Naphthalene [PAH, POM]	91203	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.000393	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		0.0003
12	Formaldehyde	50000	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.02227	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		0.017
2	Benzene	71432	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.01048	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		0.008
32	Ammonia	7664417	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	23.58	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		18
29	Acetaldehyde	75070	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.005633	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		0.0043
30	Acrolein	107028	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.003537	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		0.0027
40	Ethyl benzene	100414	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.012445	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		0.0095
44	Hexane	110543	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.008253	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		0.0063
68	Toluene	108883	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.047946	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		0.0366
70	Xylenes	1330207	ES56	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.035632	I	Input	1.31	38	MILLION STANDARD CUBIC FEET		0.0272
12	Formaldehyde	50000	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.02244	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		0.017
19	PAHs [PAH, POM]	1151	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.000132	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		0.0001
2	Benzene	71432	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.01056	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		0.008
32	Ammonia	7664417	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	23.76	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		18
19	Naphthalene [PAH, POM]	91203	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.000396	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		0.0003
29	Acetaldehyde	75070	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.005676	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		0.0043
30	Acrolein	107028	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.003564	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		0.0027
40	Ethyl benzene	100414	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.01254	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		0.0095
44	Hexane	110543	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.008316	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		0.0063
68	Toluene	108883	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.048312	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		0.0366
70	Xylenes	1330207	ES57	2a	Oven <10 MMBTU/HR	External Combustion	P1	0.035904	I	Input	1.32	38	MILLION STANDARD CUBIC FEET		0.0272
2	Benzene	71432	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.03456	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		0.008
32	Ammonia	7664417	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	77.76	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		18
19	PAHs [PAH, POM]	1151	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.000432	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		0.0001
19	Naphthalene [PAH, POM]	91203	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.001296	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		0.0003
12	Formaldehyde	50000	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.07344	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		0.017
29	Acetaldehyde	75070	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.018576	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		0.0043
30	Acrolein	107028	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.011664	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		0.0027
40	Ethyl benzene	100414	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.04104	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		0.0095
44	Hexane	110543	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.027216	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		0.0063
68	Toluene	108883	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.158112	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		0.0366
70	Xylenes	1330207	ES58	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.117504	I	Input	4.32	38	MILLION STANDARD CUBIC FEET		0.0272
19	PAHs [PAH, POM]	1151	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.000207	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		0.0001
19	Naphthalene [PAH, POM]	91203	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.000621	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		0.0003
12	Formaldehyde	50000	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.03519	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		0.017
2	Benzene	71432	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.01656	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		0.008
32	Ammonia	7664417	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	37.26	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		18
29	Acetaldehyde	75070	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.008901	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		0.0043
30	Acrolein	107028	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.005589	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		0.0027
40	Ethyl benzene	100414	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.019665	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		0.0095
44	Hexane	110543	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.013041	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		0.0063
68	Toluene	108883	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.075762	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		0.0366
70	Xylenes	1330207	ES59	1a	Boiler <10 MMBTU/HR	External Combustion	P1	0.056304	I	Input	2.07	38	MILLION STANDARD CUBIC FEET		0.0272
10	Ethylene dichloride {1,2-Dichloroethane}	107062	ES60	21	Other evaporative sources	Other Use of Organics.	P2	12.3342	I	Input	183	48	POUNDS		0.0674
8	1,4-Dioxane	123911	ES60	21	Other evaporative sources	Other Use of Organics.	P3	12.1994	I	Input	181	48	POUNDS		0.0674
12	Formaldehyde	50000	ES60	21	Other evaporative sources	Other Use of Organics.	P5	35.6546	I	Input	529	48	POUNDS		0.0674
6	Carbon tetrachloride	56235	ES60	21	Other evaporative sources	Other Use of Organics.	P6	8.762	I	Input	130	48	POUNDS		0.0674
2	Benzene	71432	ES60	21	Other evaporative sources	Other Use of Organics.	P7	15.3672	I	Input	228	48	POUNDS		0.0674
16	Methylene chloride {Dichloromethane}	75092	ES60	21	Other evaporative sources	Other Use of Organics.	P12	203.615	I	Input	3021	48	POUNDS		0.0674
11	Ethylene oxide	75218	ES60	21	Other evaporative sources	Other Use of Organics.	P13	0.10784	I	Input	1.6	48	POUNDS		0.0674
32	Ammonia	7664417	ES60	21	Other evaporative sources	Other Use of Organics.	P14	80.6778	I	Input	1197	48	POUNDS		0.0674
20	Trichloroethylene	79016	ES60	21	Other evaporative sources	Other Use of Organics.	P15	6.2682	I	Input	93	48	POUNDS		0.0674
19	Anthracene [PAH, POM]	120127	ES60	21	Other evaporative sources	Other Use of Organics.	P16	0.5392	I	Input	8	48	POUNDS		0.0674
19	Pyrene [PAH, POM]	129000	ES60	21	Other evaporative sources	Other Use of Organics.	P17	0.1685	I	Input	2.5	48	POUNDS		0.0674
19	Acenaphthene [PAH, POM]	83329	ES60	21	Other evaporative sources	Other Use of Organics.	P21	0.0674	I	Input	1	48	POUNDS		0.0674
19	Phenanthrene [PAH, POM]	85018	ES60	21	Other evaporative sources	Other Use of Organics.	P22	0.12806	I	Input	1.9	48	POUNDS		0.0674
19	Fluorene [PAH, POM]	86737	ES60	21	Other evaporative sources	Other Use of Organics.	P23	0.19546	I	Input	2.9	48	POUNDS		0.0674
19	Naphthalene [PAH, POM]	91203	ES60	21	Other evaporative sources	Other Use of Organics.	P24	2.37922	I	Input	35.3	48	POUNDS		0.0674
9	Ethylene dibromide {1,2-Dibromoethane}	106934	ES60	21	Other evaporative sources	Other Use of Organics.	P28	1.99504	I	Input	29.6	48	POUNDS		0.0674
5	Cadmium	7440439	ES60	21	Other evaporative sources	Other Use of Organics.	P44	0.256794	I	Input	3.81	48	POUNDS		0.0674
18	Perchloroethylene {Tetrachloroethene}	127184	ES60	21	Other evaporative sources	Other Use of Organics.	P73	0.8762	I	Input	13	48	POUNDS		0.0674
22	Trichlorofluoromethane {Freon 11}	75694	ES60	21	Other evaporative sources	Other Use of Organics.	P83	0.4044	I	Input	6	48	POUNDS		0.0674
22	Dichlorofluoromethane {Freon 12}	75718	ES60	21	Other evaporative sources	Other Use of Organics.	P84	0	I	Input	0	48	POUNDS		0.0674
22	Trichlorotrifluoroethane {CFC-113}	76131	ES60	21	Other evaporative sources	Other Use of Organics.	P85	0.8762	I	Input	13	48	POUNDS		0.0674
23	Methyl chloroform {1,1,1-Trichloroethane}	71556	ES60	21	Other evaporative sources	Other Use of Organics.	P86	0	I	Input	0	48	POUNDS		0.06744
14	Arsenic and Compounds (inorganic)	7440382	ES60	21	Other evaporative sources	Other Use of Organics.	P87	0	I	Input	0	48	POUNDS		0.0674
4	Butadiene [1,3]	106990	ES60	21	Other evaporative sources	Other Use of Organics.	P88	0.62008	I	Input	9.2	48	POUNDS		0.0674
15	Lead compounds (inorganic)	7439921	ES60	21	Other evaporative sources	Other Use of Organics.	P89	0.1685	I	Input	2.5	48	POUNDS		0.0674
21	Vinyl chloride	75014	ES60	21	Other evaporative sources	Other Use of Organics.	P90	0	I	Input	0	48	POUNDS		0.0674
3	Beryllium	7440417	ES60	21	Other evaporative sources	Other Use of Organics.	P91	0	I	Input	0	48	POUNDS	0	0.0674
22	Fluorocarbons (chlorinated)	1104	ES61	21	Other evaporative sources	Other Use of Organics.	P1	306.94	I	Input	306.94	48	POUNDS		1
22	Trichlorotrifluoroethane {CFC-113}	76131	ES61	21	Other evaporative sources	Other Use of Organics.	P4	0	I	Input	0	48	POUNDS		1
2	Benzene	71432	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.208295	I	Input	1118.06	100	GALLONS		0.1863
4	Butadiene [1,3]	106990	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.243066	I	Input	1118.06	100	GALLONS		0.2174
5	Cadmium	7440439	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00167709	I	Input	1118.06	100	GALLONS		0.0015
12	Formaldehyde	50000	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.92988	I	Input	1118.06	100	GALLONS		1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0001118	I	Input	1118.06	100	GALLONS		0.0001
17	Nickel	7440020	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00436043	I	Input	1118.06	100	GALLONS		0.0039
19	PAHs [PAH, POM]	1151	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0404738	I	Input	1118.06	100	GALLONS		0.0362
19	Naphthalene [PAH, POM]	91203	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0220258	I	Input	1118.06	100	GALLONS		0.0197

32	Ammonia	7664417	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	3.24237	I	Input	1118.06	100	GALLONS	2.9
14	Arsenic and Compounds (inorganic)	7440382	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0017889	I	Input	1118.06	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0092799	I	Input	1118.06	100	GALLONS	0.0083
29	Acetaldehyde	75070	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.875776	I	Input	1118.06	100	GALLONS	0.7833
30	Acrolein	107028	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0379022	I	Input	1118.06	100	GALLONS	0.0339
36	Copper	7440508	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00458405	I	Input	1118.06	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0121869	I	Input	1118.06	100	GALLONS	0.0109
44	Hexane	110543	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0300758	I	Input	1118.06	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.208295	I	Input	1118.06	100	GALLONS	0.1863
49	Manganese	7439965	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00346599	I	Input	1118.06	100	GALLONS	0.0031
50	Mercury	7439976	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00223612	I	Input	1118.06	100	GALLONS	0.002
64	Selenium	7782492	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00245973	I	Input	1118.06	100	GALLONS	0.0022
68	Toluene	108883	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.117844	I	Input	1118.06	100	GALLONS	0.1054
70	Xylenes	1330207	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0474057	I	Input	1118.06	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES47	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	37.455	I	Input	1118.06	100	GALLONS	33.5
19	PAHs [PAH, POM]	1151	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00129994	I	Input	35.91	100	GALLONS	0.0362
4	Butadiene [1,3]	106990	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00780683	I	Input	35.91	100	GALLONS	0.2174
2	Benzene	71432	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00669003	I	Input	35.91	100	GALLONS	0.1863
15	Lead compounds (inorganic)	7439921	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00029805	I	Input	35.91	100	GALLONS	0.0083
17	Nickel	7440020	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00014004	I	Input	35.91	100	GALLONS	0.0039
13	Chromium, hexavalent (and compounds)	18540299	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00000359	I	Input	35.91	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00005745	I	Input	35.91	100	GALLONS	0.0016
5	Cadmium	7440439	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00005386	I	Input	35.91	100	GALLONS	0.0015
12	Formaldehyde	50000	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0619843	I	Input	35.91	100	GALLONS	1.7261
19	Naphthalene [PAH, POM]	91203	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00070742	I	Input	35.91	100	GALLONS	0.0197
32	Ammonia	7664417	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.104139	I	Input	35.91	100	GALLONS	2.9
29	Acetaldehyde	75070	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0281283	I	Input	35.91	100	GALLONS	0.7833
30	Acrolein	107028	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00121735	I	Input	35.91	100	GALLONS	0.0339
36	Copper	7440508	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00014723	I	Input	35.91	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00039141	I	Input	35.91	100	GALLONS	0.0109
44	Hexane	110543	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00096597	I	Input	35.91	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00669003	I	Input	35.91	100	GALLONS	0.1863
49	Manganese	7439965	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00011132	I	Input	35.91	100	GALLONS	0.0031
50	Mercury	7439976	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00007182	I	Input	35.91	100	GALLONS	0.002
64	Selenium	7782492	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.000079	I	Input	35.91	100	GALLONS	0.0022
68	Toluene	108883	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00378491	I	Input	35.91	100	GALLONS	0.1054
70	Xylenes	1330207	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00152258	I	Input	35.91	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES48	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.20298	I	Input	35.91	100	GALLONS	33.5
2	Benzene	71432	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.166345	I	Input	892.89	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.194114	I	Input	892.89	100	GALLONS	0.2174
5	Cadmium	7440439	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00133934	I	Input	892.89	100	GALLONS	0.0015
12	Formaldehyde	50000	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.54122	I	Input	892.89	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00008928	I	Input	892.89	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00142862	I	Input	892.89	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00741099	I	Input	892.89	100	GALLONS	0.0083
17	Nickel	7440020	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00348227	I	Input	892.89	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0323226	I	Input	892.89	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0175899	I	Input	892.89	100	GALLONS	0.0197
32	Ammonia	7664417	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	2.58938	I	Input	892.89	100	GALLONS	2.9
29	Acetaldehyde	75070	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.699401	I	Input	892.89	100	GALLONS	0.7833
30	Acrolein	107028	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.030269	I	Input	892.89	100	GALLONS	0.0339
36	Copper	7440508	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00366085	I	Input	892.89	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0097325	I	Input	892.89	100	GALLONS	0.0109
44	Hexane	110543	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0240187	I	Input	892.89	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.166345	I	Input	892.89	100	GALLONS	0.1863
49	Manganese	7439965	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00276796	I	Input	892.89	100	GALLONS	0.0031
50	Mercury	7439976	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00178578	I	Input	892.89	100	GALLONS	0.002
64	Selenium	7782492	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00196436	I	Input	892.89	100	GALLONS	0.0022
68	Toluene	108883	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0941106	I	Input	892.89	100	GALLONS	0.1054
70	Xylenes	1330207	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0378585	I	Input	892.89	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES65	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	29.9118	I	Input	892.89	100	GALLONS	33.5
2	Benzene	71432	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.214426	I	Input	1150.97	100	GALLONS	0.1863
4	Butadiene [1,3]	106990	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.250221	I	Input	1150.97	100	GALLONS	0.2174
5	Cadmium	7440439	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00172646	I	Input	1150.97	100	GALLONS	0.0015
12	Formaldehyde	50000	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	1.98669	I	Input	1150.97	100	GALLONS	1.7261
13	Chromium, hexavalent (and compounds)	18540299	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00011509	I	Input	1150.97	100	GALLONS	0.0001
14	Arsenic and Compounds (inorganic)	7440382	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00184155	I	Input	1150.97	100	GALLONS	0.0016
15	Lead compounds (inorganic)	7439921	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00955305	I	Input	1150.97	100	GALLONS	0.0083
17	Nickel	7440020	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00448878	I	Input	1150.97	100	GALLONS	0.0039
19	PAHs [PAH, POM]	1151	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0416651	I	Input	1150.97	100	GALLONS	0.0362
19	Naphthalene [PAH, POM]	91203	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0226741	I	Input	1150.97	100	GALLONS	0.0197
32	Ammonia	7664417	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	3.33781	I	Input	1150.97	100	GALLONS	2.9
29	Acetaldehyde	75070	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.901555	I	Input	1150.97	100	GALLONS	0.7833
30	Acrolein	107028	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0390179	I	Input	1150.97	100	GALLONS	0.0339
36	Copper	7440508	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00471898	I	Input	1150.97	100	GALLONS	0.0041
40	Ethyl benzene	100414	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0125456	I	Input	1150.97	100	GALLONS	0.0109
44	Hexane	110543	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0309611	I	Input	1150.97	100	GALLONS	0.0269
46	Hydrochloric acid	7647010	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.214426	I	Input	1150.97	100	GALLONS	0.1863
49	Manganese	7439965	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00356801	I	Input	1150.97	100	GALLONS	0.0031
50	Mercury	7439976	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00230194	I	Input	1150.97	100	GALLONS	0.002
64	Selenium	7782492	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.00253213	I	Input	1150.97	100	GALLONS	0.0022
68	Toluene	108883	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.121312	I	Input	1150.97	100	GALLONS	0.1054
70	Xylenes	1330207	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	0.0488011	I	Input	1150.97	100	GALLONS	0.0424
72	Diesel exhaust particulates	9901	ES66	11c	Stationary I.C. Engines, 4 Stroke-Lean Burn	Internal Combustion	P1	38.5575	I	Input	1150.97	100	GALLONS	33.5
19	2-Methyl naphthalene [PAH, POM]	91576	ES60	21	Other evaporative sources	Other Use of Organics.	P82	0.1348	I	Input	2	48	POUNDS	0.0674
69	Urethane {Ethyl carbamate}	51796	ES60	21	Other evaporative sources	Other Use of Organics.	P92	0.21568	I	Input	3.2	48	POUNDS	0.0674
43	Lindane {gamma-Hexachlorocyclohexane}	58899	ES60	21	Other evaporative sources	Other Use of Organics.	P93	0.01348	I	Input	0.2	48	POUNDS	0.0674
51	Methanol	67561	ES60	21	Other evaporative sources	Other Use of Organics.	P94	307.209	I	Input	4558	48	POUNDS	0.0674
35	Chloroform	67663	ES60	21	Other evaporative sources	Other Use of Organics.	P95	157.446	I	Input	2336	48	POUNDS	0.0674
62	Propylene oxide	75569	ES60	21	Other evaporative sources	Other Use of Organics.	P96	0.9436	I	Input	14	48	POUNDS	0.0674
25	1,1,2-Trichloroethane {Vinyl trichloride}	79005	ES60	21	Other evaporative sources	Other Use of Organics.	P97	0.2696	I	Input	4	48	POUNDS	0.0674
24	1,1,2,2-Tetrachloroethane	79345	ES60	21	Other evaporative sources	Other Use of Organics.	P98	0.5392	I	Input	8	48	POUNDS	0.0674
48	Methylene diphenyl diisocyanate {MDI} [POM]	101688	ES60	21	Other evaporative sources	Other Use of Organics.	P99	0.08088	I	Input	1.2	48	POUNDS	0.0674
61	4,4'-Methylenedianiline {and its dichloride} [POM]	101779	ES60	21	Other evaporative sources	Other Use of Organics.	P100	0.06066	I	Input	0.9	48	POUNDS	0.0674
57	p-Dichlorobenzene {1,4-Dichlorobenzene}	106467	ES60	21	Other evaporative sources	Other Use of Organics.	P101	0.4044	I	Input	6	48	POUNDS	0.0674
30	Acrolein	107028	ES60	21	Other evaporative sources	Other Use of Organics.	P102	0.345088	I	Input	5.12	48	POUNDS	0.0674
31	Acrylonitrile	107131	ES60	21	Other evaporative sources	Other Use of Organics.	P103	0.34374	I	Input	5.1	48	POUNDS	0.0674
54	Methyl isobutyl ketone {Hexone}	108101	ES60	21	Other evaporative sources	Other Use of Organics.	P104	3.9766	I	Input	59	48	POUNDS	0.0674
68	Toluene	108883	ES60	21	Other evaporative sources	Other Use of Organics.	P105	70.8374	I	Input	1051	48	POUNDS	0.0674
41	Ethylene glycol monomethyl ether	109864	ES60	21	Other evaporative sources	Other Use of Organics.	P106	1.011	I	Input	15	48	POUNDS	0.0674
44	Hexane	110543	ES60	21	Other evaporative sources	Other Use of Organics.	P107	103.055	I	Input	1529	48	POUNDS	0.0674
41	Ethylene glycol dimethyl ether	110714	ES60	21	Other evaporative sources	Other Use of Organics.	P108	6.74	I	Input	100	48	POUNDS	0.0674
41	Ethylene glycol monoethyl ether	110805	ES60	21	Other evaporative sources	Other Use of Organics.	P109	5.9312	I	Input	88	48	POUNDS	0.0674
41	Triethylene glycol dimethyl ether	112492	ES60	21	Other evaporative sources	Other Use of Organics.	P110	9.0316	I	Input	134	48	POUNDS	0.0674
42	Hexachlorobenzene	118741	ES60	21	Other evaporative sources	Other Use of Organics.	P111	0.02696	I	Input	0.4	48	POUNDS	0.0674
19	Acenaphthylene [PAH, POM]	208968	ES60	21	Other evaporative sources	Other Use of Organics.	P112	0.0337	I	Input	0.5	48	POUNDS	0.0674
45	Hydrazine	302012	ES60	21	Other evaporative sources	Other Use of Organics.	P113	0.196808	I	Input	2.92	48	POUNDS	0.0674
43	alpha-Hexachlorocyclohexane	319846	ES60	21	Other evaporative sources	Other Use of Organics.	P114	0.07414	I	Input	1.1	48	POUNDS	0.0674
48	Hexamethylene-1,6-diisocyanate	822060	ES60	21	Other evaporative sources	Other Use of Organics.	P115	0.004044	I	Input	0.06	48	POUNDS	0.0674
65	Sodium hydroxide	1310732	ES60	21	Other evaporative sources	Other Use of Organics.	P116	80.4756	I	Input	1194	48	POUNDS	0.0674

60	Phosphorus pentoxide	1314563	ES60	21	Other evaporative sources	Other Use of Organics.	P117	0	I	Input	0	48	POUNDS	0.0674
70	Xylenes	1330207	ES60	21	Other evaporative sources	Other Use of Organics.	P118	37.5418	I	Input	557	48	POUNDS	0.0674
49	Manganese	7439965	ES60	21	Other evaporative sources	Other Use of Organics.	P119	0.10784	I	Input	1.6	48	POUNDS	0.0674
50	Mercury	7439976	ES60	21	Other evaporative sources	Other Use of Organics.	P120	1.011	I	Input	15	48	POUNDS	0.0674
17	Nickel	7440020	ES60	21	Other evaporative sources	Other Use of Organics.	P121	0.06066	I	Input	0.9	48	POUNDS	0.0674
36	Copper	7440508	ES60	21	Other evaporative sources	Other Use of Organics.	P122	1.30756	I	Input	19.4	48	POUNDS	0.0674
50	Mercuric chloride	7487947	ES60	21	Other evaporative sources	Other Use of Organics.	P123	0.8088	I	Input	12	48	POUNDS	0.0674
37	Crystalline silica	7631869	ES60	21	Other evaporative sources	Other Use of Organics.	P124	0.39092	I	Input	5.8	48	POUNDS	0.0674
46	Hydrochloric acid	7647010	ES60	21	Other evaporative sources	Other Use of Organics.	P125	583.414	I	Input	8656	48	POUNDS	0.0674
60	Phosphoric acid	7664382	ES60	21	Other evaporative sources	Other Use of Organics.	P126	46.3038	I	Input	687	48	POUNDS	0.0674
73	Hydrogen fluoride (hydrofluoric acid)	7664393	ES60	21	Other evaporative sources	Other Use of Organics.	P127	10.11	I	Input	150	48	POUNDS	0.0674
67	Sulfuric acid	7664939	ES60	21	Other evaporative sources	Other Use of Organics.	P128	61.671	I	Input	915	48	POUNDS	0.0674
59	Phosphorus	7723140	ES60	21	Other evaporative sources	Other Use of Organics.	P129	0	I	Input	0	48	POUNDS	0.0674
64	Selenium	7782492	ES60	21	Other evaporative sources	Other Use of Organics.	P130	0.14828	I	Input	2.2	48	POUNDS	0.0674
34	Chlorine	7782505	ES60	21	Other evaporative sources	Other Use of Organics.	P131	0.0674	I	Input	1	48	POUNDS	0.0674
67	Oleum	8014957	ES60	21	Other evaporative sources	Other Use of Organics.	P132	0.96382	I	Input	14.3	48	POUNDS	0.0674
60	Phosphorus pentachloride	10026138	ES60	21	Other evaporative sources	Other Use of Organics.	P133	0	I	Input	0	48	POUNDS	0.0674

Appendix B

Baseline and Future Scenario Emissions Tables

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Table B-1 Emissions from Existing Campus Kitchens – Baseline Scenario

Pollutant	Emissions	
	Annual (lbs/year)	Hourly (lbs/hour)[1]
Lothian Residence Hall		
Acetaldehyde	0.0056	1.29×10^{-6}
Acrolein	0.0035	8.08×10^{-7}
Ammonia	23.58	0.0054
Benzene	0.010	2.39×10^{-6}
Ethyl benzene	0.012	2.84×10^{-6}
Formaldehyde	0.022	5.08×10^{-6}
Hexane	0.0083	1.88×10^{-6}
Naphthalene	0.00039	8.97×10^{-8}
Polycyclic aromatic hydrocarbons (PAHs)	0.00013	2.99×10^{-8}
Toluene	0.048	1.09×10^{-5}
Xylenes	0.036	8.14×10^{-6}
Aberdeen-Inverness Residence Hall		
Acetaldehyde	0.0057	1.30×10^{-6}
Acrolein	0.0036	8.14×10^{-7}
Ammonia	23.76	0.0054
Benzene	0.011	2.41×10^{-6}
Ethyl benzene	0.013	2.86×10^{-6}
Formaldehyde	0.022	5.12×10^{-6}
Hexane	0.0083	1.90×10^{-6}
Naphthalene	0.00040	9.04×10^{-8}
Polycyclic aromatic hydrocarbons (PAHs)	0.00013	3.01×10^{-8}
Toluene	0.048	1.10×10^{-5}
Xylenes	0.036	8.20×10^{-6}

lbs = pounds

[1] Hourly emissions assume natural gas-fired kitchen equipment operates 12 hours per day, 365 days per year.

Table B-2 Emissions from New Campus Kitchens – Future Scenario

	Emissions	
Pollutant	Annual (lbs/year)[2]	Hourly (lbs/hour)[3]
Glasgow Dining Hall[1]		
Acetaldehyde	0.0093	2.13×10^{-6}
Acrolein	0.0059	1.34×10^{-6}
Ammonia	39.11	0.0089
Benzene	0.017	3.97×10^{-6}
Ethyl benzene	0.021	4.71×10^{-6}
Formaldehyde	0.037	8.43×10^{-6}
Hexane	0.014	3.12×10^{-6}
Naphthalene	0.00065	1.49×10^{-7}
Polycyclic aromatic hydrocarbons (PAHs)	0.00022	4.96×10^{-8}
Toluene	0.080	1.82×10^{-5}
Xylenes	0.059	1.35×10^{-5}
The Barn[1]		
Acetaldehyde	0.0039	1.58×10^{-6}
Acrolein	0.0025	9.95×10^{-7}
Ammonia	16.38	0.0066
Benzene	0.0073	2.95×10^{-6}
Ethyl benzene	0.0086	3.50×10^{-6}
Formaldehyde	0.015	6.26×10^{-6}
Hexane	0.0057	2.32×10^{-6}
Naphthalene	0.00027	1.11×10^{-7}
Polycyclic aromatic hydrocarbons (PAHs)	9.10×10^{-5}	3.68×10^{-8}
Toluene	0.033	1.35×10^{-5}
Xylenes	0.025	1.00×10^{-5}

lbs = pounds

[1] Glasgow Dining Facility and The Barn are the only new kitchen sources included in the future scenario emissions and health risk modeling. Under the future scenario, Lothian Residence Hall Dining Facility emissions were assumed to remain the same, and Aberdeen-Inverness Residence Hall Dining Facility emissions were assumed to cease upon decommissioning of the kitchen.

[2] Annual emissions for Glasgow Dining Hall are based on baseline emissions from Aberdeen-Inverness Residence Hall Dining Facility, multiplied by a growth factor of 64.6 percent, commensurate with the overall anticipated increase in residential dining seats under the proposed 2021 Long Range Development Plan (1,172 seats in 2018 to 1,929 seats in 2035). Annual emissions from The Barn are based on the restaurant's estimated natural gas fuel consumption provided by the California Emissions Estimator Model (0.9099 million standard cubic feet per year), multiplied by emissions factors for natural gas combustion contained in the 2019 Annual Emissions Report.

[3] Hourly emissions for Glasgow Dining Facility assume natural gas-fired kitchen equipment operates 12 hours per day, 365 days per year. Hourly emissions for The Barn are based on current operating hours of 11:30 a.m. to 7:00 p.m., Monday through Friday, and assume kitchens may operate up to one hour before opening and after closing.

Table B-3 Diesel Emergency Generator Emissions – Baseline Scenario

Source[1]	Fuel Use (MGal/ year)	Acetaldehyde		Acrolein		Ammonia		Arsenic Compounds		Benzene		1,3-Butadiene		Cadmium		Chromium (VI)		Copper		Diesel PM		Ethylbenzene	
		A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H
Chemical Sciences	0.20	0.15	3.1×10^{-3}	6.7×10^{-3}	1.3×10^{-4}	0.57	1.1×10^{-2}	3.2×10^{-4}	6.3×10^{-6}	3.7×10^{-2}	7.3×10^{-4}	4.3×10^{-2}	8.6×10^{-4}	3.0×10^{-4}	5.9×10^{-6}	2.0×10^{-5}	3.9×10^{-7}	8.1×10^{-4}	1.6×10^{-5}	6.61	0.13	2.1×10^{-3}	4.3×10^{-5}
School of Medicine - Education	0.36	0.28	5.6×10^{-3}	1.2×10^{-2}	2.4×10^{-4}	1.04	2.1×10^{-2}	5.7×10^{-4}	1.1×10^{-5}	6.7×10^{-2}	1.3×10^{-3}	7.8×10^{-2}	1.6×10^{-3}	5.4×10^{-4}	1.1×10^{-5}	3.6×10^{-5}	7.2×10^{-7}	1.5×10^{-3}	2.9×10^{-5}	12.0	0.24	3.9×10^{-3}	7.8×10^{-5}
Campus Data Center	5.9×10^{-2}	4.6×10^{-2}	9.3×10^{-4}	2.0×10^{-3}	4.0×10^{-5}	0.17	3.4×10^{-3}	9.5×10^{-5}	1.9×10^{-6}	1.1×10^{-2}	2.2×10^{-4}	1.3×10^{-2}	2.6×10^{-4}	8.9×10^{-5}	1.8×10^{-6}	5.9×10^{-6}	1.2×10^{-7}	2.4×10^{-4}	4.9×10^{-6}	1.98	4.0×10^{-2}	6.5×10^{-4}	1.3×10^{-5}
Boyce Hall	0.27	2.1×10^{-2}	4.2×10^{-4}	9.1×10^{-4}	1.8×10^{-5}	7.8×10^{-2}	1.6×10^{-3}	4.3×10^{-5}	8.6×10^{-7}	5.0×10^{-3}	1.0×10^{-4}	5.9×10^{-3}	1.2×10^{-4}	4.0×10^{-5}	8.1×10^{-7}	2.7×10^{-6}	5.4×10^{-8}	1.1×10^{-4}	2.2×10^{-6}	0.90	1.8×10^{-2}	2.9×10^{-4}	5.9×10^{-6}
Biological Sciences	0.18	0.14	2.8×10^{-3}	6.0×10^{-3}	1.2×10^{-4}	0.51	1.0×10^{-2}	2.8×10^{-4}	5.7×10^{-6}	3.3×10^{-2}	6.6×10^{-4}	3.9×10^{-2}	7.7×10^{-4}	2.7×10^{-4}	5.3×10^{-6}	1.8×10^{-5}	3.6×10^{-7}	7.3×10^{-4}	1.5×10^{-5}	5.95	0.12	1.9×10^{-3}	3.9×10^{-5}
Rivera Library	0.32	0.25	8.3×10^{-3}	1.1×10^{-2}	3.6×10^{-4}	0.92	3.1×10^{-2}	5.1×10^{-4}	1.7×10^{-5}	5.9×10^{-2}	2.0×10^{-3}	6.9×10^{-2}	2.3×10^{-3}	4.8×10^{-4}	1.6×10^{-5}	3.2×10^{-5}	1.1×10^{-6}	1.3×10^{-3}	4.3×10^{-5}	10.6	0.35	3.5×10^{-3}	1.2×10^{-4}
Genomics East	7.0×10^{-2}	5.5×10^{-2}	1.1×10^{-3}	2.4×10^{-3}	4.7×10^{-5}	0.20	4.1×10^{-3}	1.1×10^{-4}	2.2×10^{-6}	1.3×10^{-2}	2.6×10^{-4}	1.5×10^{-2}	3.0×10^{-4}	1.0×10^{-4}	2.1×10^{-6}	7.0×10^{-6}	1.4×10^{-7}	2.9×10^{-4}	5.7×10^{-6}	2.34	4.7×10^{-2}	7.6×10^{-4}	1.5×10^{-5}
School of Medicine – Research	0.12	9.7×10^{-2}	1.9×10^{-3}	4.2×10^{-3}	8.4×10^{-5}	0.36	7.2×10^{-3}	2.0×10^{-4}	4.0×10^{-6}	2.3×10^{-2}	4.6×10^{-4}	2.7×10^{-2}	5.4×10^{-4}	1.9×10^{-4}	3.7×10^{-6}	1.2×10^{-5}	2.5×10^{-7}	5.1×10^{-4}	1.0×10^{-5}	4.14	8.3×10^{-2}	1.3×10^{-3}	2.7×10^{-5}
Psychology	4.3×10^{-2}	3.4×10^{-2}	6.7×10^{-4}	1.5×10^{-3}	2.9×10^{-5}	0.12	2.5×10^{-3}	6.8×10^{-5}	1.4×10^{-6}	8.0×10^{-3}	1.6×10^{-4}	9.3×10^{-3}	1.9×10^{-4}	6.4×10^{-5}	1.3×10^{-6}	4.3×10^{-6}	8.5×10^{-8}	1.8×10^{-4}	3.5×10^{-6}	1.43	2.9×10^{-2}	4.7×10^{-4}	9.3×10^{-6}
Hinderaker Hall	0.55	0.43	8.6×10^{-3}	1.9×10^{-2}	3.7×10^{-4}	1.60	3.2×10^{-2}	8.8×10^{-4}	1.8×10^{-5}	0.10	2.1×10^{-3}	0.12	2.4×10^{-3}	8.3×10^{-4}	1.7×10^{-5}	5.5×10^{-5}	1.1×10^{-6}	2.3×10^{-3}	4.5×10^{-5}	18.4	0.37	6.0×10^{-3}	1.2×10^{-4}
Telecommunications	0.12	9.3×10^{-2}	1.9×10^{-3}	4.0×10^{-3}	8.1×10^{-5}	0.34	6.9×10^{-3}	1.9×10^{-4}	3.8×10^{-6}	2.2×10^{-2}	4.4×10^{-4}	2.6×10^{-2}	5.2×10^{-4}	1.8×10^{-4}	3.6×10^{-6}	1.2×10^{-5}	2.4×10^{-7}	4.9×10^{-4}	9.7×10^{-6}	3.98	8.0×10^{-2}	1.3×10^{-3}	2.6×10^{-5}
Police Station	0.10	7.8×10^{-2}	3.9×10^{-3}	3.4×10^{-3}	1.7×10^{-4}	0.29	1.4×10^{-2}	1.6×10^{-4}	8.0×10^{-6}	1.9×10^{-2}	9.3×10^{-4}	2.2×10^{-2}	1.1×10^{-3}	1.5×10^{-4}	7.5×10^{-6}	1.0×10^{-5}	5.0×10^{-7}	4.1×10^{-4}	2.0×10^{-5}	3.34	0.17	1.1×10^{-3}	5.4×10^{-5}
Materials Science & Engineering	0.51	0.40	7.9×10^{-3}	1.7×10^{-2}	3.4×10^{-4}	1.47	2.9×10^{-2}	8.1×10^{-4}	1.6×10^{-5}	9.4×10^{-2}	1.9×10^{-3}	0.11	2.2×10^{-3}	7.6×10^{-4}	1.5×10^{-5}	5.1×10^{-5}	1.0×10^{-6}	2.1×10^{-3}	4.1×10^{-5}	17.0	0.34	5.5×10^{-3}	1.1×10^{-4}
Bourns Hall	1.71	1.34	2.7×10^{-2}	5.8×10^{-2}	1.2×10^{-3}	4.96	9.9×10^{-2}	2.7×10^{-3}	5.5×10^{-5}	0.32	6.4×10^{-3}	0.37	7.4×10^{-3}	2.6×10^{-3}	5.1×10^{-5}	1.7×10^{-4}	3.4×10^{-6}	7.0×10^{-3}	1.4×10^{-4}	57.3	1.15	1.9×10^{-2}	3.7×10^{-4}
Science Library W.	6.0×10^{-2}	4.7×10^{-2}	1.6×10^{-3}	2.0×10^{-3}	6.8×10^{-5}	0.17	5.8×10^{-3}	9.6×10^{-5}	3.2×10^{-6}	1.1×10^{-2}	3.7×10^{-4}	1.3×10^{-2}	4.3×10^{-4}	9.0×10^{-5}	3.0×10^{-6}	6.0×10^{-6}	2.0×10^{-7}	2.5×10^{-4}	8.2×10^{-6}	2.01	6.7×10^{-2}	6.5×10^{-4}	2.2×10^{-5}
Geology North	0.93	0.73	1.5×10^{-2}	3.1×10^{-2}	6.3×10^{-4}	2.69	5.4×10^{-2}	1.5×10^{-3}	3.0×10^{-5}	0.17	3.5×10^{-3}	0.20	4.0×10^{-3}	1.4×10^{-3}	2.8×10^{-5}	9.3×10^{-5}	1.9×10^{-6}	3.8×10^{-3}	7.6×10^{-5}	31.1	0.62	1.0×10^{-2}	2.0×10^{-4}
Pierce Hall	1.32	1.03	3.4×10^{-2}	4.5×10^{-2}	1.5×10^{-3}	3.83	0.13	2.1×10^{-3}	7.0×10^{-5}	0.25	8.2×10^{-3}	0.29	9.6×10^{-3}	2.0×10^{-3}	6.6×10^{-5}	1.3×10^{-4}	4.4×10^{-6}	5.4×10^{-3}	1.8×10^{-4}	44.2	1.47	1.4×10^{-2}	4.8×10^{-4}
Physical Plant Storehouse	0.37	0.29	5.8×10^{-3}	1.2×10^{-2}	2.5×10^{-4}	1.07	2.1×10^{-2}	5.9×10^{-4}	1.2×10^{-5}	6.8×10^{-2}	1.4×10^{-3}	8.0×10^{-2}	1.6×10^{-3}	5.5×10^{-4}	1.1×10^{-5}	3.7×10^{-5}	7.4×10^{-7}	1.5×10^{-3}	3.0×10^{-5}	12.3	2.5 x 10-1	4.0×10^{-3}	8.0×10^{-5}
Physical Plant Butler West	0.66	0.52	1.7×10^{-2}	2.2×10^{-2}	7.5×10^{-4}	1.91	6.4×10^{-2}	1.1×10^{-3}	3.5×10^{-5}	0.12	4.1×10^{-3}	0.14	4.8×10^{-3}	9.9×10^{-4}	3.3×10^{-5}	6.6×10^{-5}	2.2×10^{-6}	2.7×10^{-3}	9.0×10^{-5}	22.1	0.74	7.2×10^{-3}	2.4×10^{-4}
Fine Arts	8.0×10^{-2}	6.3×10^{-2}	1.3×10^{-3}	2.7×10^{-3}	5.4×10^{-5}	0.23	4.6×10^{-3}	1.3×10^{-4}	2.6×10^{-6}	1.5×10^{-2}	3.0×10^{-4}	1.7×10^{-2}	3.5×10^{-4}	1.2×10^{-4}	2.4×10^{-6}	8.0×10^{-6}	1.6×10^{-7}	3.3×10^{-4}	6.6×10^{-6}	2.68	5.4×10^{-2}	8.7×10^{-4}	1.7×10^{-5}
New Humanities and Social Sciences Bldg.	1.8×10^{-2}	1.4×10^{-2}	4.6×10^{-4}	6.0×10^{-4}	2.0×10^{-5}	5.1×10^{-2}	1.7×10^{-3}	2.8×10^{-5}	9.5×10^{-7}	3.3×10^{-3}	1.1×10^{-4}	3.9×10^{-3}	1.3×10^{-4}	2.7×10^{-5}	8.9×10^{-7}	1.8×10^{-6}	5.9×10^{-8}	7.3×10^{-5}	2.4×10^{-6}	0.59	2.0×10^{-2}	1.9×10^{-4}	6.4×10^{-6}
Env. Health & Safety South	8.7×10^{-3}	6.8×10^{-3}	3.4×10^{-4}	2.9×10^{-4}	1.5×10^{-5}	2.5×10^{-2}	1.3×10^{-3}	1.4×10^{-5}	6.9×10^{-7}	1.6×10^{-3}	8.1×10^{-5}	1.9×10^{-3}	9.4×10^{-5}	1.3×10^{-5}	6.5×10^{-7}	8.6×10^{-7}	4.3×10^{-8}	3.6×10^{-5}	1.8×10^{-6}	0.29	1.5×10^{-2}	9.5×10^{-5}	4.7×10^{-6}
I&Q	0.16	0.12	4.1×10^{-3}	5.3×10^{-3}	1.8×10^{-4}	0.45	1.5×10^{-2}	2.5×10^{-4}	8.3×10^{-6}	2.9×10^{-2}	9.7×10^{-4}	3.4×10^{-2}	1.1×10^{-3}	2.3×10^{-4}	7.8×10^{-6}	1.6×10^{-5}	5.2×10^{-7}	6.4×10^{-4}	2.1×10^{-5}	5.22	0.17	1.7×10^{-3}	5.7×10^{-5}
Vivarium	1.2×10^{-2}	9.1×10^{-3}	3.0×10^{-4}	3.9×10^{-4}	1.3×10^{-5}	3.4×10^{-2}	1.1×10^{-3}	1.9×10^{-5}	6.2×10^{-7}	2.2×10^{-3}	7.2×10^{-5}	2.5×10^{-3}	8.4×10^{-5}	1.7×10^{-5}	5.8×10^{-7}	1.2×10^{-6}	3.9×10^{-8}	4.8×10^{-5}	1.6×10^{-6}	0.39	1.3×10^{-2}	1.3×10^{-4}	4.2×10^{-6}
Entomology	7.8×10^{-2}	6.1×10^{-2}	2.0×10^{-3}	2.6×10^{-3}	8.8×10^{-5}	0.22	7.5×10^{-3}	1.2×10^{-4}	4.1×10^{-6}	1.4×10^{-2}	4.8×10^{-4}	1.7×10^{-2}	5.6×10^{-4}	1.2×10^{-4}	3.9×10^{-6}	7.8×10^{-6}	2.6×10^{-7}	3.2×10^{-4}	1.1×10^{-5}	2.60	8.7×10^{-2}	8.5×10^{-4}	2.8×10^{-5}
Steam Plant	7.8×10^{-2}	6.1×10^{-2}	2.0×10^{-3}	2.7×10^{-3}	8.9×10^{-5}	0.23	7.6×10^{-3}	1.3×10^{-4}	4.2×10^{-6}	1.5×10^{-2}	4.9×10^{-4}	1.7×10^{-2}	5.7×10^{-4}	1.2×10^{-4}	3.9×10^{-6}	7.8×10^{-6}	2.6×10^{-7}	3.2×10^{-4}	1.1×10^{-5}	2.63	8.8×10^{-2}	8.5×10^{-4}	2.8×10^{-5}
UCR Extension W.	0.26	2.0×10^{-2}	4.0×10^{-4}	8.7×10^{-4}	1.7×10^{-5}	7.4×10^{-2}	1.5×10^{-3}	4.1×10^{-5}	8.2×10^{-7}	4.8×10^{-3}	9.6×10^{-5}	5.6×10^{-3}	1.1×10^{-4}	3.8×10^{-5}	7.7×10^{-7}	2.6×10^{-6}	5.1×10^{-8}	1.1×10^{-4}	2.1×10^{-6}	0.86	1.7×10^{-2}	2.8×10^{-4}	5.6×10^{-6}
Physics	1.05	0.82	2.7×10^{-2}	3.6×10^{-2}	1.2×10^{-3}	3.05	0.10	1.7×10^{-3}	5.6×10^{-5}	0.20	6.5×10^{-3}	0.23	7.6×10^{-3}	1.6×10^{-3}	5.3×10^{-5}	1.1×10^{-4}	3.5×10^{-6}	4.3×10^{-3}	1.4×10^{-4}	35.2	1.2e+00	1.1×10^{-2}	3.8×10^{-4}
Glen Mor 1	1.12	0.88	1.8×10^{-2}	3.8×10^{-2}	7.6×10^{-4}	3.24	6.5×10^{-2}	1.8×10^{-3}	3.6×10^{-5}	0.21	4.2×10^{-3}	0.24	4.9×10^{-3}	1.7×10^{-3}	3.4×10^{-5}	1.1×10^{-4}	2.2×10^{-6}	4.6×10^{-3}	9.2×10^{-5}	37.5	0.75	1.2×10^{-2}	2.4×10^{-4}
Glen Mor 2	3.6×10^{-2}	2.8×10^{-2}	5.6×10^{-4}	1.2×10^{-3}	2.4×10^{-5}	0.10	2.1×10^{-3}	5.7×10^{-5}	1.1×10^{-6}	6.7×10^{-3}	1.3×10^{-4}	7.8×10^{-3}	1.6×10^{-4}	5.4×10^{-5}	1.1×10^{-6}	3.6×10^{-6}	7.2×10^{-8}	1.5×10^{-4}	2.9×10^{-6}	1.20	2.4×10^{-2}	3.9×10^{-4}	7.8×10^{-6}
Env. Health & Safety	0.89	0.70	1.4×10^{-2}	3.0×10^{-2}	6.1×10^{-4}	2.59	5.2×10^{-2}	1.4×10^{-3}	2.9×10^{-5}	0.17	3.3×10^{-3}	0.19	3.9×10^{-3}	1.3×10^{-3}	2.7×10^{-5}	8.9×10^{-5}	1.8×10^{-6}	3.7×10^{-3}	7.3×10^{-5}	29.9	0.60	9.7×10^{-3}	1.9×10^{-4}
MRB 1	1.15	0.90	1.8×10^{-2}	3.9×10^{-2}	7.8×10^{-4}	3.34	6.7×10^{-2}	1.8×10^{-3}	3.7×10^{-5}	0.21	4.3×10^{-3}	0.25	5.0×10^{-3}	1.7×10^{-3}	3.5×10^{-5}	1.2×10^{-4}	2.3×10^{-6}	4.7×10^{-3}	9.4×10^{-5}	38.6	0.77	1.3×10^{-2}	2.5×10^{-4}

	Formaldehyde		Hexane		Hydrochloric Acid		Lead Compounds		Manganese		Mercury		Naphthalene		Nickel		PAHs		Selenium		Toluene		Xylenes	
Source[1]	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H
Chemical Sciences	0.34	6.8×10^{-3}	5.3×10^{-3}	1.1×10^{-4}	3.7×10^{-2}	7.3×10^{-4}	1.6×10^{-3}	3.3×10^{-5}	6.1×10^{-4}	1.2×10^{-5}	3.9×10^{-4}	7.9×10^{-6}	3.9×10^{-3}	7.8×10^{-5}	7.7×10^{-4}	1.5×10^{-5}	7.1×10^{-3}	1.4×10^{-4}	4.3×10^{-4}	8.7×10^{-6}	2.1×10^{-2}	4.2×10^{-4}	8.4×10^{-3}	1.7×10^{-4}
School of Medicine – Education	0.62	1.2×10^{-2}	9.6×10^{-3}	1.9×10^{-4}	6.7×10^{-2}	1.3×10^{-3}	3.0×10^{-3}	5.9×10^{-5}	1.1×10^{-3}	2.2×10^{-5}	7.2×10^{-4}	1.4×10^{-5}	7.0×10^{-3}	1.4×10^{-4}	1.4×10^{-3}	2.8×10^{-5}	1.3×10^{-2}	2.6×10^{-4}	7.9×10^{-4}	1.6×10^{-5}	3.8×10^{-2}	7.5×10^{-4}	1.5×10^{-2}	3.0×10^{-4}
Campus Data Center	0.10	2.0×10^{-3}	1.6×10^{-3}	3.2×10^{-5}	1.1×10^{-2}	2.2×10^{-4}	4.9×10^{-4}	9.8×10^{-6}	1.8×10^{-4}	3.7×10^{-6}	1.2×10^{-4}	2.4×10^{-6}	1.2×10^{-3}	2.3×10^{-5}	2.3×10^{-4}	4.6×10^{-6}	2.1×10^{-3}	4.3×10^{-5}	1.3×10^{-4}	2.6×10^{-6}	6.2×10^{-3}	1.2×10^{-4}	2.5×10^{-3}	5.0×10^{-5}
Boyce Hall	4.7×10^{-2}	9.3×10^{-4}	7.2×10^{-4}	1.4×10^{-5}	5.0×10^{-3}	1.0×10^{-4}	2.2×10^{-4}	4.5×10^{-6}	8.4×10^{-5}	1.7×10^{-6}	5.4×10^{-5}	1.1×10^{-6}	5.3×10^{-4}	1.1×10^{-5}	1.1×10^{-4}	2.1×10^{-6}	9.8×10^{-4}	2.0×10^{-5}	5.9×10^{-5}	1.2×10^{-6}	2.8×10^{-3}	5.7×10^{-5}	1.1×10^{-3}	2.3×10^{-5}
Biological Sciences	0.31	6.1×10^{-3}	4.8×10^{-3}	9.5×10^{-5}	3.3×10^{-2}	6.6×10^{-4}	1.5×10^{-3}	2.9×10^{-5}	5.5×10^{-4}	1.1×10^{-5}	3.6×10^{-4}	7.1×10^{-6}	3.5×10^{-3}	7.0×10^{-5}	6.9×10^{-4}	1.4×10^{-5}	6.4×10^{-3}	1.3×10^{-4}	3.9×10^{-4}	7.8×10^{-6}	1.9×10^{-2}	3.7×10^{-4}	7.5×10^{-3}	1.5×10^{-4}
Rivera Library	0.55	1.8×10^{-2}	8.5×10^{-3}	2.8×10^{-4}	5.9×10^{-2}	2.0×10^{-3}	2.6×10^{-3}	8.8×10^{-5}	9.8×10^{-4}	3.3×10^{-5}	6.3×10^{-4}	2.1×10^{-5}	6.2×10^{-3}	2.1×10^{-4}	1.2×10^{-3}	4.1×10^{-5}	1.1×10^{-2}	3.8×10^{-4}	7.0×10^{-4}	2.3×10^{-5}	3.3×10^{-2}	1.1×10^{-3}	1.3×10^{-2}	4.5×10^{-4}
Genomics East	0.12	2.4×10^{-3}	1.9×10^{-3}	3.8×10^{-5}	1.3×10^{-2}	2.6×10^{-4}	5.8×10^{-4}	1.2×10^{-5}	2.2×10^{-4}	4.3×10^{-6}	1.4×10^{-4}	2.8×10^{-6}	1.4×10^{-3}	2.8×10^{-5}	2.7×10^{-4}	5.5×10^{-6}	2.5×10^{-3}	5.1×10^{-5}	1.5×10^{-4}	3.1×10^{-6}	7.4×10^{-3}	1.5×10^{-4}	3.0×10^{-3}	5.9×10^{-5}
School of Medicine – Research	0.21	4.3×10^{-3}	3.3×10^{-3}	6.7×10^{-5}	2.3×10^{-2}	4.6×10^{-4}	1.0×10^{-3}	2.1×10^{-5}	3.8×10^{-4}	7.7×10^{-6}	2.5×10^{-4}	4.9×10^{-6}	2.4×10^{-3}	4.9×10^{-5}	4.8×10^{-4}	9.6×10^{-6}	4.5×10^{-3}	9.0×10^{-5}	2.7×10^{-4}	5.4×10^{-6}	1.3×10^{-2}	2.6×10^{-4}	5.2×10^{-3}	1.0×10^{-4}
Psychology	7.4×10^{-2}	1.5×10^{-3}	1.2×10^{-3}	2.3×10^{-5}	8.0×10^{-3}	1.6×10^{-4}	3.6×10^{-4}	7.1×10^{-6}	1.3×10^{-4}	2.7×10^{-6}	8.6×10^{-5}	1.7×10^{-6}	8.4×10^{-4}	1.7×10^{-5}	1.7×10^{-4}	3.3×10^{-6}	1.5×10^{-3}	3.1×10^{-5}	9.4×10^{-5}	1.9×10^{-6}	4.5×10^{-3}	9.0×10^{-5}	1.8×10^{-3}	3.6×10^{-5}
Hinderaker Hall	0.95	1.9×10^{-2}	1.5×10^{-2}	3.0×10^{-4}	0.10	2.1×10^{-3}	4.6×10^{-3}	9.1×10^{-5}	1.7×10^{-3}	3.4×10^{-5}	1.1×10^{-3}	2.2×10^{-5}	1.1×10^{-2}	2.2×10^{-4}	2.1×10^{-3}	4.3×10^{-5}	2.0×10^{-2}	4.0×10^{-4}	1.2×10^{-3}	2.4×10^{-5}	5.8×10^{-2}	1.2×10^{-3}	2.3×10^{-2}	4.7×10^{-4}
Telecommunications	0.21	4.1×10^{-3}	3.2×10^{-3}	6.4×10^{-5}	2.2×10^{-2}	4.4×10^{-4}	9.9×10^{-4}	2.0×10^{-5}	3.7×10^{-4}	7.4×10^{-6}	2.4×10^{-4}	4.8×10^{-6}	2.3×10^{-3}	4.7×10^{-5}	4.6×10^{-4}	9.3×10^{-6}	4.3×10^{-3}	8.6×10^{-5}	2.6×10^{-4}	5.2×10^{-6}	1.3×10^{-2}	2.5×10^{-4}	5.0×10^{-3}	1.0×10^{-4}
Police Station	0.17	8.6×10^{-3}	2.7×10^{-3}	1.3×10^{-4}	1.9×10^{-2}	9.3×10^{-4}	8.3×10^{-4}	4.1×10^{-5}	3.1×10^{-4}	1.5×10^{-5}	2.0×10^{-4}	1.0×10^{-5}	2.0×10^{-3}	9.8×10^{-5}	3.9×10^{-4}	1.9×10^{-5}	3.6×10^{-3}	1.8×10^{-4}	2.2×10^{-4}	1.1×10^{-5}	1.1×10^{-2}	5.3×10^{-4}	4.2×10^{-3}	2.1×10^{-4}
Materials Science & Engineering	0.87	1.7×10^{-2}	1.4×10^{-2}	2.7×10^{-4}	9.4×10^{-2}	1.9×10^{-3}	4.2×10^{-3}	8.4×10^{-5}	1.6×10^{-3}	3.1×10^{-5}	1.0×10^{-3}	2.0×10^{-5}	1.0×10^{-2}	2.0×10^{-4}	2.0×10^{-3}	3.9×10^{-5}	1.8×10^{-2}	3.7×10^{-4}	1.1×10^{-3}	2.2×10^{-5}	5.3×10^{-2}	1.1×10^{-3}	2.1×10^{-2}	4.3×10^{-4}
Bourns Hall	2.95	5.9×10^{-2}	4.6×10^{-2}	9.2×10^{-4}	0.32	6.4×10^{-3}	1.4×10^{-2}	2.8×10^{-4}	5.3×10^{-3}	1.1×10^{-4}	3.4×10^{-3}	6.8×10^{-5}	3.4×10^{-2}	6.7×10^{-4}	6.7×10^{-3}	1.3×10^{-4}	6.2×10^{-2}	1.2×10^{-3}	3.8×10^{-3}	7.5×10^{-5}	0.18	3.6×10^{-3}	7.3×10^{-2}	1.5×10^{-3}
Science Library W.	0.10	3.5×10^{-3}	1.6×10^{-3}	5.4×10^{-5}	1.1×10^{-2}	3.7×10^{-4}	5.0×10^{-4}	1.7×10^{-5}	1.9×10^{-4}	6.2×10^{-6}	1.2×10^{-4}	4.0×10^{-6}	1.2×10^{-3}	3.9×10^{-5}	2.3×10^{-4}	7.8×10^{-6}	2.2×10^{-3}	7.2×10^{-5}	1.3×10^{-4}	4.4×10^{-6}	6.3×10^{-3}	2.1×10^{-4}	2.5×10^{-3}	8.5×10^{-5}
Geology North	1.60	3.2×10^{-2}	2.5×10^{-2}	5.0×10^{-4}	0.17	3.5×10^{-3}	7.7×10^{-3}	1.5×10^{-4}	2.9×10^{-3}	5.8×10^{-5}	1.9×10^{-3}	3.7×10^{-5}	1.8×10^{-2}	3.7×10^{-4}	3.6×10^{-3}	7.2×10^{-5}	3.4×10^{-2}	6.7×10^{-4}	2.0×10^{-3}	4.1×10^{-5}	9.8×10^{-2}	2.0×10^{-3}	3.9×10^{-2}	7.9×10^{-4}
Pierce Hall	2.28	7.6×10^{-2}	3.5×10^{-2}	1.2×10^{-3}	0.25	8.2×10^{-3}	1.1×10^{-2}	3.7×10^{-4}	4.1×10^{-3}	1.4×10^{-4}	2.6×10^{-3}	8.8×10^{-5}	2.6×10^{-2}	8.7×10^{-4}	5.1×10^{-3}	1.7×10^{-4}	4.8×10^{-2}	1.6×10^{-3}	2.9×10^{-3}	9.7×10^{-5}	0.14	4.6×10^{-3}	5.6×10^{-2}	1.9×10^{-3}
Physical Plant Storehouse	0.63	1.3×10^{-2}	9.9×10^{-3}	2.0×10^{-4}	6.8×10^{-2}	1.4×10^{-3}	3.1×10^{-3}	6.1×10^{-5}	1.1×10^{-3}	2.3×10^{-5}	7.4×10^{-4}	1.5×10^{-5}	7.2×10^{-3}	1.4×10^{-4}	1.4×10^{-3}	2.9×10^{-5}	1.3×10^{-2}	2.7×10^{-4}	8.1×10^{-4}	1.6×10^{-5}	3.9×10^{-2}	7.8×10^{-4}	1.6×10^{-2}	3.1×10^{-4}
Physical Plant Butler West	1.14	3.8×10^{-2}	1.8×10^{-2}	5.9×10^{-4}	0.12	4.1×10^{-3}	5.5×10^{-3}	1.8×10^{-4}	2.0×10^{-3}	6.8×10^{-5}	1.3×10^{-3}	4.4×10^{-5}	1.3×10^{-2}	4.3×10^{-4}	2.6×10^{-3}	8.6×10^{-5}	2.4×10^{-2}	8.0×10^{-4}	1.5×10^{-3}	4.8×10^{-5}	7.0×10^{-2}	2.3×10^{-3}	2.8×10^{-2}	9.3×10^{-4}
Fine Arts	0.14	2.8×10^{-3}	2.2×10^{-3}	4.3×10^{-5}	1.5×10^{-2}	3.0×10^{-4}	6.6×10^{-4}	1.3×10^{-5}	2.5×10^{-4}	5.0×10^{-6}	1.6×10^{-4}	3.2×10^{-6}	1.6×10^{-3}	3.2×10^{-5}	3.1×10^{-4}	6.2×10^{-6}	2.9×10^{-3}	5.8×10^{-5}	1.8×10^{-4}	3.5×10^{-6}	8.4×10^{-3}	1.7×10^{-4}	3.4×10^{-3}	6.8×10^{-5}
New Humanities and Social Sciences Bldg.	3.1×10^{-2}	1.0×10^{-3}	4.8×10^{-4}	1.6×10^{-5}	3.3×10^{-3}	1.1×10^{-4}	1.5×10^{-4}	4.9×10^{-6}	5.5×10^{-5}	1.8×10^{-6}	3.5×10^{-5}	1.2×10^{-6}	3.5×10^{-4}	1.2×10^{-5}	6.9×10^{-5}	2.3×10^{-6}	6.4×10^{-4}	2.1×10^{-5}	3.9×10^{-5}	1.3×10^{-6}	1.9×10^{-3}	6.2×10^{-5}	7.5×10^{-4}	2.5×10^{-5}
Env. H&S South	1.5×10^{-2}	7.5×10^{-4}	2.3×10^{-4}	1.2×10^{-5}	1.6×10^{-3}	8.1×10^{-5}	7.2×10^{-5}	3.6×10^{-6}	2.7×10^{-5}	1.3×10^{-6}	1.7×10^{-5}	8.7×10^{-7}	1.7×10^{-4}	8.5×10^{-6}	3.4×10^{-5}	1.7×10^{-6}	3.1×10^{-4}	1.6×10^{-5}	1.9×10^{-5}	9.5×10^{-7}	9.1×10^{-4}	4.6×10^{-5}	3.7×10^{-4}	1.8×10^{-5}
I&Q	0.27	9.0×10^{-3}	4.2×10^{-3}	1.4×10^{-4}	2.9×10^{-2}	9.7×10^{-4}	1.3×10^{-3}	4.3×10^{-5}	4.8×10^{-4}	1.6×10^{-5}	3.1×10^{-4}	1.0×10^{-5}	3.1×10^{-3}	1.0×10^{-4}	6.1×10^{-4}	2.0×10^{-5}	5.6×10^{-3}	1.9×10^{-4}	3.4×10^{-4}	1.1×10^{-5}	1.6×10^{-2}	5.5×10^{-4}	6.6×10^{-3}	2.2×10^{-4}
Vivarium	2.0×10^{-2}	6.7×10^{-4}	3.1×10^{-4}	1.0×10^{-5}	2.2×10^{-3}	7.2×10^{-5}	9.7×10^{-5}	3.2×10^{-6}	3.6×10^{-5}	1.2×10^{-6}	2.3×10^{-5}	7.8×10^{-7}	2.3×10^{-4}	7.6×10^{-6}	4.5×10^{-5}	1.5×10^{-6}	4.2×10^{-4}	1.4×10^{-5}	2.6×10^{-5}	8.5×10^{-7}	1.2×10^{-3}	4.1×10^{-5}	4.9×10^{-4}	1.6×10^{-5}
Entomology	0.13	4.5×10^{-3}	2.1×10^{-3}	7.0×10^{-5}	1.4×10^{-2}	4.8×10^{-4}	6.4×10^{-4}	2.1×10^{-5}	2.4×10^{-4}	8.0×10^{-6}	1.6×10^{-4}	5.2×10^{-6}	1.5×10^{-3}	5.1×10^{-5}	3.0×10^{-4}	1.0×10^{-5}	2.8×10^{-3}	9.4×10^{-5}	1.7×10^{-4}	5.7×10^{-6}	8.2×10^{-3}	2.7×10^{-4}	3.3×10^{-3}	1.1×10^{-4}
Steam Plant	0.14	4.5×10^{-3}	2.1×10^{-3}	7.0×10^{-5}	1.5×10^{-2}	4.9×10^{-4}	6.5×10^{-4}	2.2×10^{-5}	2.4×10^{-4}	8.1×10^{-6}	1.6×10^{-4}	5.2×10^{-6}	1.5×10^{-3}	5.1×10^{-5}	3.1×10^{-4}	1.0×10^{-5}	2.8×10^{-3}	9.5×10^{-5}	1.7×10^{-4}	5.7×10^{-6}	8.3×10^{-3}	2.8×10^{-4}	3.3×10^{-3}	1.1×10^{-4}
UCR Extension W.	4.4×10^{-2}	8.9×10^{-4}	6.9×10^{-4}	1.4×10^{-5}	4.8×10^{-3}	9.6×10^{-5}	2.1×10^{-4}	4.3×10^{-6}	8.0×10^{-5}	1.6×10^{-6}	5.1×10^{-5}	1.0×10^{-6}	5.1×10^{-4}	1.0×10^{-5}	1.0×10^{-4}	2.0×10^{-6}	9.3×10^{-4}	1.9×10^{-5}	5.6×10^{-5}	1.1×10^{-6}	2.7×10^{-3}	5.4×10^{-5}	1.1×10^{-3}	2.2×10^{-5}
Physics	1.81	6.0×10^{-2}	2.8×10^{-2}	9.4×10^{-4}	0.20	6.5×10^{-3}	8.7×10^{-3}	2.9×10^{-4}	3.3×10^{-3}	1.1×10^{-4}	2.1×10^{-3}	7.0×10^{-5}	2.1×10^{-2}	6.9×10^{-4}	4.1×10^{-3}	1.4×10^{-4}	3.8×10^{-2}	1.3×10^{-3}	2.3×10^{-3}	7.7×10^{-5}	0.11	3.7×10^{-3}	4.5×10^{-2}	1.5×10^{-3}
Glen Mor 1	1.93	3.9×10^{-2}	3.0×10^{-2}	6.0×10^{-4}	0.21	4.2×10^{-3}	9.3×10^{-3}	1.9×10^{-4}	3.5×10^{-3}	6.9×10^{-5}	2.2×10^{-3}	4.5×10^{-5}	2.2×10^{-2}	4.4×10^{-4}	4.4×10^{-3}	8.7×10^{-5}	4.0×10^{-2}	8.1×10^{-4}	2.5×10^{-3}	4.9×10^{-5}	0.12	2.4×10^{-3}	4.7×10^{-2}	9.5×10^{-4}
Glen Mor 2	6.2×10^{-2}	1.2×10^{-3}	9.7×10^{-4}	1.9×10^{-5}	6.7×10^{-3}	1.3×10^{-4}	3.0×10^{-4}	6.0×10^{-6}	1.1×10^{-4}	2.2×10^{-6}	7.2×10^{-5}	1.4×10^{-6}	7.1×10^{-4}	1.4×10^{-5}	1.4×10^{-4}	2.8×10^{-6}	1.3×10^{-3}	2.6×10^{-5}	7.9×10^{-5}	1.6×10^{-6}	3.8×10^{-3}	7.6×10^{-5}	1.5×10^{-3}	3.0×10^{-5}
Env. H&S	1.54	3.1×10^{-2}	2.4×10^{-2}	4.8×10^{-4}	0.17	3.3×10^{-3}	7.4×10^{-3}	1.5×10^{-4}	2.8×10^{-3}	5.5×10^{-5}	1.8×10^{-3}	3.6×10^{-5}	1.8×10^{-2}	3.5×10^{-4}	3.5×10^{-3}	7.0×10^{-5}	3.2×10^{-2}	6.5×10^{-4}	2.0×10^{-3}	3.9×10^{-5}	9.4×10^{-2}	1.9×10^{-3}	3.8×10^{-2}	7.6×10^{-4}
MRB 1	1.99	4.0×10^{-2}	3.1×10^{-2}	6.2×10^{-4}	0.21	4.3×10^{-3}	9.6×10^{-3}	1.9×10^{-4}	3.6×10^{-3}	7.1×10^{-5}	2.3×10^{-3}	4.6×10^{-5}	2.3×10^{-2}	4.5×10^{-4}	4.5×10^{-3}	9.0×10^{-5}	4.2×10^{-2}	8.3×10^{-4}	2.5×10^{-3}	5.1×10^{-5}	0.12	2.4×10^{-3}	4.9×10^{-2}	9.8×10^{-4}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); MGal = thousand gallons; Diesel PM = Diesel exhaust particulate matter; PAHs = polycyclic aromatic hydrocarbons

[1] Four diesel generators were determined to be mobile generators stored at the Physical Plant, used on an as-needed basis. Emissions from such sources would be considered negligible and unpredictable. As such, these generators are not included in the health risk modeling.

Fuel use and annual emissions obtained from the 2019 Annual Emissions Report. Hourly emissions are based on reported/permitted testing hours for each source (20-50 hours per year).

Table B-4 Emissions from Natural Gas Emergency Generator – Baseline Scenario

Pollutant	Emissions[1] Annual (pounds/year)	Emissions[1] Hourly (pounds/hour)
1,1,2,2-Tetrachloroethane	1.9×10^{-4}	3.7×10^{-6}
1,1,2-Trichloroethane (Vinyl trichloride)	1.5×10^{-4}	2.9×10^{-6}
1,2,4-Trimethylbenzene	6.6×10^{-5}	1.3×10^{-6}
1,2-Dichloropropane (Propylene dichloride)	1.2×10^{-4}	2.5×10^{-6}
1,3-Dichloropropene	1.2×10^{-4}	2.4×10^{-6}
2-Methyl naphthalene	1.5×10^{-4}	3.1×10^{-6}
Acenaphthene	5.8×10^{-6}	1.2×10^{-7}
Acenaphthylene	2.6×10^{-5}	5.1×10^{-7}
Acetaldehyde	3.9×10^{-2}	7.7×10^{-4}
Acrolein	2.4×10^{-2}	4.8×10^{-4}
Ammonia	8.2×10^{-2}	1.6×10^{-3}
Benzene	2.0×10^{-3}	4.1×10^{-5}
Benzo[b]fluoranthene [PAH, POM]	7.6×10^{-7}	1.5×10^{-8}
Benzo[e]pyrene [PAH, POM]	1.9×10^{-6}	3.8×10^{-8}
Benzo[g,h,i]perylene [PAH, POM]	1.9×10^{-6}	3.8×10^{-8}
1,3-Butadiene	1.2×10^{-3}	2.5×10^{-5}
Carbon tetrachloride	1.7×10^{-4}	3.4×10^{-6}
Chloroform	1.3×10^{-4}	2.6×10^{-6}
Chrysene	3.2×10^{-6}	6.4×10^{-8}
Ethylbenzene	1.8×10^{-4}	3.7×10^{-6}
Ethylene dibromide (1,2-Dibromoethane)	2.0×10^{-4}	4.1×10^{-6}
Ethylene dichloride (1,2-Dichloroethane)	1.1×10^{-4}	2.2×10^{-6}
Fluoranthene	5.1×10^{-6}	1.0×10^{-7}
Fluorene	2.6×10^{-5}	5.2×10^{-7}
Formaldehyde	0.24	4.9×10^{-3}
Hexane	5.1×10^{-3}	1.0×10^{-4}
Methanol	1.2×10^{-2}	2.3×10^{-4}
Methylene chloride (Dichloromethane)	9.3×10^{-5}	1.9×10^{-6}
Naphthalene	3.4×10^{-4}	6.9×10^{-6}
Phenanthrene	4.8×10^{-5}	9.6×10^{-7}
Pyrene	6.3×10^{-6}	1.3×10^{-7}
Styrene	1.1×10^{-4}	2.2×10^{-6}
Toluene	1.9×10^{-3}	3.8×10^{-5}
Vinyl chloride	6.9×10^{-5}	1.4×10^{-6}
Xylenes	8.5×10^{-4}	1.7×10^{-5}

[1] Annual emissions based on values reported in the 2019 Annual Emissions Report. Hourly emissions based on 50 hours of testing per year. Natural gas generator is located at the Humanities 400/University Theatre building.

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Table B-5 Diesel Emergency Generator Emissions – Future Scenario

Source	Fuel Use (MGal/ year)[1]	Acetaldehyde		Acrolein		Ammonia		Arsenic Compounds		Benzene		1,3-Butadiene		Cadmium		Chromium (VI)		Copper		Diesel PM		Ethylbenzene	
		A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H
Pierce Hall (Replacement)[2]	0.33	0.26	5.2×10^{-3}	1.1×10^{-2}	2.2×10^{-4}	0.96	1.9×10^{-2}	5.3×10^{-4}	1.1×10^{-5}	6.2×10^{-2}	1.2×10^{-3}	7.2×10^{-2}	1.4×10^{-3}	5.0×10^{-4}	9.9×10^{-6}	3.3×10^{-5}	6.6×10^{-7}	1.4×10^{-3}	2.7×10^{-5}	11.1	2.2 x 10-1	3.6×10^{-3}	7.2×10^{-5}
Police Station[3]	0.26	0.20	4.1×10^{-3}	8.8×10^{-3}	1.8×10^{-4}	0.75	1.5×10^{-2}	4.2×10^{-4}	8.3×10^{-6}	4.8×10^{-2}	9.7×10^{-4}	5.7×10^{-2}	1.1×10^{-3}	3.9×10^{-4}	7.8×10^{-6}	2.6×10^{-5}	5.2×10^{-7}	1.1×10^{-3}	2.1×10^{-5}	8.71	1.7 x 10-1	2.8×10^{-3}	5.7×10^{-5}
Plant Growth Environment Facility[4]	0.29	0.22	4.5×10^{-3}	9.7×10^{-3}	1.9×10^{-4}	0.83	1.7×10^{-2}	4.6×10^{-4}	9.2×10^{-6}	5.3×10^{-2}	1.1×10^{-3}	6.2×10^{-2}	1.2×10^{-3}	4.3×10^{-4}	8.6×10^{-6}	2.9×10^{-5}	5.7×10^{-7}	1.2×10^{-3}	2.4×10^{-5}	9.60	1.9 x 10-1	3.1×10^{-3}	6.3×10^{-5}
Dundee-Glasgow (Future Generator 37)[5]	0.29	0.22	4.5×10^{-3}	9.7×10^{-3}	1.9×10^{-4}	0.83	1.7×10^{-2}	4.6×10^{-4}	9.2×10^{-6}	5.3×10^{-2}	1.1×10^{-3}	6.2×10^{-2}	1.2×10^{-3}	4.3×10^{-4}	8.6×10^{-6}	2.9×10^{-5}	5.7×10^{-7}	1.2×10^{-3}	2.4×10^{-5}	9.60	1.9 x 10-1	3.1×10^{-3}	6.3×10^{-5}
Future Generators 1-36[6]	0.30	0.23	4.7×10^{-3}	1.0×10^{-2}	2.0×10^{-4}	0.87	1.7×10^{-2}	4.8×10^{-4}	9.6×10^{-6}	5.6×10^{-2}	1.1×10^{-3}	6.5×10^{-2}	1.3×10^{-3}	4.5×10^{-4}	9.0×10^{-6}	3.0×10^{-5}	6.0×10^{-7}	1.2×10^{-3}	2.5×10^{-5}	10.0	2.0 x 10-1	3.3×10^{-3}	6.5×10^{-5}

Source	Formaldehyde		Hexane		Hydrochloric Acid		Lead Compounds		Manganese		Mercury		Naphthalene		Nickel		PAHs		Selenium		Toluene		Xylenes	
	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H
Pierce Hall (Replacement)[2]	0.57	1.1×10^{-2}	8.9×10^{-3}	1.8×10^{-4}	6.2×10^{-2}	1.2×10^{-3}	2.7×10^{-3}	5.5×10^{-5}	1.0×10^{-3}	2.1×10^{-5}	6.6×10^{-4}	1.3×10^{-5}	6.5×10^{-3}	1.3×10^{-4}	1.3×10^{-3}	2.6×10^{-5}	1.2×10^{-2}	2.4×10^{-4}	7.3×10^{-4}	1.5×10^{-5}	3.5×10^{-2}	7.0×10^{-4}	1.4×10^{-2}	2.8×10^{-4}
Police Station[3]	0.45	9.0×10^{-3}	7.0×10^{-3}	1.4×10^{-4}	4.8×10^{-2}	9.7×10^{-4}	2.2×10^{-3}	4.3×10^{-5}	8.1×10^{-4}	1.6×10^{-5}	5.2×10^{-4}	1.0×10^{-5}	5.1×10^{-3}	1.0×10^{-4}	1.0×10^{-3}	2.0×10^{-5}	9.4×10^{-3}	1.9×10^{-4}	5.7×10^{-4}	1.1×10^{-5}	2.7×10^{-2}	5.5×10^{-4}	1.1×10^{-2}	2.2×10^{-4}
Plant Growth Environment Facility[4]	0.49	9.9×10^{-3}	7.7×10^{-3}	1.5×10^{-4}	5.3×10^{-2}	1.1×10^{-3}	2.4×10^{-3}	4.8×10^{-5}	8.9×10^{-4}	1.8×10^{-5}	5.7×10^{-4}	1.1×10^{-5}	5.6×10^{-3}	1.1×10^{-4}	1.1×10^{-3}	2.2×10^{-5}	1.0×10^{-2}	2.1×10^{-4}	6.3×10^{-4}	1.3×10^{-5}	3.0×10^{-2}	6.0×10^{-4}	1.2×10^{-2}	2.4×10^{-4}
Dundee-Glasgow (Future Generator 37)[5]	0.49	9.9×10^{-3}	7.7×10^{-3}	1.5×10^{-4}	5.3×10^{-2}	1.1×10^{-3}	2.4×10^{-3}	4.8×10^{-5}	8.9×10^{-4}	1.8×10^{-5}	5.7×10^{-4}	1.1×10^{-5}	5.6×10^{-3}	1.1×10^{-4}	1.1×10^{-3}	2.2×10^{-5}	1.0×10^{-2}	2.1×10^{-4}	6.3×10^{-4}	1.3×10^{-5}	3.0×10^{-2}	6.0×10^{-4}	1.2×10^{-2}	2.4×10^{-4}
Future Generators 1-36[6]	0.52	1.0×10^{-2}	8.0×10^{-3}	1.6×10^{-4}	5.6×10^{-2}	1.1×10^{-3}	2.5×10^{-3}	5.0×10^{-5}	9.3×10^{-4}	1.9×10^{-5}	6.0×10^{-4}	1.2×10^{-5}	5.9×10^{-3}	1.2×10^{-4}	1.2×10^{-3}	2.3×10^{-5}	1.1×10^{-2}	2.2×10^{-4}	6.6×10^{-4}	1.3×10^{-5}	3.2×10^{-2}	6.3×10^{-4}	1.3×10^{-2}	2.5×10^{-4}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); MGal = thousand gallons; Diesel PM = Diesel exhaust particulate matter; PAHs = polycyclic aromatic hydrocarbons

[1] Annual fuel consumption is not known for future generators and is estimated based on a linear regression model predicting annual fuel consumption (in MGal) as a function of capacity (in bhp) (Fuel consumption [in MGal] = 0.0001 x Capacity [in bhp] + 0.2404).

[2] 903 bhp generator, permitted August 23, 2019, replacing existing 190 bhp generator at Pierce Hall.

[3] 197 bhp generator, permitted December 7, 2019.

[4] 463 bhp generator, permitted December 31, 2019.

[5] 463 bhp generator with diesel particulate filter, permitted February 19, 2020.

[6] Assumes 587 bhp diesel generator, based on median generator capacity of existing generators on campus.

Table B-6 Boiler/Water Heater Emissions – Baseline and Future Scenario

	Steam Plant 1		Steam Plant 2		Steam Plant 3		Steam Plant 4		Lothian Basement 1		Lothian Basement 2		Aberdeen-Inverness 1		Aberdeen-Inverness 2		Pentland Hills Bldg F		Pentland Hills Bldg B		Pentland Hills Bldg I		Pentland Hills Bldg M	
Pollutant	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**
Acetaldehyde	0.18	2.0×10^{-5}	0.17	2.0×10^{-5}	0.15	1.7×10^{-5}	0.57	6.5×10^{-5}	0.05	5.6×10^{-6}	8.2×10^{-4}	9.3×10^{-8}	0.03	3.9×10^{-6}	0.03	3.9×10^{-6}	0.01	1.1×10^{-6}	0.01	1.1×10^{-6}	4.5×10^{-3}	5.1×10^{-7}	4.5×10^{-3}	5.1×10^{-7}
Acrolein	0.15	1.8×10^{-5}	0.15	1.7×10^{-5}	0.13	1.5×10^{-5}	0.49	5.7×10^{-5}	0.03	3.5×10^{-6}	5.1×10^{-4}	5.9×10^{-8}	0.02	2.4×10^{-6}	0.02	2.4×10^{-6}	0.01	6.7×10^{-7}	0.01	6.7×10^{-7}	2.8×10^{-3}	3.2×10^{-7}	2.8×10^{-3}	3.2×10^{-7}
Ammonia	1,028.52	0.12	1,013.4	0.12	849.78	0.10	3,299.94	0.38	206.46	0.02	3.42	3.9×10^{-4}	142.2	0.02	142.2	0.02	38.88	4.4×10^{-3}	38.88	4.4×10^{-3}	18.63	2.1×10^{-3}	18.63	2.1×10^{-3}
Benzene	0.33	3.8×10^{-5}	0.33	3.7×10^{-5}	0.27	3.1×10^{-5}	1.06	1.2×10^{-4}	0.09	1.0×10^{-5}	1.5×10^{-3}	1.7×10^{-7}	0.06	7.2×10^{-6}	0.06	7.2×10^{-6}	0.02	2.0×10^{-6}	0.02	2.0×10^{-6}	0.01	9.5×10^{-7}	0.01	9.5×10^{-7}
Ethyl benzene	0.39	4.5×10^{-5}	0.39	4.4×10^{-5}	0.33	3.7×10^{-5}	1.26	1.4×10^{-4}	0.11	1.2×10^{-5}	1.8×10^{-3}	2.1×10^{-7}	0.08	8.6×10^{-6}	0.08	8.6×10^{-6}	0.02	2.3×10^{-6}	0.02	2.3×10^{-6}	0.01	1.1×10^{-6}	0.01	1.1×10^{-6}
Formaldehyde	0.70	8.0×10^{-5}	0.69	7.9×10^{-5}	0.58	6.6×10^{-5}	2.25	2.6×10^{-4}	0.19	2.2×10^{-5}	3.2×10^{-3}	3.7×10^{-7}	0.13	1.5×10^{-5}	0.13	1.5×10^{-5}	0.04	4.2×10^{-6}	0.04	4.2×10^{-6}	0.02	2.0×10^{-6}	0.02	2.0×10^{-6}
Hexane	0.26	3.0×10^{-5}	0.26	3.0×10^{-5}	0.22	2.5×10^{-5}	0.84	9.6×10^{-5}	0.07	8.2×10^{-6}	1.2×10^{-3}	1.4×10^{-7}	0.05	5.7×10^{-6}	0.05	5.7×10^{-6}	0.01	1.6×10^{-6}	0.01	1.6×10^{-6}	0.01	7.4×10^{-7}	0.01	7.4×10^{-7}
Naphthalene [PAH, POM]	0.02	2.0×10^{-6}	0.02	1.9×10^{-6}	0.01	1.6×10^{-6}	0.05	6.3×10^{-6}	3.4×10^{-3}	3.9×10^{-7}	5.7×10^{-5}	6.5×10^{-9}	2.4×10^{-3}	2.7×10^{-7}	2.4×10^{-3}	2.7×10^{-7}	6.5×10^{-4}	7.4×10^{-8}	6.5×10^{-4}	7.4×10^{-8}	3.1×10^{-4}	3.5×10^{-8}	3.1×10^{-4}	3.5×10^{-8}
PAHs [PAH, POM]	0.01	6.5×10^{-7}	0.01	6.4×10^{-7}	4.7×10^{-3}	5.4×10^{-7}	0.02	2.1×10^{-6}	1.2×10^{-3}	1.3×10^{-7}	1.9×10^{-5}	2.2×10^{-9}	7.9×10^{-4}	9.0×10^{-8}	7.9×10^{-4}	9.0×10^{-8}	2.2×10^{-4}	2.5×10^{-8}	2.2×10^{-4}	2.5×10^{-8}	1.0×10^{-4}	1.2×10^{-8}	1.0×10^{-4}	1.2×10^{-8}
Toluene	1.51	1.7×10^{-4}	1.49	1.7×10^{-4}	1.25	1.4×10^{-4}	4.86	5.5×10^{-4}	0.42	4.8×10^{-5}	7.0×10^{-3}	7.9×10^{-7}	0.29	3.3×10^{-5}	0.29	3.3×10^{-5}	0.08	9.0×10^{-6}	0.079	9.0×10^{-6}	0.04	4.3×10^{-6}	0.04	4.3×10^{-6}
Xylenes	1.13	1.3×10^{-4}	1.11	1.3×10^{-4}	0.93	1.1×10^{-4}	3.61	4.1×10^{-4}	0.31	3.6×10^{-5}	5.2×10^{-3}	5.9×10^{-7}	0.21	2.5×10^{-5}	0.21	2.5×10^{-5}	0.06	6.7×10^{-6}	0.06	6.7×10^{-6}	0.03	3.2×10^{-6}	0.03	3.2×10^{-6}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

Table B-7 Gasoline Dispensing Facility Emissions – Baseline Scenario

	Benzene[2]		Ethylbenzene[3]		Naphthalene[4]	
Source[1]	Annual (lbs/year)	Hourly (lbs/hour)	Annual (lbs/year)	Hourly (lbs/hour)	Annual (lbs/year)	Hourly (lbs/hour)
Physical Plant (Fleet Services)						
Loading	0.57	6.7 x 10^{5}	0.03	3.9 x 10^{6}	1.3 x 10^{4}	1.5 x 10^{8}
Breathing	0.09	1.1 x 10^{5}	0.01	6.2 x 10^{7}	2.0 x 10^{5}	2.3 x 10^{9}
Refueling	1.22	1.4 x 10^{4}	0.07	8.3 x 10^{6}	2.7 x 10^{4}	3.1 x 10^{8}
Hose Permeation	0.03	3.9 x 10^{6}	2.0 x 10^{3}	2.3 x 10^{7}	7.6 x 10^{6}	8.7 x 10^{10}
Spillage	0.92	1.0 x 10^{4}	0.66	7.5 x 10^{5}	0.09	1.0 x 10^{5}
Grounds						
Loading	0.01	6.6 x 10^{7}	0.002	4.1 x 10^{8}	1.4 x 10^{6}	1.5 x 10^{10}
Breathing	9.3 x 10^{4}	1.1 x 10^{7}	5.8 x 10^{5}	6.6 x 10^{9}	2.2 x 10^{7}	2.5 x 10^{11}
Refueling	0.01	1.4 x 10^{6}	7.7 x 10^{4}	8.8 x 10^{8}	2.9 x 10^{6}	3.3 x 10^{10}
Hose Permeation	3.5 x 10^{4}	4.0 x 10^{8}	2.2 x 10^{5}	2.5 x 10^{9}	8.1 x 10^{8}	9.1 x 10^{12}
Spillage	0.01	1.1 x 10^{6}	0.01	8.0 x 10^{7}	9.4 x 10^{4}	1.1 x 10^{7}
Agricultural Operations						
Loading	0.03	3.1 x 10^{6}	1.7 x 10^{3}	2.0 x 10^{7}	6.4 x 10^{6}	7.3 x 10^{10}
Breathing	4.4 x 10^{3}	5.0 x 10^{7}	2.8 x 10^{4}	3.1 x 10^{8}	1.0 x 10^{6}	1.2 x 10^{10}
Refueling	0.06	6.7 x 10^{6}	3.7 x 10^{3}	4.2 x 10^{7}	1.4 x 10^{5}	1.6 x 10^{9}
Hose Permeation	1.6 x 10^{3}	1.9 x 10^{7}	1.0 x 10^{4}	1.2 x 10^{8}	3.9 x 10^{7}	4.4 x 10^{11}
Spillage	0.04	5.0 x 10^{6}	0.03	3.8 x 10^{6}	4.5 x 10^{3}	5.1 x 10^{7}

lbs = pounds

[1]Emissions distributed to loading, breathing, refueling, spillage, and hose permeation sources based on normalized reactive organic gas (ROG) emissions factors contained in South Coast Air Quality Management District (SCAQMD) Risk Assessment Procedures (SCAQMD 2017).

[2] Benzene emissions based on annual emissions reported in 2019 Annual Emissions Report for each facility. Hourly emissions assume 24-hour daily operation.

[3] Ethylbenzene emissions based on ROG speciation factors provided in SCAQMD Risk Assessment Procedures and annual ROG emissions reported from each facility in 2019 AER.

[4] Naphthalene emissions based on ROG speciation factors provided in SCAQMD Risk Assessment Procedures and annual ROG emissions reported from each facility in 2019 AER.

Source: Appendix A; SCAQMD 2017.

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Table B-8 Laboratory Fume Hood Emissions – Baseline Scenario

	1,1,2,2-Tetrachloroethane		1,1,2-Trichloroethane (Vinyl trichloride)		1,4-Dioxane		2-Methyl naphthalene [PAH, POM]		4,4-Methylenedianiline [POM]		Acenaphthene [PAH, POM]		Acenaphthylene [PAH, POM]		Acrolein		Acrylonitrile		alpha-Hexachlorocyclo-hexane beta		Ammonia	
Source	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H
Batchelor Hall	4.0×10^{-2}	4.6×10^{-6}	2.0×10^{-2}	2.3×10^{-6}	0.91	1.0×10^{-4}	1.0×10^{-2}	1.1×10^{-6}	4.5×10^{-3}	5.2×10^{-7}	5.0×10^{-3}	5.7×10^{-7}	2.5×10^{-3}	2.9×10^{-7}	2.6×10^{-2}	2.9×10^{-6}	2.6×10^{-2}	2.9×10^{-6}	5.5×10^{-3}	6.3×10^{-7}	6.01	6.9×10^{-4}
Biological Sciences	1.4×10^{-2}	1.6×10^{-6}	6.9×10^{-3}	7.9×10^{-7}	0.31	3.6×10^{-5}	3.4×10^{-3}	3.9×10^{-7}	1.6×10^{-3}	1.8×10^{-7}	1.7×10^{-3}	2.0×10^{-7}	8.6×10^{-4}	9.8×10^{-8}	8.8×10^{-3}	1.0×10^{-6}	8.8×10^{-3}	1.0×10^{-6}	1.9×10^{-3}	2.2×10^{-7}	2.06	2.4×10^{-4}
Bourns Hall	3.9×10^{-2}	4.4×10^{-6}	1.9×10^{-2}	2.2×10^{-6}	0.88	1.0×10^{-4}	9.7×10^{-3}	1.1×10^{-6}	4.4×10^{-3}	5.0×10^{-7}	4.9×10^{-3}	5.6×10^{-7}	2.4×10^{-3}	2.8×10^{-7}	2.5×10^{-2}	2.8×10^{-6}	2.5×10^{-2}	2.8×10^{-6}	5.4×10^{-3}	6.1×10^{-7}	5.83	6.7×10^{-4}
Boyce Hall	4.7×10^{-2}	5.3×10^{-6}	2.3×10^{-2}	2.7×10^{-6}	1.06	1.2×10^{-4}	1.2×10^{-2}	1.3×10^{-6}	5.3×10^{-3}	6.0×10^{-7}	5.8×10^{-3}	6.7×10^{-7}	2.9×10^{-3}	3.3×10^{-7}	3.0×10^{-2}	3.4×10^{-6}	3.0×10^{-2}	3.4×10^{-6}	6.4×10^{-3}	7.3×10^{-7}	6.99	8.0×10^{-4}
Boyden Lab	3.0×10^{-3}	3.4×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	6.8×10^{-2}	7.7×10^{-6}	7.5×10^{-4}	8.5×10^{-8}	3.4×10^{-4}	3.8×10^{-8}	3.7×10^{-4}	4.3×10^{-8}	1.9×10^{-4}	2.1×10^{-8}	1.9×10^{-3}	2.2×10^{-7}	1.9×10^{-3}	2.2×10^{-7}	4.1×10^{-4}	4.7×10^{-8}	0.45	5.1×10^{-5}
Chapman Hall	7.8×10^{-3}	8.9×10^{-7}	3.9×10^{-3}	4.4×10^{-7}	0.18	2.0×10^{-5}	1.9×10^{-3}	2.2×10^{-7}	8.8×10^{-4}	1.0×10^{-7}	9.7×10^{-4}	1.1×10^{-7}	4.9×10^{-4}	5.6×10^{-8}	5.0×10^{-3}	5.7×10^{-7}	5.0×10^{-3}	5.7×10^{-7}	1.1×10^{-3}	1.2×10^{-7}	1.17	1.3×10^{-4}
Chemical Sciences	9.3×10^{-2}	1.1×10^{-5}	4.7×10^{-2}	5.3×10^{-6}	2.11	2.4×10^{-4}	2.3×10^{-2}	2.7×10^{-6}	1.1×10^{-2}	1.2×10^{-6}	1.2×10^{-2}	1.3×10^{-6}	5.8×10^{-3}	6.7×10^{-7}	6.0×10^{-2}	6.8×10^{-6}	6.0×10^{-2}	6.8×10^{-6}	1.3×10^{-2}	1.5×10^{-6}	13.98	1.6×10^{-3}
Entomology	1.7×10^{-2}	2.0×10^{-6}	8.7×10^{-3}	9.9×10^{-7}	0.39	4.5×10^{-5}	4.3×10^{-3}	5.0×10^{-7}	2.0×10^{-3}	2.2×10^{-7}	2.2×10^{-3}	2.5×10^{-7}	1.1×10^{-3}	1.2×10^{-7}	1.1×10^{-2}	1.3×10^{-6}	1.1×10^{-2}	1.3×10^{-6}	2.4×10^{-3}	2.7×10^{-7}	2.60	3.0×10^{-4}
Fawcett Lab	7.8×10^{-3}	8.9×10^{-7}	3.9×10^{-3}	4.4×10^{-7}	0.18	2.0×10^{-5}	1.9×10^{-3}	2.2×10^{-7}	8.8×10^{-4}	1.0×10^{-7}	9.7×10^{-4}	1.1×10^{-7}	4.9×10^{-4}	5.6×10^{-8}	5.0×10^{-3}	5.7×10^{-7}	5.0×10^{-3}	5.7×10^{-7}	1.1×10^{-3}	1.2×10^{-7}	1.17	1.3×10^{-4}
Genomics	1.9×10^{-2}	2.1×10^{-6}	9.3×10^{-3}	1.1×10^{-6}	0.42	4.8×10^{-5}	4.6×10^{-3}	5.3×10^{-7}	2.1×10^{-3}	2.4×10^{-7}	2.3×10^{-3}	2.7×10^{-7}	1.2×10^{-3}	1.3×10^{-7}	1.2×10^{-2}	1.4×10^{-6}	1.2×10^{-2}	1.4×10^{-6}	2.6×10^{-3}	2.9×10^{-7}	2.78	3.2×10^{-4}
Geology	4.4×10^{-2}	5.1×10^{-6}	2.2×10^{-2}	2.5×10^{-6}	1.00	1.1×10^{-4}	1.1×10^{-2}	1.3×10^{-6}	5.0×10^{-3}	5.7×10^{-7}	5.5×10^{-3}	6.3×10^{-7}	2.8×10^{-3}	3.2×10^{-7}	2.8×10^{-2}	3.2×10^{-6}	2.8×10^{-2}	3.2×10^{-6}	6.1×10^{-3}	7.0×10^{-7}	6.63	7.6×10^{-4}
Greenhouse 1	1.2×10^{-3}	1.4×10^{-7}	6.0×10^{-4}	6.8×10^{-8}	2.7×10^{-2}	3.1×10^{-6}	3.0×10^{-4}	3.4×10^{-8}	1.3×10^{-4}	1.5×10^{-8}	1.5×10^{-4}	1.7×10^{-8}	7.5×10^{-5}	8.5×10^{-9}	7.7×10^{-4}	8.8×10^{-8}	7.6×10^{-4}	8.7×10^{-8}	1.6×10^{-4}	1.9×10^{-8}	0.18	2.0×10^{-5}
Greenhouse 2	6.0×10^{-4}	6.8×10^{-8}	3.0×10^{-4}	3.4×10^{-8}	1.4×10^{-2}	1.5×10^{-6}	1.5×10^{-4}	1.7×10^{-8}	6.7×10^{-5}	7.7×10^{-9}	7.5×10^{-5}	8.5×10^{-9}	3.7×10^{-5}	4.3×10^{-9}	3.8×10^{-4}	4.4×10^{-8}	3.8×10^{-4}	4.4×10^{-8}	8.2×10^{-5}	9.4×10^{-9}	9.0×10^{-2}	1.0×10^{-5}
Greenhouse 3	6.0×10^{-4}	6.8×10^{-8}	3.0×10^{-4}	3.4×10^{-8}	1.4×10^{-2}	1.5×10^{-6}	1.5×10^{-4}	1.7×10^{-8}	6.7×10^{-5}	7.7×10^{-9}	7.5×10^{-5}	8.5×10^{-9}	3.7×10^{-5}	4.3×10^{-9}	3.8×10^{-4}	4.4×10^{-8}	3.8×10^{-4}	4.4×10^{-8}	8.2×10^{-5}	9.4×10^{-9}	9.0×10^{-2}	1.0×10^{-5}
Greenhouse 6	6.0×10^{-4}	6.8×10^{-8}	3.0×10^{-4}	3.4×10^{-8}	1.4×10^{-2}	1.5×10^{-6}	1.5×10^{-4}	1.7×10^{-8}	6.7×10^{-5}	7.7×10^{-9}	7.5×10^{-5}	8.5×10^{-9}	3.7×10^{-5}	4.3×10^{-9}	3.8×10^{-4}	4.4×10^{-8}	3.8×10^{-4}	4.4×10^{-8}	8.2×10^{-5}	9.4×10^{-9}	9.0×10^{-2}	1.0×10^{-5}
Greenhouse 7	1.8×10^{-3}	2.1×10^{-7}	9.0×10^{-4}	1.0×10^{-7}	4.1×10^{-2}	4.6×10^{-6}	4.5×10^{-4}	5.1×10^{-8}	2.0×10^{-4}	2.3×10^{-8}	2.2×10^{-4}	2.6×10^{-8}	1.1×10^{-4}	1.3×10^{-8}	1.2×10^{-3}	1.3×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	2.5×10^{-4}	2.8×10^{-8}	0.27	3.1×10^{-5}
Greenhouse 9	6.0×10^{-4}	6.8×10^{-8}	3.0×10^{-4}	3.4×10^{-8}	1.4×10^{-2}	1.5×10^{-6}	1.5×10^{-4}	1.7×10^{-8}	6.7×10^{-5}	7.7×10^{-9}	7.5×10^{-5}	8.5×10^{-9}	3.7×10^{-5}	4.3×10^{-9}	3.8×10^{-4}	4.4×10^{-8}	3.8×10^{-4}	4.4×10^{-8}	8.2×10^{-5}	9.4×10^{-9}	9.0×10^{-2}	1.0×10^{-5}
Greenhouse 10	6.0×10^{-4}	6.8×10^{-8}	3.0×10^{-4}	3.4×10^{-8}	1.4×10^{-2}	1.5×10^{-6}	1.5×10^{-4}	1.7×10^{-8}	6.7×10^{-5}	7.7×10^{-9}	7.5×10^{-5}	8.5×10^{-9}	3.7×10^{-5}	4.3×10^{-9}	3.8×10^{-4}	4.4×10^{-8}	3.8×10^{-4}	4.4×10^{-8}	8.2×10^{-5}	9.4×10^{-9}	9.0×10^{-2}	1.0×10^{-5}
Greenhouse 12	6.0×10^{-4}	6.8×10^{-8}	3.0×10^{-4}	3.4×10^{-8}	1.4×10^{-2}	1.5×10^{-6}	1.5×10^{-4}	1.7×10^{-8}	6.7×10^{-5}	7.7×10^{-9}	7.5×10^{-5}	8.5×10^{-9}	3.7×10^{-5}	4.3×10^{-9}	3.8×10^{-4}	4.4×10^{-8}	3.8×10^{-4}	4.4×10^{-8}	8.2×10^{-5}	9.4×10^{-9}	9.0×10^{-2}	1.0×10^{-5}
Greenhouse 13	6.0×10^{-4}	6.8×10^{-8}	3.0×10^{-4}	3.4×10^{-8}	1.4×10^{-2}	1.5×10^{-6}	1.5×10^{-4}	1.7×10^{-8}	6.7×10^{-5}	7.7×10^{-9}	7.5×10^{-5}	8.5×10^{-9}	3.7×10^{-5}	4.3×10^{-9}	3.8×10^{-4}	4.4×10^{-8}	3.8×10^{-4}	4.4×10^{-8}	8.2×10^{-5}	9.4×10^{-9}	9.0×10^{-2}	1.0×10^{-5}
Greenhouse 20	6.0×10^{-4}	6.8×10^{-8}	3.0×10^{-4}	3.4×10^{-8}	1.4×10^{-2}	1.5×10^{-6}	1.5×10^{-4}	1.7×10^{-8}	6.7×10^{-5}	7.7×10^{-9}	7.5×10^{-5}	8.5×10^{-9}	3.7×10^{-5}	4.3×10^{-9}	3.8×10^{-4}	4.4×10^{-8}	3.8×10^{-4}	4.4×10^{-8}	8.2×10^{-5}	9.4×10^{-9}	9.0×10^{-2}	1.0×10^{-5}
Materials Science & Engineering	1.1×10^{-2}	1.2×10^{-6}	5.4×10^{-3}	6.2×10^{-7}	0.24	2.8×10^{-5}	2.7×10^{-3}	3.1×10^{-7}	1.2×10^{-3}	1.4×10^{-7}	1.3×10^{-3}	1.5×10^{-7}	6.7×10^{-4}	7.7×10^{-8}	6.9×10^{-3}	7.9×10^{-7}	6.9×10^{-3}	7.8×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.61	1.8×10^{-4}
Physics	1.3×10^{-2}	1.5×10^{-6}	6.6×10^{-3}	7.5×10^{-7}	0.30	3.4×10^{-5}	3.3×10^{-3}	3.8×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.6×10^{-3}	1.9×10^{-7}	8.2×10^{-4}	9.4×10^{-8}	8.4×10^{-3}	9.6×10^{-7}	8.4×10^{-3}	9.6×10^{-7}	1.8×10^{-3}	2.1×10^{-7}	1.97	2.3×10^{-4}
Pierce Hall	7.8×10^{-2}	8.9×10^{-6}	3.9×10^{-2}	4.4×10^{-6}	1.76	2.0×10^{-4}	1.9×10^{-2}	2.2×10^{-6}	8.8×10^{-3}	1.0×10^{-6}	9.7×10^{-3}	1.1×10^{-6}	4.9×10^{-3}	5.6×10^{-7}	5.0×10^{-2}	5.7×10^{-6}	5.0×10^{-2}	5.7×10^{-6}	1.1×10^{-2}	1.2×10^{-6}	11.7	1.3×10^{-3}
Science Lab 1	4.4×10^{-2}	5.1×10^{-6}	2.2×10^{-2}	2.5×10^{-6}	1.00	1.1×10^{-4}	1.1×10^{-2}	1.3×10^{-6}	5.0×10^{-3}	5.7×10^{-7}	5.5×10^{-3}	6.3×10^{-7}	2.8×10^{-3}	3.2×10^{-7}	2.8×10^{-2}	3.2×10^{-6}	2.8×10^{-2}	3.2×10^{-6}	6.1×10^{-3}	7.0×10^{-7}	6.63	7.6×10^{-4}
School of Medicine – Research	3.0×10^{-3}	3.4×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	6.8×10^{-2}	7.7×10^{-6}	7.5×10^{-4}	8.5×10^{-8}	3.4×10^{-4}	3.8×10^{-8}	3.7×10^{-4}	4.3×10^{-8}	1.9×10^{-4}	2.1×10^{-8}	1.9×10^{-3}	2.2×10^{-7}	1.9×10^{-3}	2.2×10^{-7}	4.1×10^{-4}	4.7×10^{-8}	0.45	5.1×10^{-5}
Spieth Hall	2.8×10^{-2}	3.2×10^{-6}	1.4×10^{-2}	1.6×10^{-6}	0.64	7.3×10^{-5}	7.0×10^{-3}	8.0×10^{-7}	3.2×10^{-3}	3.6×10^{-7}	3.5×10^{-3}	4.0×10^{-7}	1.8×10^{-3}	2.0×10^{-7}	1.8×10^{-2}	2.1×10^{-6}	1.8×10^{-2}	2.0×10^{-6}	3.9×10^{-3}	4.4×10^{-7}	4.21	4.8×10^{-4}
University Lab Building	4.2×10^{-3}	4.8×10^{-7}	2.1×10^{-3}	2.4×10^{-7}	9.5×10^{-2}	1.1×10^{-5}	1.0×10^{-3}	1.2×10^{-7}	4.7×10^{-4}	5.4×10^{-8}	5.2×10^{-4}	6.0×10^{-8}	2.6×10^{-4}	3.0×10^{-8}	2.7×10^{-3}	3.1×10^{-7}	2.7×10^{-3}	3.1×10^{-7}	5.8×10^{-4}	6.6×10^{-8}	0.63	7.2×10^{-5}
Webber Hall	1.8×10^{-2}	2.1×10^{-6}	9.0×10^{-3}	1.0×10^{-6}	0.41	4.6×10^{-5}	4.5×10^{-3}	5.1×10^{-7}	2.0×10^{-3}	2.3×10^{-7}	2.2×10^{-3}	2.6×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.2×10^{-2}	1.3×10^{-6}	1.1×10^{-2}	1.3×10^{-6}	2.5×10^{-3}	2.8×10^{-7}	2.69	3.1×10^{-4}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

	Anthracene [PAH, POM]		Benzene		1,3-Butadiene		Cadmium		Carbon tetrachloride		Chlorine		Chloroform		Copper		Crystalline silica		Ethylene dibromide (1,2-Dibromoethane)		Ethylene dichloride (1,2-Dichloroethane)	
Source	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**
Batchelor Hall	4.0×10^{-2}	4.6×10^{-6}	1.14	1.3×10^{-4}	4.6×10^{-2}	5.3×10^{-6}	1.9×10^{-2}	2.2×10^{-6}	0.65	7.4×10^{-5}	5.0×10^{-3}	5.7×10^{-7}	11.7	1.3×10^{-3}	9.7×10^{-2}	1.1×10^{-5}	2.9×10^{-2}	3.3×10^{-6}	0.15	1.7×10^{-5}	0.92	1.0×10^{-4}
Biological Sciences	1.4×10^{-2}	1.6×10^{-6}	0.39	4.5×10^{-5}	1.6×10^{-2}	1.8×10^{-6}	6.6×10^{-3}	7.5×10^{-7}	0.22	2.6×10^{-5}	1.7×10^{-3}	2.0×10^{-7}	4.02	4.6×10^{-4}	3.3×10^{-2}	3.8×10^{-6}	1.0×10^{-2}	1.1×10^{-6}	5.1×10^{-2}	5.8×10^{-6}	0.32	3.6×10^{-5}
Bourns Hall	3.9×10^{-2}	4.4×10^{-6}	1.11	1.3×10^{-4}	4.5×10^{-2}	5.1×10^{-6}	1.9×10^{-2}	2.1×10^{-6}	0.63	7.2×10^{-5}	4.9×10^{-3}	5.6×10^{-7}	11.4	1.3×10^{-3}	9.4×10^{-2}	1.1×10^{-5}	2.8×10^{-2}	3.2×10^{-6}	0.14	1.6×10^{-5}	0.89	1.0×10^{-4}
Boyce Hall	4.7×10^{-2}	5.3×10^{-6}	1.33	1.5×10^{-4}	5.4×10^{-2}	6.1×10^{-6}	2.2×10^{-2}	2.5×10^{-6}	0.76	8.7×10^{-5}	5.8×10^{-3}	6.7×10^{-7}	13.6	1.6×10^{-3}	0.11	1.3×10^{-5}	3.4×10^{-2}	3.9×10^{-6}	0.17	2.0×10^{-5}	1.07	1.2×10^{-4}
Boyden Lab	3.0×10^{-3}	3.4×10^{-7}	8.5×10^{-2}	9.7×10^{-6}	3.4×10^{-3}	3.9×10^{-7}	1.4×10^{-3}	1.6×10^{-7}	4.9×10^{-2}	5.6×10^{-6}	3.7×10^{-4}	4.3×10^{-8}	0.87	1.0×10^{-4}	7.3×10^{-3}	8.3×10^{-7}	2.2×10^{-3}	2.5×10^{-7}	1.1×10^{-2}	1.3×10^{-6}	6.9×10^{-2}	7.8×10^{-6}
Chapman Hall	7.8×10^{-3}	8.9×10^{-7}	0.22	2.5×10^{-5}	9.0×10^{-3}	1.0×10^{-6}	3.7×10^{-3}	4.2×10^{-7}	0.13	1.4×10^{-5}	9.7×10^{-4}	1.1×10^{-7}	2.27	2.6×10^{-4}	1.9×10^{-2}	2.2×10^{-6}	5.6×10^{-3}	6.4×10^{-7}	2.9×10^{-2}	3.3×10^{-6}	0.18	2.0×10^{-5}
Chemical Sciences	9.3×10^{-2}	1.1×10^{-5}	2.66	3.0×10^{-4}	1.1 x 10-1	1.2×10^{-5}	4.5×10^{-2}	5.1×10^{-6}	1.52	1.7×10^{-4}	1.2×10^{-2}	1.3×10^{-6}	27.3	3.1×10^{-3}	0.23	2.6×10^{-5}	6.8×10^{-2}	7.7×10^{-6}	0.35	3.9×10^{-5}	2.14	2.4×10^{-4}
Entomology	1.7×10^{-2}	2.0×10^{-6}	0.50	5.7×10^{-5}	2.0×10^{-2}	2.3×10^{-6}	8.3×10^{-3}	9.4×10^{-7}	0.28	3.2×10^{-5}	2.2×10^{-3}	2.5×10^{-7}	5.07	5.8×10^{-4}	4.2×10^{-2}	4.8×10^{-6}	1.3×10^{-2}	1.4×10^{-6}	6.4×10^{-2}	7.3×10^{-6}	4.0 x 10-1	4.5×10^{-5}
Fawcett Lab	7.8×10^{-3}	8.9×10^{-7}	0.22	2.5×10^{-5}	9.0×10^{-3}	1.0×10^{-6}	3.7×10^{-3}	4.2×10^{-7}	0.13	1.4×10^{-5}	9.7×10^{-4}	1.1×10^{-7}	2.27	2.6×10^{-4}	1.9×10^{-2}	2.2×10^{-6}	5.6×10^{-3}	6.4×10^{-7}	2.9×10^{-2}	3.3×10^{-6}	0.18	2.0×10^{-5}
Genomics	1.9×10^{-2}	2.1×10^{-6}	0.53	6.0×10^{-5}	2.1×10^{-2}	2.4×10^{-6}	8.8×10^{-3}	1.0×10^{-6}	0.30	3.4×10^{-5}	2.3×10^{-3}	2.7×10^{-7}	5.42	6.2×10^{-4}	4.5×10^{-2}	5.1×10^{-6}	1.3×10^{-2}	1.5×10^{-6}	6.9×10^{-2}	7.8×10^{-6}	0.42	4.8×10^{-5}
Geology	4.4×10^{-2}	5.1×10^{-6}	1.26	1.4×10^{-4}	5.1×10^{-2}	5.8×10^{-6}	2.1×10^{-2}	2.4×10^{-6}	0.72	8.2×10^{-5}	5.5×10^{-3}	6.3×10^{-7}	12.9	1.5×10^{-3}	0.11	1.2×10^{-5}	3.2×10^{-2}	3.7×10^{-6}	0.16	1.9×10^{-5}	1.01	1.2×10^{-4}
Greenhouse 1	1.2×10^{-3}	1.4×10^{-7}	3.4×10^{-2}	3.9×10^{-6}	1.4×10^{-3}	1.6×10^{-7}	5.7×10^{-4}	6.5×10^{-8}	1.9×10^{-2}	2.2×10^{-6}	1.5×10^{-4}	1.7×10^{-8}	0.35	4.0×10^{-5}	2.9×10^{-3}	3.3×10^{-7}	8.7×10^{-4}	9.9×10^{-8}	4.4×10^{-3}	5.1×10^{-7}	2.7×10^{-2}	3.1×10^{-6}
Greenhouse 2	6.0×10^{-4}	6.8×10^{-8}	1.7×10^{-2}	1.9×10^{-6}	6.9×10^{-4}	7.9×10^{-8}	2.9×10^{-4}	3.3×10^{-8}	9.7×10^{-3}	1.1×10^{-6}	7.5×10^{-5}	8.5×10^{-9}	0.17	2.0×10^{-5}	1.5×10^{-3}	1.7×10^{-7}	4.3×10^{-4}	5.0×10^{-8}	2.2×10^{-3}	2.5×10^{-7}	1.4×10^{-2}	1.6×10^{-6}
Greenhouse 3	6.0×10^{-4}	6.8×10^{-8}	1.7×10^{-2}	1.9×10^{-6}	6.9×10^{-4}	7.9×10^{-8}	2.9×10^{-4}	3.3×10^{-8}	9.7×10^{-3}	1.1×10^{-6}	7.5×10^{-5}	8.5×10^{-9}	0.17	2.0×10^{-5}	1.5×10^{-3}	1.7×10^{-7}	4.3×10^{-4}	5.0×10^{-8}	2.2×10^{-3}	2.5×10^{-7}	1.4×10^{-2}	1.6×10^{-6}
Greenhouse 6	6.0×10^{-4}	6.8×10^{-8}	1.7×10^{-2}	1.9×10^{-6}	6.9×10^{-4}	7.9×10^{-8}	2.9×10^{-4}	3.3×10^{-8}	9.7×10^{-3}	1.1×10^{-6}	7.5×10^{-5}	8.5×10^{-9}	0.17	2.0×10^{-5}	1.5×10^{-3}	1.7×10^{-7}	4.3×10^{-4}	5.0×10^{-8}	2.2×10^{-3}	2.5×10^{-7}	1.4×10^{-2}	1.6×10^{-6}
Greenhouse 7	1.8×10^{-3}	2.1×10^{-7}	5.1×10^{-2}	5.8×10^{-6}	2.1×10^{-3}	2.4×10^{-7}	8.6×10^{-4}	9.8×10^{-8}	2.9×10^{-2}	3.3×10^{-6}	2.2×10^{-4}	2.6×10^{-8}	0.52	6.0×10^{-5}	4.4×10^{-3}	5.0×10^{-7}	1.3×10^{-3}	1.5×10^{-7}	6.7×10^{-3}	7.6×10^{-7}	4.1×10^{-2}	4.7×10^{-6}
Greenhouse 9	6.0×10^{-4}	6.8×10^{-8}	1.7×10^{-2}	1.9×10^{-6}	6.9×10^{-4}	7.9×10^{-8}	2.9×10^{-4}	3.3×10^{-8}	9.7×10^{-3}	1.1×10^{-6}	7.5×10^{-5}	8.5×10^{-9}	0.17	2.0×10^{-5}	1.5×10^{-3}	1.7×10^{-7}	4.3×10^{-4}	5.0×10^{-8}	2.2×10^{-3}	2.5×10^{-7}	1.4×10^{-2}	1.6×10^{-6}
Greenhouse 10	6.0×10^{-4}	6.8×10^{-8}	1.7×10^{-2}	1.9×10^{-6}	6.9×10^{-4}	7.9×10^{-8}	2.9×10^{-4}	3.3×10^{-8}	9.7×10^{-3}	1.1×10^{-6}	7.5×10^{-5}	8.5×10^{-9}	0.17	2.0×10^{-5}	1.5×10^{-3}	1.7×10^{-7}	4.3×10^{-4}	5.0×10^{-8}	2.2×10^{-3}	2.5×10^{-7}	1.4×10^{-2}	1.6×10^{-6}
Greenhouse 12	6.0×10^{-4}	6.8×10^{-8}	1.7×10^{-2}	1.9×10^{-6}	6.9×10^{-4}	7.9×10^{-8}	2.9×10^{-4}	3.3×10^{-8}	9.7×10^{-3}	1.1×10^{-6}	7.5×10^{-5}	8.5×10^{-9}	0.17	2.0×10^{-5}	1.5×10^{-3}	1.7×10^{-7}	4.3×10^{-4}	5.0×10^{-8}	2.2×10^{-3}	2.5×10^{-7}	1.4×10^{-2}	1.6×10^{-6}
Greenhouse 13	6.0×10^{-4}	6.8×10^{-8}	1.7×10^{-2}	1.9×10^{-6}	6.9×10^{-4}	7.9×10^{-8}	2.9×10^{-4}	3.3×10^{-8}	9.7×10^{-3}	1.1×10^{-6}	7.5×10^{-5}	8.5×10^{-9}	0.17	2.0×10^{-5}	1.5×10^{-3}	1.7×10^{-7}	4.3×10^{-4}	5.0×10^{-8}	2.2×10^{-3}	2.5×10^{-7}	1.4×10^{-2}	1.6×10^{-6}
Greenhouse 20	6.0×10^{-4}	6.8×10^{-8}	1.7×10^{-2}	1.9×10^{-6}	6.9×10^{-4}	7.9×10^{-8}	2.9×10^{-4}	3.3×10^{-8}	9.7×10^{-3}	1.1×10^{-6}	7.5×10^{-5}	8.5×10^{-9}	0.17	2.0×10^{-5}	1.5×10^{-3}	1.7×10^{-7}	4.3×10^{-4}	5.0×10^{-8}	2.2×10^{-3}	2.5×10^{-7}	1.4×10^{-2}	1.6×10^{-6}
Materials Science & Engineering	1.1×10^{-2}	1.2×10^{-6}	0.31	3.5×10^{-5}	1.2×10^{-2}	1.4×10^{-6}	5.1×10^{-3}	5.9×10^{-7}	0.18	2.0×10^{-5}	1.3×10^{-3}	1.5×10^{-7}	3.15	3.6×10^{-4}	2.6×10^{-2}	3.0×10^{-6}	7.8×10^{-3}	8.9×10^{-7}	4.0×10^{-2}	4.6×10^{-6}	0.25	2.8×10^{-5}
Physics	1.3×10^{-2}	1.5×10^{-6}	0.38	4.3×10^{-5}	1.5×10^{-2}	1.7×10^{-6}	6.3×10^{-3}	7.2×10^{-7}	0.21	2.4×10^{-5}	1.6×10^{-3}	1.9×10^{-7}	3.85	4.4×10^{-4}	3.2×10^{-2}	3.6×10^{-6}	9.6×10^{-3}	1.1×10^{-6}	4.9×10^{-2}	5.6×10^{-6}	0.30	3.4×10^{-5}
Pierce Hall	7.8×10^{-2}	8.9×10^{-6}	2.22	2.5×10^{-4}	9.0×10^{-2}	1.0×10^{-5}	3.7×10^{-2}	4.2×10^{-6}	1.27	1.4×10^{-4}	9.7×10^{-3}	1.1×10^{-6}	22.7	2.6×10^{-3}	0.19	2.2×10^{-5}	5.6×10^{-2}	6.4×10^{-6}	0.29	3.3×10^{-5}	1.78	2.0×10^{-4}
Science Lab 1	4.4×10^{-2}	5.1×10^{-6}	1.26	1.4×10^{-4}	5.1×10^{-2}	5.8×10^{-6}	2.1×10^{-2}	2.4×10^{-6}	0.72	8.2×10^{-5}	5.5×10^{-3}	6.3×10^{-7}	12.9	1.5×10^{-3}	0.11	1.2×10^{-5}	3.2×10^{-2}	3.7×10^{-6}	0.16	1.9×10^{-5}	1.01	1.2×10^{-4}
School of Medicine – Research	3.0×10^{-3}	3.4×10^{-7}	8.5×10^{-2}	9.7×10^{-6}	3.4×10^{-3}	3.9×10^{-7}	1.4×10^{-3}	1.6×10^{-7}	4.9×10^{-2}	5.6×10^{-6}	3.7×10^{-4}	4.3×10^{-8}	0.87	1.0×10^{-4}	7.3×10^{-3}	8.3×10^{-7}	2.2×10^{-3}	2.5×10^{-7}	1.1×10^{-2}	1.3×10^{-6}	6.9×10^{-2}	7.8×10^{-6}
Spieth Hall	2.8×10^{-2}	3.2×10^{-6}	0.80	9.2×10^{-5}	3.2×10^{-2}	3.7×10^{-6}	1.3×10^{-2}	1.5×10^{-6}	0.46	5.2×10^{-5}	3.5×10^{-3}	4.0×10^{-7}	8.22	9.4×10^{-4}	6.8×10^{-2}	7.8×10^{-6}	2.0×10^{-2}	2.3×10^{-6}	0.10	1.2×10^{-5}	0.64	7.4×10^{-5}
University Lab Building	4.2×10^{-3}	4.8×10^{-7}	0.12	1.4×10^{-5}	4.8×10^{-3}	5.5×10^{-7}	2.0×10^{-3}	2.3×10^{-7}	6.8×10^{-2}	7.8×10^{-6}	5.2×10^{-4}	6.0×10^{-8}	1.22	1.4×10^{-4}	1.0×10^{-2}	1.2×10^{-6}	3.0×10^{-3}	3.5×10^{-7}	1.6×10^{-2}	1.8×10^{-6}	9.6×10^{-2}	1.1×10^{-5}
Webber Hall	1.8×10^{-2}	2.1×10^{-6}	0.51	5.8×10^{-5}	2.1×10^{-2}	2.4×10^{-6}	8.6×10^{-3}	9.8×10^{-7}	0.29	3.3×10^{-5}	2.2×10^{-3}	2.6×10^{-7}	5.25	6.0×10^{-4}	4.4×10^{-2}	5.0×10^{-6}	1.3×10^{-2}	1.5×10^{-6}	6.7×10^{-2}	7.6×10^{-6}	0.41	4.7×10^{-5}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

Source	Ethylene glycol monoethyl ether		Ethylene glycol monomethyl ether		Ethylene oxide		Fluorene [PAH, POM]		Formaldehyde		Hexachlorobenzene		Hexamethylene-1,6-diisocyanate		Hexane		Hydrazine		Hydrochloric acid		Hydrogen fluoride (hydrofluoric acid)	
	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H
Batchelor Hall	0.44	5.0×10^{-5}	7.5×10^{-2}	8.6×10^{-6}	8.0×10^{-3}	9.2×10^{-7}	1.5×10^{-2}	1.7×10^{-6}	2.65	3.0×10^{-4}	2.0×10^{-3}	2.3×10^{-7}	3.0×10^{-4}	3.4×10^{-8}	7.67	8.8×10^{-4}	1.5×10^{-2}	1.7×10^{-6}	43.4	5.0×10^{-3}	0.75	8.6×10^{-5}
Biological Sciences	0.15	1.7×10^{-5}	2.6×10^{-2}	2.9×10^{-6}	2.8×10^{-3}	3.1×10^{-7}	5.0×10^{-3}	5.7×10^{-7}	0.91	1.0×10^{-4}	6.9×10^{-4}	7.9×10^{-8}	1.0×10^{-4}	1.2×10^{-8}	2.63	3.0×10^{-4}	5.0×10^{-3}	5.7×10^{-7}	14.9	1.7×10^{-3}	0.26	2.9×10^{-5}
Bourns Hall	0.43	4.9×10^{-5}	7.3×10^{-2}	8.3×10^{-6}	7.8×10^{-3}	8.9×10^{-7}	1.4×10^{-2}	1.6×10^{-6}	2.58	2.9×10^{-4}	1.9×10^{-3}	2.2×10^{-7}	2.9×10^{-4}	3.3×10^{-8}	7.44	8.5×10^{-4}	1.4×10^{-2}	1.6×10^{-6}	42.1	4.8×10^{-3}	0.73	8.3×10^{-5}
Boyce Hall	0.51	5.9×10^{-5}	8.8×10^{-2}	1.0×10^{-5}	9.3×10^{-3}	1.1×10^{-6}	1.7×10^{-2}	1.9×10^{-6}	3.09	3.5×10^{-4}	2.3×10^{-3}	2.7×10^{-7}	3.5×10^{-4}	4.0×10^{-8}	8.93	1.0×10^{-3}	1.7×10^{-2}	1.9×10^{-6}	50.6	5.8×10^{-3}	0.88	1.0×10^{-4}
Boyden Lab	3.3×10^{-2}	3.8×10^{-6}	5.6×10^{-3}	6.4×10^{-7}	6.0×10^{-4}	6.8×10^{-8}	1.1×10^{-3}	1.2×10^{-7}	0.20	2.3×10^{-5}	1.5×10^{-4}	1.7×10^{-8}	2.2×10^{-5}	2.6×10^{-9}	0.57	6.5×10^{-5}	1.1×10^{-3}	1.2×10^{-7}	3.24	3.7×10^{-4}	5.6×10^{-2}	6.4×10^{-6}
Chapman Hall	8.6×10^{-2}	9.8×10^{-6}	1.5×10^{-2}	1.7×10^{-6}	1.6×10^{-3}	1.8×10^{-7}	2.8×10^{-3}	3.2×10^{-7}	0.52	5.9×10^{-5}	3.9×10^{-4}	4.4×10^{-8}	5.8×10^{-5}	6.7×10^{-9}	1.49	1.7×10^{-4}	2.8×10^{-3}	3.2×10^{-7}	8.43	9.6×10^{-4}	0.15	1.7×10^{-5}
Chemical Sciences	1.03	1.2×10^{-4}	1.8 x 10-1	2.0×10^{-5}	1.9×10^{-2}	2.1×10^{-6}	3.4×10^{-2}	3.9×10^{-6}	6.18	7.1×10^{-4}	4.7×10^{-3}	5.3×10^{-7}	7.0×10^{-4}	8.0×10^{-8}	17.9	2.0×10^{-3}	3.4×10^{-2}	3.9×10^{-6}	101	1.2×10^{-2}	1.75	2.0×10^{-4}
Entomology	0.19	2.2×10^{-5}	3.3×10^{-2}	3.7×10^{-6}	3.5×10^{-3}	4.0×10^{-7}	6.3×10^{-3}	7.2×10^{-7}	1.15	1.3×10^{-4}	8.7×10^{-4}	9.9×10^{-8}	1.3×10^{-4}	1.5×10^{-8}	3.32	3.8×10^{-4}	6.3×10^{-3}	7.2×10^{-7}	18.8	2.1×10^{-3}	0.33	3.7×10^{-5}
Fawcett Lab	8.6×10^{-2}	9.8×10^{-6}	1.5×10^{-2}	1.7×10^{-6}	1.6×10^{-3}	1.8×10^{-7}	2.8×10^{-3}	3.2×10^{-7}	0.52	5.9×10^{-5}	3.9×10^{-4}	4.4×10^{-8}	5.8×10^{-5}	6.7×10^{-9}	1.49	1.7×10^{-4}	2.8×10^{-3}	3.2×10^{-7}	8.43	9.6×10^{-4}	0.15	1.7×10^{-5}
Genomics	0.20	2.3×10^{-5}	3.5×10^{-2}	4.0×10^{-6}	3.7×10^{-3}	4.2×10^{-7}	6.7×10^{-3}	7.7×10^{-7}	1.23	1.4×10^{-4}	9.3×10^{-4}	1.1×10^{-7}	1.4×10^{-4}	1.6×10^{-8}	3.55	4.1×10^{-4}	6.8×10^{-3}	7.7×10^{-7}	20.1	2.3×10^{-3}	0.35	4.0×10^{-5}
Geology	0.49	5.6×10^{-5}	8.3×10^{-2}	9.5×10^{-6}	8.9×10^{-3}	1.0×10^{-6}	1.6×10^{-2}	1.8×10^{-6}	2.93	3.3×10^{-4}	2.2×10^{-3}	2.5×10^{-7}	3.3×10^{-4}	3.8×10^{-8}	8.47	9.7×10^{-4}	1.6×10^{-2}	1.8×10^{-6}	48.0	5.5×10^{-3}	0.83	9.5×10^{-5}
Greenhouse 1	1.3×10^{-2}	1.5×10^{-6}	2.2×10^{-3}	2.6×10^{-7}	2.4×10^{-4}	2.7×10^{-8}	4.3×10^{-4}	5.0×10^{-8}	7.9×10^{-2}	9.0×10^{-6}	6.0×10^{-5}	6.8×10^{-9}	9.0×10^{-6}	1.0×10^{-9}	0.23	2.6×10^{-5}	4.4×10^{-4}	5.0×10^{-8}	1.30	1.5×10^{-4}	2.2×10^{-2}	2.6×10^{-6}
Greenhouse 2	6.6×10^{-3}	7.5×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.2×10^{-4}	1.4×10^{-8}	2.2×10^{-4}	2.5×10^{-8}	4.0×10^{-2}	4.5×10^{-6}	3.0×10^{-5}	3.4×10^{-9}	4.5×10^{-6}	5.1×10^{-10}	0.11	1.3×10^{-5}	2.2×10^{-4}	2.5×10^{-8}	0.65	7.4×10^{-5}	1.1×10^{-2}	1.3×10^{-6}
Greenhouse 3	6.6×10^{-3}	7.5×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.2×10^{-4}	1.4×10^{-8}	2.2×10^{-4}	2.5×10^{-8}	4.0×10^{-2}	4.5×10^{-6}	3.0×10^{-5}	3.4×10^{-9}	4.5×10^{-6}	5.1×10^{-10}	0.11	1.3×10^{-5}	2.2×10^{-4}	2.5×10^{-8}	0.65	7.4×10^{-5}	1.1×10^{-2}	1.3×10^{-6}
Greenhouse 6	6.6×10^{-3}	7.5×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.2×10^{-4}	1.4×10^{-8}	2.2×10^{-4}	2.5×10^{-8}	4.0×10^{-2}	4.5×10^{-6}	3.0×10^{-5}	3.4×10^{-9}	4.5×10^{-6}	5.1×10^{-10}	0.11	1.3×10^{-5}	2.2×10^{-4}	2.5×10^{-8}	0.65	7.4×10^{-5}	1.1×10^{-2}	1.3×10^{-6}
Greenhouse 7	2.0×10^{-2}	2.3×10^{-6}	3.4×10^{-3}	3.8×10^{-7}	3.6×10^{-4}	4.1×10^{-8}	6.5×10^{-4}	7.4×10^{-8}	0.12	1.4×10^{-5}	9.0×10^{-5}	1.0×10^{-8}	1.3×10^{-5}	1.5×10^{-9}	0.34	3.9×10^{-5}	6.6×10^{-4}	7.5×10^{-8}	1.94	2.2×10^{-4}	3.4×10^{-2}	3.8×10^{-6}
Greenhouse 9	6.6×10^{-3}	7.5×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.2×10^{-4}	1.4×10^{-8}	2.2×10^{-4}	2.5×10^{-8}	4.0×10^{-2}	4.5×10^{-6}	3.0×10^{-5}	3.4×10^{-9}	4.5×10^{-6}	5.1×10^{-10}	0.11	1.3×10^{-5}	2.2×10^{-4}	2.5×10^{-8}	0.65	7.4×10^{-5}	1.1×10^{-2}	1.3×10^{-6}
Greenhouse 10	6.6×10^{-3}	7.5×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.2×10^{-4}	1.4×10^{-8}	2.2×10^{-4}	2.5×10^{-8}	4.0×10^{-2}	4.5×10^{-6}	3.0×10^{-5}	3.4×10^{-9}	4.5×10^{-6}	5.1×10^{-10}	0.11	1.3×10^{-5}	2.2×10^{-4}	2.5×10^{-8}	0.65	7.4×10^{-5}	1.1×10^{-2}	1.3×10^{-6}
Greenhouse 12	6.6×10^{-3}	7.5×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.2×10^{-4}	1.4×10^{-8}	2.2×10^{-4}	2.5×10^{-8}	4.0×10^{-2}	4.5×10^{-6}	3.0×10^{-5}	3.4×10^{-9}	4.5×10^{-6}	5.1×10^{-10}	0.11	1.3×10^{-5}	2.2×10^{-4}	2.5×10^{-8}	0.65	7.4×10^{-5}	1.1×10^{-2}	1.3×10^{-6}
Greenhouse 13	6.6×10^{-3}	7.5×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.2×10^{-4}	1.4×10^{-8}	2.2×10^{-4}	2.5×10^{-8}	4.0×10^{-2}	4.5×10^{-6}	3.0×10^{-5}	3.4×10^{-9}	4.5×10^{-6}	5.1×10^{-10}	0.11	1.3×10^{-5}	2.2×10^{-4}	2.5×10^{-8}	0.65	7.4×10^{-5}	1.1×10^{-2}	1.3×10^{-6}
Greenhouse 20	6.6×10^{-3}	7.5×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.2×10^{-4}	1.4×10^{-8}	2.2×10^{-4}	2.5×10^{-8}	4.0×10^{-2}	4.5×10^{-6}	3.0×10^{-5}	3.4×10^{-9}	4.5×10^{-6}	5.1×10^{-10}	0.11	1.3×10^{-5}	2.2×10^{-4}	2.5×10^{-8}	0.65	7.4×10^{-5}	1.1×10^{-2}	1.3×10^{-6}
Materials Science & Engineering	0.12	1.4×10^{-5}	2.0×10^{-2}	2.3×10^{-6}	2.2×10^{-3}	2.5×10^{-7}	3.9×10^{-3}	4.5×10^{-7}	0.71	8.1×10^{-5}	5.4×10^{-4}	6.2×10^{-8}	8.1×10^{-5}	9.2×10^{-9}	2.06	2.4×10^{-4}	3.9×10^{-3}	4.5×10^{-7}	11.7	1.3×10^{-3}	0.20	2.3×10^{-5}
Physics	0.14	1.7×10^{-5}	2.5×10^{-2}	2.8×10^{-6}	2.6×10^{-3}	3.0×10^{-7}	4.8×10^{-3}	5.5×10^{-7}	0.87	9.9×10^{-5}	6.6×10^{-4}	7.5×10^{-8}	9.9×10^{-5}	1.1×10^{-8}	2.52	2.9×10^{-4}	4.8×10^{-3}	5.5×10^{-7}	14.3	1.6×10^{-3}	0.25	2.8×10^{-5}
Pierce Hall	0.86	9.8×10^{-5}	1.5 x 10-1	1.7×10^{-5}	1.6×10^{-2}	1.8×10^{-6}	2.8×10^{-2}	3.2×10^{-6}	5.15	5.9×10^{-4}	3.9×10^{-3}	4.4×10^{-7}	5.8×10^{-4}	6.7×10^{-8}	14.9	1.7×10^{-3}	2.8×10^{-2}	3.2×10^{-6}	84.3	9.6×10^{-3}	1.46	1.7×10^{-4}
Science Lab 1	0.49	5.6×10^{-5}	8.3×10^{-2}	9.5×10^{-6}	8.9×10^{-3}	1.0×10^{-6}	1.6×10^{-2}	1.8×10^{-6}	2.93	3.3×10^{-4}	2.2×10^{-3}	2.5×10^{-7}	3.3×10^{-4}	3.8×10^{-8}	8.47	9.7×10^{-4}	1.6×10^{-2}	1.8×10^{-6}	48.0	5.5×10^{-3}	0.83	9.5×10^{-5}
School of Medicine – Research	3.3×10^{-2}	3.8×10^{-6}	5.6×10^{-3}	6.4×10^{-7}	6.0×10^{-4}	6.8×10^{-8}	1.1×10^{-3}	1.2×10^{-7}	0.20	2.3×10^{-5}	1.5×10^{-4}	1.7×10^{-8}	2.2×10^{-5}	2.6×10^{-9}	0.57	6.5×10^{-5}	1.1×10^{-3}	1.2×10^{-7}	3.24	3.7×10^{-4}	5.6×10^{-2}	6.4×10^{-6}
Spieth Hall	0.31	3.5×10^{-5}	5.3×10^{-2}	6.0×10^{-6}	5.6×10^{-3}	6.4×10^{-7}	1.0×10^{-2}	1.2×10^{-6}	1.86	2.1×10^{-4}	1.4×10^{-3}	1.6×10^{-7}	2.1×10^{-4}	2.4×10^{-8}	5.38	6.1×10^{-4}	1.0×10^{-2}	1.2×10^{-6}	30.5	3.5×10^{-3}	0.53	6.0×10^{-5}
University Lab Building	4.6×10^{-2}	5.3×10^{-6}	7.9×10^{-3}	9.0×10^{-7}	8.4×10^{-4}	9.6×10^{-8}	1.5×10^{-3}	1.7×10^{-7}	0.28	3.2×10^{-5}	2.1×10^{-4}	2.4×10^{-8}	3.1×10^{-5}	3.6×10^{-9}	0.80	9.1×10^{-5}	1.5×10^{-3}	1.7×10^{-7}	4.54	5.2×10^{-4}	7.9×10^{-2}	9.0×10^{-6}
Webber Hall	0.20	2.3×10^{-5}	3.4×10^{-2}	3.8×10^{-6}	3.6×10^{-3}	4.1×10^{-7}	6.5×10^{-3}	7.4×10^{-7}	1.19	1.4×10^{-4}	9.0×10^{-4}	1.0×10^{-7}	1.3×10^{-4}	1.5×10^{-8}	3.44	3.9×10^{-4}	6.6×10^{-3}	7.5×10^{-7}	19.4	2.2×10^{-3}	3.4 x 10-1	3.8×10^{-5}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

	Lead compounds (inorganic)		Lindane (gamma-Hexa-chlorocyclohexane)		Manganese		Mercuric chloride		Mercury		Methanol		Methyl isobutyl ketone (Hexone)		Methylene chloride (Dichloromethane)		Methylene diphenyl diisocyanate [MDI] [POM]		Naphthalene [PAH, POM]		Nickel	
Source	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**
Batchelor Hall	1.3×10^{-2}	1.4×10^{-6}	1.0×10^{-3}	1.1×10^{-7}	8.0×10^{-3}	9.2×10^{-7}	6.0×10^{-2}	6.9×10^{-6}	7.5×10^{-2}	8.6×10^{-6}	22.9	2.6×10^{-3}	0.30	3.4×10^{-5}	15.2	1.7×10^{-3}	6.0×10^{-3}	6.9×10^{-7}	0.18	2.0×10^{-5}	4.5×10^{-3}	5.2×10^{-7}
Biological Sciences	4.3×10^{-3}	4.9×10^{-7}	3.4×10^{-4}	3.9×10^{-8}	2.8×10^{-3}	3.1×10^{-7}	2.1×10^{-2}	2.4×10^{-6}	2.6×10^{-2}	2.9×10^{-6}	7.85	9.0×10^{-4}	0.10	1.2×10^{-5}	5.20	5.9×10^{-4}	2.1×10^{-3}	2.4×10^{-7}	6.1×10^{-2}	6.9×10^{-6}	1.6×10^{-3}	1.8×10^{-7}
Bourns Hall	1.2×10^{-2}	1.4×10^{-6}	9.7×10^{-4}	1.1×10^{-7}	7.8×10^{-3}	8.9×10^{-7}	5.8×10^{-2}	6.7×10^{-6}	7.3×10^{-2}	8.3×10^{-6}	22.2	2.5×10^{-3}	0.29	3.3×10^{-5}	14.7	1.7×10^{-3}	5.8×10^{-3}	6.7×10^{-7}	0.17	2.0×10^{-5}	4.4×10^{-3}	5.0×10^{-7}
Boyce Hall	1.5×10^{-2}	1.7×10^{-6}	1.2×10^{-3}	1.3×10^{-7}	9.3×10^{-3}	1.1×10^{-6}	7.0×10^{-2}	8.0×10^{-6}	8.8×10^{-2}	1.0×10^{-5}	26.6	3.0×10^{-3}	0.34	3.9×10^{-5}	17.6	2.0×10^{-3}	7.0×10^{-3}	8.0×10^{-7}	0.21	2.4×10^{-5}	5.3×10^{-3}	6.0×10^{-7}
Boyden Lab	9.4×10^{-4}	1.1×10^{-7}	7.5×10^{-5}	8.5×10^{-9}	6.0×10^{-4}	6.8×10^{-8}	4.5×10^{-3}	5.1×10^{-7}	5.6×10^{-3}	6.4×10^{-7}	1.71	1.9×10^{-4}	2.2×10^{-2}	2.5×10^{-6}	1.13	1.3×10^{-4}	4.5×10^{-4}	5.1×10^{-8}	1.3×10^{-2}	1.5×10^{-6}	3.4×10^{-4}	3.8×10^{-8}
Chapman Hall	2.4×10^{-3}	2.8×10^{-7}	1.9×10^{-4}	2.2×10^{-8}	1.6×10^{-3}	1.8×10^{-7}	1.2×10^{-2}	1.3×10^{-6}	1.5×10^{-2}	1.7×10^{-6}	4.44	5.1×10^{-4}	5.7×10^{-2}	6.6×10^{-6}	2.94	3.4×10^{-4}	1.2×10^{-3}	1.3×10^{-7}	3.4×10^{-2}	3.9×10^{-6}	8.8×10^{-4}	1.0×10^{-7}
Chemical Sciences	2.9×10^{-2}	3.3×10^{-6}	2.3×10^{-3}	2.7×10^{-7}	1.9×10^{-2}	2.1×10^{-6}	0.14	1.6×10^{-5}	0.18	2.0×10^{-5}	53.2	6.1×10^{-3}	0.69	7.9×10^{-5}	35.3	4.0×10^{-3}	1.4×10^{-2}	1.6×10^{-6}	0.41	4.7×10^{-5}	1.1×10^{-2}	1.2×10^{-6}
Entomology	5.4×10^{-3}	6.2×10^{-7}	4.3×10^{-4}	5.0×10^{-8}	3.5×10^{-3}	4.0×10^{-7}	2.6×10^{-2}	3.0×10^{-6}	3.3×10^{-2}	3.7×10^{-6}	9.90	1.1×10^{-3}	0.13	1.5×10^{-5}	6.56	7.5×10^{-4}	2.6×10^{-3}	3.0×10^{-7}	7.7×10^{-2}	8.8×10^{-6}	2.0×10^{-3}	2.2×10^{-7}
Fawcett Lab	2.4×10^{-3}	2.8×10^{-7}	1.9×10^{-4}	2.2×10^{-8}	1.6×10^{-3}	1.8×10^{-7}	1.2×10^{-2}	1.3×10^{-6}	1.5×10^{-2}	1.7×10^{-6}	4.44	5.1×10^{-4}	5.7×10^{-2}	6.6×10^{-6}	2.94	3.4×10^{-4}	1.2×10^{-3}	1.3×10^{-7}	3.4×10^{-2}	3.9×10^{-6}	8.8×10^{-4}	1.0×10^{-7}
Genomics	5.8×10^{-3}	6.6×10^{-7}	4.6×10^{-4}	5.3×10^{-8}	3.7×10^{-3}	4.2×10^{-7}	2.8×10^{-2}	3.2×10^{-6}	3.5×10^{-2}	4.0×10^{-6}	10.6	1.2×10^{-3}	0.14	1.6×10^{-5}	7.01	8.0×10^{-4}	2.8×10^{-3}	3.2×10^{-7}	8.2×10^{-2}	9.4×10^{-6}	2.1×10^{-3}	2.4×10^{-7}
Geology	1.4×10^{-2}	1.6×10^{-6}	1.1×10^{-3}	1.3×10^{-7}	8.9×10^{-3}	1.0×10^{-6}	6.7×10^{-2}	7.6×10^{-6}	8.3×10^{-2}	9.5×10^{-6}	25.3	2.9×10^{-3}	0.33	3.7×10^{-5}	16.7	1.9×10^{-3}	6.7×10^{-3}	7.6×10^{-7}	0.20	2.2×10^{-5}	5.0×10^{-3}	5.7×10^{-7}
Greenhouse 1	3.7×10^{-4}	4.3×10^{-8}	3.0×10^{-5}	3.4×10^{-9}	2.4×10^{-4}	2.7×10^{-8}	1.8×10^{-3}	2.1×10^{-7}	2.2×10^{-3}	2.6×10^{-7}	0.68	7.8×10^{-5}	8.8×10^{-3}	1.0×10^{-6}	0.45	5.2×10^{-5}	1.8×10^{-4}	2.1×10^{-8}	5.3×10^{-3}	6.0×10^{-7}	1.3×10^{-4}	1.5×10^{-8}
Greenhouse 2	1.9×10^{-4}	2.1×10^{-8}	1.5×10^{-5}	1.7×10^{-9}	1.2×10^{-4}	1.4×10^{-8}	9.0×10^{-4}	1.0×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	0.34	3.9×10^{-5}	4.4×10^{-3}	5.0×10^{-7}	0.23	2.6×10^{-5}	9.0×10^{-5}	1.0×10^{-8}	2.6×10^{-3}	3.0×10^{-7}	6.7×10^{-5}	7.7×10^{-9}
Greenhouse 3	1.9×10^{-4}	2.1×10^{-8}	1.5×10^{-5}	1.7×10^{-9}	1.2×10^{-4}	1.4×10^{-8}	9.0×10^{-4}	1.0×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	0.34	3.9×10^{-5}	4.4×10^{-3}	5.0×10^{-7}	0.23	2.6×10^{-5}	9.0×10^{-5}	1.0×10^{-8}	2.6×10^{-3}	3.0×10^{-7}	6.7×10^{-5}	7.7×10^{-9}
Greenhouse 6	1.9×10^{-4}	2.1×10^{-8}	1.5×10^{-5}	1.7×10^{-9}	1.2×10^{-4}	1.4×10^{-8}	9.0×10^{-4}	1.0×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	0.34	3.9×10^{-5}	4.4×10^{-3}	5.0×10^{-7}	0.23	2.6×10^{-5}	9.0×10^{-5}	1.0×10^{-8}	2.6×10^{-3}	3.0×10^{-7}	6.7×10^{-5}	7.7×10^{-9}
Greenhouse 7	5.6×10^{-4}	6.4×10^{-8}	4.5×10^{-5}	5.1×10^{-9}	3.6×10^{-4}	4.1×10^{-8}	2.7×10^{-3}	3.1×10^{-7}	3.4×10^{-3}	3.8×10^{-7}	1.02	1.2×10^{-4}	1.3×10^{-2}	1.5×10^{-6}	0.68	7.7×10^{-5}	2.7×10^{-4}	3.1×10^{-8}	7.9×10^{-3}	9.1×10^{-7}	2.0×10^{-4}	2.3×10^{-8}
Greenhouse 9	1.9×10^{-4}	2.1×10^{-8}	1.5×10^{-5}	1.7×10^{-9}	1.2×10^{-4}	1.4×10^{-8}	9.0×10^{-4}	1.0×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	0.34	3.9×10^{-5}	4.4×10^{-3}	5.0×10^{-7}	0.23	2.6×10^{-5}	9.0×10^{-5}	1.0×10^{-8}	2.6×10^{-3}	3.0×10^{-7}	6.7×10^{-5}	7.7×10^{-9}
Greenhouse 10	1.9×10^{-4}	2.1×10^{-8}	1.5×10^{-5}	1.7×10^{-9}	1.2×10^{-4}	1.4×10^{-8}	9.0×10^{-4}	1.0×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	0.34	3.9×10^{-5}	4.4×10^{-3}	5.0×10^{-7}	0.23	2.6×10^{-5}	9.0×10^{-5}	1.0×10^{-8}	2.6×10^{-3}	3.0×10^{-7}	6.7×10^{-5}	7.7×10^{-9}
Greenhouse 12	1.9×10^{-4}	2.1×10^{-8}	1.5×10^{-5}	1.7×10^{-9}	1.2×10^{-4}	1.4×10^{-8}	9.0×10^{-4}	1.0×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	0.34	3.9×10^{-5}	4.4×10^{-3}	5.0×10^{-7}	0.23	2.6×10^{-5}	9.0×10^{-5}	1.0×10^{-8}	2.6×10^{-3}	3.0×10^{-7}	6.7×10^{-5}	7.7×10^{-9}
Greenhouse 13	1.9×10^{-4}	2.1×10^{-8}	1.5×10^{-5}	1.7×10^{-9}	1.2×10^{-4}	1.4×10^{-8}	9.0×10^{-4}	1.0×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	0.34	3.9×10^{-5}	4.4×10^{-3}	5.0×10^{-7}	0.23	2.6×10^{-5}	9.0×10^{-5}	1.0×10^{-8}	2.6×10^{-3}	3.0×10^{-7}	6.7×10^{-5}	7.7×10^{-9}
Greenhouse 20	1.9×10^{-4}	2.1×10^{-8}	1.5×10^{-5}	1.7×10^{-9}	1.2×10^{-4}	1.4×10^{-8}	9.0×10^{-4}	1.0×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	0.34	3.9×10^{-5}	4.4×10^{-3}	5.0×10^{-7}	0.23	2.6×10^{-5}	9.0×10^{-5}	1.0×10^{-8}	2.6×10^{-3}	3.0×10^{-7}	6.7×10^{-5}	7.7×10^{-9}
Materials Science & Engineering	3.4×10^{-3}	3.8×10^{-7}	2.7×10^{-4}	3.1×10^{-8}	2.2×10^{-3}	2.5×10^{-7}	1.6×10^{-2}	1.8×10^{-6}	2.0×10^{-2}	2.3×10^{-6}	6.14	7.0×10^{-4}	8.0×10^{-2}	9.1×10^{-6}	4.07	4.6×10^{-4}	1.6×10^{-3}	1.8×10^{-7}	4.8×10^{-2}	5.4×10^{-6}	1.2×10^{-3}	1.4×10^{-7}
Physics	4.1×10^{-3}	4.7×10^{-7}	3.3×10^{-4}	3.8×10^{-8}	2.6×10^{-3}	3.0×10^{-7}	2.0×10^{-2}	2.3×10^{-6}	2.5×10^{-2}	2.8×10^{-6}	7.51	8.6×10^{-4}	9.7×10^{-2}	1.1×10^{-5}	4.98	5.7×10^{-4}	2.0×10^{-3}	2.3×10^{-7}	5.8×10^{-2}	6.6×10^{-6}	1.5×10^{-3}	1.7×10^{-7}
Pierce Hall	2.4×10^{-2}	2.8×10^{-6}	1.9×10^{-3}	2.2×10^{-7}	1.6×10^{-2}	1.8×10^{-6}	0.12	1.3×10^{-5}	0.15	1.7×10^{-5}	44.4	5.1×10^{-3}	0.57	6.6×10^{-5}	29.4	3.4×10^{-3}	1.2×10^{-2}	1.3×10^{-6}	0.34	3.9×10^{-5}	8.8×10^{-3}	1.0×10^{-6}
Science Lab 1	1.4×10^{-2}	1.6×10^{-6}	1.1×10^{-3}	1.3×10^{-7}	8.9×10^{-3}	1.0×10^{-6}	6.7×10^{-2}	7.6×10^{-6}	8.3×10^{-2}	9.5×10^{-6}	25.3	2.9×10^{-3}	0.33	3.7×10^{-5}	16.7	1.9×10^{-3}	6.7×10^{-3}	7.6×10^{-7}	0.20	2.2×10^{-5}	5.0×10^{-3}	5.7×10^{-7}
School of Medicine – Research	9.4×10^{-4}	1.1×10^{-7}	7.5×10^{-5}	8.5×10^{-9}	6.0×10^{-4}	6.8×10^{-8}	4.5×10^{-3}	5.1×10^{-7}	5.6×10^{-3}	6.4×10^{-7}	1.71	1.9×10^{-4}	2.2×10^{-2}	2.5×10^{-6}	1.13	1.3×10^{-4}	4.5×10^{-4}	5.1×10^{-8}	1.3×10^{-2}	1.5×10^{-6}	3.4×10^{-4}	3.8×10^{-8}
Spieth Hall	8.8×10^{-3}	1.0×10^{-6}	7.0×10^{-4}	8.0×10^{-8}	5.6×10^{-3}	6.4×10^{-7}	4.2×10^{-2}	4.8×10^{-6}	5.3×10^{-2}	6.0×10^{-6}	16.0	1.8×10^{-3}	0.21	2.4×10^{-5}	10.6	1.2×10^{-3}	4.2×10^{-3}	4.8×10^{-7}	0.12	1.4×10^{-5}	3.2×10^{-3}	3.6×10^{-7}
University Lab Building	1.3×10^{-3}	1.5×10^{-7}	1.0×10^{-4}	1.2×10^{-8}	8.4×10^{-4}	9.6×10^{-8}	6.3×10^{-3}	7.2×10^{-7}	7.9×10^{-3}	9.0×10^{-7}	2.39	2.7×10^{-4}	3.1×10^{-2}	3.5×10^{-6}	1.58	1.8×10^{-4}	6.3×10^{-4}	7.2×10^{-8}	1.9×10^{-2}	2.1×10^{-6}	4.7×10^{-4}	5.4×10^{-8}
Webber Hall	5.6×10^{-3}	6.4×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	3.6×10^{-3}	4.1×10^{-7}	2.7×10^{-2}	3.1×10^{-6}	3.4×10^{-2}	3.8×10^{-6}	10.2	1.2×10^{-3}	0.13	1.5×10^{-5}	6.79	7.7×10^{-4}	2.7×10^{-3}	3.1×10^{-7}	7.9×10^{-2}	9.1×10^{-6}	2.0×10^{-3}	2.3×10^{-7}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

	Oleum		p-Dichlorobenzene (1,4-Dichlorobenzene)		Perchloroethylene (Tetrachloro-ethene)		Phenanthrene [PAH, POM]		Phosphoric acid		Propylene oxide		Pyrene [PAH, POM]		Selenium		Sodium hydroxide		Sulfuric acid		Toluene	
Source	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**
Batchelor Hall	7.2×10^{-2}	8.2×10^{-6}	3.0×10^{-2}	3.4×10^{-6}	6.5×10^{-2}	7.4×10^{-6}	9.5×10^{-3}	1.1×10^{-6}	3.45	3.9×10^{-4}	7.0×10^{-2}	8.0×10^{-6}	1.3×10^{-2}	1.4×10^{-6}	1.1×10^{-2}	1.3×10^{-6}	5.99	6.8×10^{-4}	4.59	5.2×10^{-4}	5.27	6.0×10^{-4}
Biological Sciences	2.5×10^{-2}	2.8×10^{-6}	1.0×10^{-2}	1.2×10^{-6}	2.2×10^{-2}	2.6×10^{-6}	3.3×10^{-3}	3.7×10^{-7}	1.18	1.4×10^{-4}	2.4×10^{-2}	2.8×10^{-6}	4.3×10^{-3}	4.9×10^{-7}	3.8×10^{-3}	4.3×10^{-7}	2.06	2.3×10^{-4}	1.58	1.8×10^{-4}	1.81	2.1×10^{-4}
Bourns Hall	7.0×10^{-2}	7.9×10^{-6}	2.9×10^{-2}	3.3×10^{-6}	6.3×10^{-2}	7.2×10^{-6}	9.2×10^{-3}	1.1×10^{-6}	3.34	3.8×10^{-4}	6.8×10^{-2}	7.8×10^{-6}	1.2×10^{-2}	1.4×10^{-6}	1.1×10^{-2}	1.2×10^{-6}	5.81	6.6×10^{-4}	4.45	5.1×10^{-4}	5.12	5.8×10^{-4}
Boyce Hall	8.4×10^{-2}	9.5×10^{-6}	3.5×10^{-2}	4.0×10^{-6}	7.6×10^{-2}	8.7×10^{-6}	1.1×10^{-2}	1.3×10^{-6}	4.01	4.6×10^{-4}	8.2×10^{-2}	9.3×10^{-6}	1.5×10^{-2}	1.7×10^{-6}	1.3×10^{-2}	1.5×10^{-6}	6.97	8.0×10^{-4}	5.34	6.1×10^{-4}	6.14	7.0×10^{-4}
Boyden Lab	5.4×10^{-3}	6.1×10^{-7}	2.2×10^{-3}	2.6×10^{-7}	4.9×10^{-3}	5.6×10^{-7}	7.1×10^{-4}	8.1×10^{-8}	0.26	2.9×10^{-5}	5.2×10^{-3}	6.0×10^{-7}	9.4×10^{-4}	1.1×10^{-7}	8.2×10^{-4}	9.4×10^{-8}	0.45	5.1×10^{-5}	0.34	3.9×10^{-5}	0.39	4.5×10^{-5}
Chapman Hall	1.4×10^{-2}	1.6×10^{-6}	5.8×10^{-3}	6.7×10^{-7}	1.3×10^{-2}	1.4×10^{-6}	1.8×10^{-3}	2.1×10^{-7}	0.67	7.6×10^{-5}	1.4×10^{-2}	1.6×10^{-6}	2.4×10^{-3}	2.8×10^{-7}	2.1×10^{-3}	2.4×10^{-7}	1.16	1.3×10^{-4}	0.89	1.0×10^{-4}	1.02	1.2×10^{-4}
Chemical Sciences	1.7 x 10-1	1.9×10^{-5}	7.0×10^{-2}	8.0×10^{-6}	1.5 x 10-1	1.7×10^{-5}	2.2×10^{-2}	2.5×10^{-6}	8.03	9.2×10^{-4}	0.16	1.9×10^{-5}	2.9×10^{-2}	3.3×10^{-6}	2.6×10^{-2}	2.9×10^{-6}	13.9	1.6×10^{-3}	10.7	1.2×10^{-3}	12.3	1.4×10^{-3}
Entomology	3.1×10^{-2}	3.5×10^{-6}	1.3×10^{-2}	1.5×10^{-6}	2.8×10^{-2}	3.2×10^{-6}	4.1×10^{-3}	4.7×10^{-7}	1.49	1.7×10^{-4}	3.0×10^{-2}	3.5×10^{-6}	5.4×10^{-3}	6.2×10^{-7}	4.8×10^{-3}	5.5×10^{-7}	2.59	3.0×10^{-4}	1.99	2.3×10^{-4}	2.28	2.6×10^{-4}
Fawcett Lab	1.4×10^{-2}	1.6×10^{-6}	5.8×10^{-3}	6.7×10^{-7}	1.3×10^{-2}	1.4×10^{-6}	1.8×10^{-3}	2.1×10^{-7}	0.67	7.6×10^{-5}	1.4×10^{-2}	1.6×10^{-6}	2.4×10^{-3}	2.8×10^{-7}	2.1×10^{-3}	2.4×10^{-7}	1.16	1.3×10^{-4}	0.89	1.0×10^{-4}	1.02	1.2×10^{-4}
Genomics	3.3×10^{-2}	3.8×10^{-6}	1.4×10^{-2}	1.6×10^{-6}	3.0×10^{-2}	3.4×10^{-6}	4.4×10^{-3}	5.0×10^{-7}	1.59	1.8×10^{-4}	3.3×10^{-2}	3.7×10^{-6}	5.8×10^{-3}	6.6×10^{-7}	5.1×10^{-3}	5.8×10^{-7}	2.77	3.2×10^{-4}	2.12	2.4×10^{-4}	2.44	2.8×10^{-4}
Geology	7.9×10^{-2}	9.0×10^{-6}	3.3×10^{-2}	3.8×10^{-6}	7.2×10^{-2}	8.2×10^{-6}	1.1×10^{-2}	1.2×10^{-6}	3.81	4.3×10^{-4}	7.8×10^{-2}	8.9×10^{-6}	1.4×10^{-2}	1.6×10^{-6}	1.2×10^{-2}	1.4×10^{-6}	6.62	7.6×10^{-4}	5.07	5.8×10^{-4}	5.82	6.6×10^{-4}
Greenhouse 1	2.1×10^{-3}	2.4×10^{-7}	9.0×10^{-4}	1.0×10^{-7}	1.9×10^{-3}	2.2×10^{-7}	2.8×10^{-4}	3.2×10^{-8}	0.10	1.2×10^{-5}	2.1×10^{-3}	2.4×10^{-7}	3.7×10^{-4}	4.3×10^{-8}	3.3×10^{-4}	3.8×10^{-8}	0.18	2.0×10^{-5}	0.14	1.6×10^{-5}	0.16	1.8×10^{-5}
Greenhouse 2	1.1×10^{-3}	1.2×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.4×10^{-4}	1.6×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	1.0×10^{-3}	1.2×10^{-7}	1.9×10^{-4}	2.1×10^{-8}	1.6×10^{-4}	1.9×10^{-8}	8.9×10^{-2}	1.0×10^{-5}	6.9×10^{-2}	7.8×10^{-6}	7.9×10^{-2}	9.0×10^{-6}
Greenhouse 3	1.1×10^{-3}	1.2×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.4×10^{-4}	1.6×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	1.0×10^{-3}	1.2×10^{-7}	1.9×10^{-4}	2.1×10^{-8}	1.6×10^{-4}	1.9×10^{-8}	8.9×10^{-2}	1.0×10^{-5}	6.9×10^{-2}	7.8×10^{-6}	7.9×10^{-2}	9.0×10^{-6}
Greenhouse 6	1.1×10^{-3}	1.2×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.4×10^{-4}	1.6×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	1.0×10^{-3}	1.2×10^{-7}	1.9×10^{-4}	2.1×10^{-8}	1.6×10^{-4}	1.9×10^{-8}	8.9×10^{-2}	1.0×10^{-5}	6.9×10^{-2}	7.8×10^{-6}	7.9×10^{-2}	9.0×10^{-6}
Greenhouse 7	3.2×10^{-3}	3.7×10^{-7}	1.3×10^{-3}	1.5×10^{-7}	2.9×10^{-3}	3.3×10^{-7}	4.3×10^{-4}	4.9×10^{-8}	0.15	1.8×10^{-5}	3.1×10^{-3}	3.6×10^{-7}	5.6×10^{-4}	6.4×10^{-8}	4.9×10^{-4}	5.6×10^{-8}	0.27	3.1×10^{-5}	0.21	2.3×10^{-5}	0.24	2.7×10^{-5}
Greenhouse 9	1.1×10^{-3}	1.2×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.4×10^{-4}	1.6×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	1.0×10^{-3}	1.2×10^{-7}	1.9×10^{-4}	2.1×10^{-8}	1.6×10^{-4}	1.9×10^{-8}	8.9×10^{-2}	1.0×10^{-5}	6.9×10^{-2}	7.8×10^{-6}	7.9×10^{-2}	9.0×10^{-6}
Greenhouse 10	1.1×10^{-3}	1.2×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.4×10^{-4}	1.6×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	1.0×10^{-3}	1.2×10^{-7}	1.9×10^{-4}	2.1×10^{-8}	1.6×10^{-4}	1.9×10^{-8}	8.9×10^{-2}	1.0×10^{-5}	6.9×10^{-2}	7.8×10^{-6}	7.9×10^{-2}	9.0×10^{-6}
Greenhouse 12	1.1×10^{-3}	1.2×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.4×10^{-4}	1.6×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	1.0×10^{-3}	1.2×10^{-7}	1.9×10^{-4}	2.1×10^{-8}	1.6×10^{-4}	1.9×10^{-8}	8.9×10^{-2}	1.0×10^{-5}	6.9×10^{-2}	7.8×10^{-6}	7.9×10^{-2}	9.0×10^{-6}
Greenhouse 13	1.1×10^{-3}	1.2×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.4×10^{-4}	1.6×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	1.0×10^{-3}	1.2×10^{-7}	1.9×10^{-4}	2.1×10^{-8}	1.6×10^{-4}	1.9×10^{-8}	8.9×10^{-2}	1.0×10^{-5}	6.9×10^{-2}	7.8×10^{-6}	7.9×10^{-2}	9.0×10^{-6}
Greenhouse 20	1.1×10^{-3}	1.2×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.4×10^{-4}	1.6×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	1.0×10^{-3}	1.2×10^{-7}	1.9×10^{-4}	2.1×10^{-8}	1.6×10^{-4}	1.9×10^{-8}	8.9×10^{-2}	1.0×10^{-5}	6.9×10^{-2}	7.8×10^{-6}	7.9×10^{-2}	9.0×10^{-6}
Materials Science & Engineering	1.9×10^{-2}	2.2×10^{-6}	8.1×10^{-3}	9.2×10^{-7}	1.8×10^{-2}	2.0×10^{-6}	2.6×10^{-3}	2.9×10^{-7}	0.93	1.1×10^{-4}	1.9×10^{-2}	2.2×10^{-6}	3.4×10^{-3}	3.8×10^{-7}	3.0×10^{-3}	3.4×10^{-7}	1.61	1.8×10^{-4}	1.23	1.4×10^{-4}	1.42	1.6×10^{-4}
Physics	2.4×10^{-2}	2.7×10^{-6}	9.9×10^{-3}	1.1×10^{-6}	2.1×10^{-2}	2.4×10^{-6}	3.1×10^{-3}	3.6×10^{-7}	1.13	1.3×10^{-4}	2.3×10^{-2}	2.6×10^{-6}	4.1×10^{-3}	4.7×10^{-7}	3.6×10^{-3}	4.1×10^{-7}	1.97	2.2×10^{-4}	1.51	1.7×10^{-4}	1.73	2.0×10^{-4}
Pierce Hall	1.4 x 10-1	1.6×10^{-5}	5.8×10^{-2}	6.7×10^{-6}	1.3 x 10-1	1.4×10^{-5}	1.8×10^{-2}	2.1×10^{-6}	6.69	7.6×10^{-4}	0.14	1.6×10^{-5}	2.4×10^{-2}	2.8×10^{-6}	2.1×10^{-2}	2.4×10^{-6}	11.62	1.3×10^{-3}	8.91	1.0×10^{-3}	10.2	1.2×10^{-3}
Science Lab 1	7.9×10^{-2}	9.0×10^{-6}	3.3×10^{-2}	3.8×10^{-6}	7.2×10^{-2}	8.2×10^{-6}	1.1×10^{-2}	1.2×10^{-6}	3.81	4.3×10^{-4}	7.8×10^{-2}	8.9×10^{-6}	1.4×10^{-2}	1.6×10^{-6}	1.2×10^{-2}	1.4×10^{-6}	6.62	7.6×10^{-4}	5.07	5.8×10^{-4}	5.82	6.6×10^{-4}
School of Medicine – Research	5.4×10^{-3}	6.1×10^{-7}	2.2×10^{-3}	2.6×10^{-7}	4.9×10^{-3}	5.6×10^{-7}	7.1×10^{-4}	8.1×10^{-8}	0.26	2.9×10^{-5}	5.2×10^{-3}	6.0×10^{-7}	9.4×10^{-4}	1.1×10^{-7}	8.2×10^{-4}	9.4×10^{-8}	0.45	5.1×10^{-5}	0.34	3.9×10^{-5}	0.39	4.5×10^{-5}
Spieth Hall	5.0×10^{-2}	5.7×10^{-6}	2.1×10^{-2}	2.4×10^{-6}	4.6×10^{-2}	5.2×10^{-6}	6.7×10^{-3}	7.6×10^{-7}	2.42	2.8×10^{-4}	4.9×10^{-2}	5.6×10^{-6}	8.8×10^{-3}	1.0×10^{-6}	7.7×10^{-3}	8.8×10^{-7}	4.20	4.8×10^{-4}	3.22	3.7×10^{-4}	3.70	4.2×10^{-4}
University Lab Building	7.5×10^{-3}	8.6×10^{-7}	3.1×10^{-3}	3.6×10^{-7}	6.8×10^{-3}	7.8×10^{-7}	1.0×10^{-3}	1.1×10^{-7}	0.36	4.1×10^{-5}	7.3×10^{-3}	8.4×10^{-7}	1.3×10^{-3}	1.5×10^{-7}	1.2×10^{-3}	1.3×10^{-7}	0.63	7.1×10^{-5}	0.48	5.5×10^{-5}	0.55	6.3×10^{-5}
Webber Hall	3.2×10^{-2}	3.7×10^{-6}	1.3×10^{-2}	1.5×10^{-6}	2.9×10^{-2}	3.3×10^{-6}	4.3×10^{-3}	4.9×10^{-7}	1.54	1.8×10^{-4}	3.1×10^{-2}	3.6×10^{-6}	5.6×10^{-3}	6.4×10^{-7}	4.9×10^{-3}	5.6×10^{-7}	2.68	3.1×10^{-4}	2.06	2.3×10^{-4}	2.36	2.7×10^{-4}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

Source	Trichloroethylene		Trichlorofluoromethane (Freon 11)		Trichlorotrifluoro-ethane (CFC-113)		Triethylene glycol dimethyl ether		Urethane (Ethyl carbamate)		Xylenes	
	A	H	A	H	A	H	A	H	A	H	A	H
Batchelor Hall	0.47	5.3×10^{-5}	3.0×10^{-2}	3.4×10^{-6}	6.5×10^{-2}	7.4×10^{-6}	0.67	7.7×10^{-5}	1.6×10^{-2}	1.8×10^{-6}	2.79	3.2×10^{-4}
Biological Sciences	0.16	1.8×10^{-5}	1.0×10^{-2}	1.2×10^{-6}	2.2×10^{-2}	2.6×10^{-6}	0.23	2.6×10^{-5}	5.5×10^{-3}	6.3×10^{-7}	0.96	1.1×10^{-4}
Bourns Hall	0.45	5.2×10^{-5}	2.9×10^{-2}	3.3×10^{-6}	6.3×10^{-2}	7.2×10^{-6}	0.65	7.4×10^{-5}	1.6×10^{-2}	1.8×10^{-6}	2.71	3.1×10^{-4}
Boyce Hall	0.54	6.2×10^{-5}	3.5×10^{-2}	4.0×10^{-6}	7.6×10^{-2}	8.7×10^{-6}	0.78	8.9×10^{-5}	1.9×10^{-2}	2.1×10^{-6}	3.25	3.7×10^{-4}
Boyden Lab	3.5×10^{-2}	4.0×10^{-6}	2.2×10^{-3}	2.6×10^{-7}	4.9×10^{-3}	5.6×10^{-7}	5.0×10^{-2}	5.7×10^{-6}	1.2×10^{-3}	1.4×10^{-7}	0.21	2.4×10^{-5}
Chapman Hall	9.1×10^{-2}	1.0×10^{-5}	5.8×10^{-3}	6.7×10^{-7}	1.3×10^{-2}	1.4×10^{-6}	0.13	1.5×10^{-5}	3.1×10^{-3}	3.6×10^{-7}	0.54	6.2×10^{-5}
Chemical Sciences	1.09	1.2×10^{-4}	7.0×10^{-2}	8.0×10^{-6}	0.15	1.7×10^{-5}	1.57	1.8×10^{-4}	3.7×10^{-2}	4.3×10^{-6}	6.51	7.4×10^{-4}
Entomology	0.20	2.3×10^{-5}	1.3×10^{-2}	1.5×10^{-6}	2.8×10^{-2}	3.2×10^{-6}	0.29	3.3×10^{-5}	6.9×10^{-3}	7.9×10^{-7}	1.21	1.4×10^{-4}
Fawcett Lab	9.1×10^{-2}	1.0×10^{-5}	5.8×10^{-3}	6.7×10^{-7}	1.3×10^{-2}	1.4×10^{-6}	0.13	1.5×10^{-5}	3.1×10^{-3}	3.6×10^{-7}	0.54	6.2×10^{-5}
Genomics	0.22	2.5×10^{-5}	1.4×10^{-2}	1.6×10^{-6}	3.0×10^{-2}	3.4×10^{-6}	0.31	3.6×10^{-5}	7.4×10^{-3}	8.5×10^{-7}	1.29	1.5×10^{-4}
Geology	0.52	5.9×10^{-5}	3.3×10^{-2}	3.8×10^{-6}	7.2×10^{-2}	8.2×10^{-6}	0.74	8.5×10^{-5}	1.8×10^{-2}	2.0×10^{-6}	3.09	3.5×10^{-4}
Greenhouse 1	1.4×10^{-2}	1.6×10^{-6}	9.0×10^{-4}	1.0×10^{-7}	1.9×10^{-3}	2.2×10^{-7}	2.0×10^{-2}	2.3×10^{-6}	4.8×10^{-4}	5.5×10^{-8}	8.3×10^{-2}	9.5×10^{-6}
Greenhouse 2	7.0×10^{-3}	8.0×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.0×10^{-2}	1.1×10^{-6}	2.4×10^{-4}	2.7×10^{-8}	4.2×10^{-2}	4.8×10^{-6}
Greenhouse 3	7.0×10^{-3}	8.0×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.0×10^{-2}	1.1×10^{-6}	2.4×10^{-4}	2.7×10^{-8}	4.2×10^{-2}	4.8×10^{-6}
Greenhouse 6	7.0×10^{-3}	8.0×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.0×10^{-2}	1.1×10^{-6}	2.4×10^{-4}	2.7×10^{-8}	4.2×10^{-2}	4.8×10^{-6}
Greenhouse 7	2.1×10^{-2}	2.4×10^{-6}	1.3×10^{-3}	1.5×10^{-7}	2.9×10^{-3}	3.3×10^{-7}	3.0×10^{-2}	3.4×10^{-6}	7.2×10^{-4}	8.2×10^{-8}	1.3 x 10-1	1.4×10^{-5}
Greenhouse 9	7.0×10^{-3}	8.0×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.0×10^{-2}	1.1×10^{-6}	2.4×10^{-4}	2.7×10^{-8}	4.2×10^{-2}	4.8×10^{-6}
Greenhouse 10	7.0×10^{-3}	8.0×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.0×10^{-2}	1.1×10^{-6}	2.4×10^{-4}	2.7×10^{-8}	4.2×10^{-2}	4.8×10^{-6}
Greenhouse 12	7.0×10^{-3}	8.0×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.0×10^{-2}	1.1×10^{-6}	2.4×10^{-4}	2.7×10^{-8}	4.2×10^{-2}	4.8×10^{-6}
Greenhouse 13	7.0×10^{-3}	8.0×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.0×10^{-2}	1.1×10^{-6}	2.4×10^{-4}	2.7×10^{-8}	4.2×10^{-2}	4.8×10^{-6}
Greenhouse 20	7.0×10^{-3}	8.0×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	9.7×10^{-4}	1.1×10^{-7}	1.0×10^{-2}	1.1×10^{-6}	2.4×10^{-4}	2.7×10^{-8}	4.2×10^{-2}	4.8×10^{-6}
Materials Science & Engineering	0.13	1.4×10^{-5}	8.1×10^{-3}	9.2×10^{-7}	1.8×10^{-2}	2.0×10^{-6}	0.18	2.1×10^{-5}	4.3×10^{-3}	4.9×10^{-7}	0.75	8.6×10^{-5}
Physics	0.15	1.7×10^{-5}	9.9×10^{-3}	1.1×10^{-6}	2.1×10^{-2}	2.4×10^{-6}	0.22	2.5×10^{-5}	5.3×10^{-3}	6.0×10^{-7}	0.92	1.0×10^{-4}
Pierce Hall	0.91	1.0×10^{-4}	5.8×10^{-2}	6.7×10^{-6}	0.13	1.4×10^{-5}	1.3e+00	1.5×10^{-4}	3.1×10^{-2}	3.6×10^{-6}	5.42	6.2×10^{-4}
Science Lab 1	0.52	5.9×10^{-5}	3.3×10^{-2}	3.8×10^{-6}	7.2×10^{-2}	8.2×10^{-6}	0.74	8.5×10^{-5}	1.8×10^{-2}	2.0×10^{-6}	3.09	3.5×10^{-4}
School of Medicine – Research	3.5×10^{-2}	4.0×10^{-6}	2.2×10^{-3}	2.6×10^{-7}	4.9×10^{-3}	5.6×10^{-7}	5.0×10^{-2}	5.7×10^{-6}	1.2×10^{-3}	1.4×10^{-7}	0.21	2.4×10^{-5}
Spieth Hall	0.33	3.7×10^{-5}	2.1×10^{-2}	2.4×10^{-6}	4.6×10^{-2}	5.2×10^{-6}	0.47	5.4×10^{-5}	1.1×10^{-2}	1.3×10^{-6}	1.96	2.2×10^{-4}
University Lab Building	4.9×10^{-2}	5.6×10^{-6}	3.1×10^{-3}	3.6×10^{-7}	6.8×10^{-3}	7.8×10^{-7}	7.0×10^{-2}	8.0×10^{-6}	1.7×10^{-3}	1.9×10^{-7}	0.29	3.3×10^{-5}
Webber Hall	0.21	2.4×10^{-5}	1.3×10^{-2}	1.5×10^{-6}	2.9×10^{-2}	3.3×10^{-6}	0.30	3.4×10^{-5}	7.2×10^{-3}	8.2×10^{-7}	1.25	1.4×10^{-4}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

Table B-9 Laboratory Fume Hood Emissions – Future Scenario

	1,1,2,2-Tetrachloroethane		1,1,2-Trichloroethane (Vinyl trichloride)		1,4-Dioxane		2-Methyl naphthalene [PAH, POM]		4,4-Methylenedianiline [POM]		Acenaphthene [PAH, POM]		Acenaphthylene [PAH, POM]		Acrolein		Acrylonitrile		alpha-Hexachlorocyclo-hexane beta		Ammonia	
Source	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H
Batchelor Hall	5.2×10^{-2}	5.9×10^{-6}	2.6×10^{-2}	3.0×10^{-6}	1.17	1.3×10^{-4}	1.3×10^{-2}	1.5×10^{-6}	5.8×10^{-3}	6.7×10^{-7}	6.5×10^{-3}	7.4×10^{-7}	3.2×10^{-3}	3.7×10^{-7}	3.3×10^{-2}	3.8×10^{-6}	3.3×10^{-2}	3.8×10^{-6}	7.1×10^{-3}	8.2×10^{-7}	7.77	8.9×10^{-4}
Biological Sciences	1.8×10^{-2}	2.0×10^{-6}	8.9×10^{-3}	1.0×10^{-6}	0.40	4.6×10^{-5}	4.5×10^{-3}	5.1×10^{-7}	2.0×10^{-3}	2.3×10^{-7}	2.2×10^{-3}	2.5×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.1×10^{-2}	1.3×10^{-6}	1.1×10^{-2}	1.3×10^{-6}	2.5×10^{-3}	2.8×10^{-7}	2.67	3.0×10^{-4}
Bourns Hall	5.0×10^{-2}	5.8×10^{-6}	2.5×10^{-2}	2.9×10^{-6}	1.14	1.3×10^{-4}	1.3×10^{-2}	1.4×10^{-6}	5.7×10^{-3}	6.5×10^{-7}	6.3×10^{-3}	7.2×10^{-7}	3.1×10^{-3}	3.6×10^{-7}	3.2×10^{-2}	3.7×10^{-6}	3.2×10^{-2}	3.7×10^{-6}	6.9×10^{-3}	7.9×10^{-7}	7.54	8.6×10^{-4}
Boyce Hall	6.0×10^{-2}	6.9×10^{-6}	3.0×10^{-2}	3.5×10^{-6}	1.37	1.6×10^{-4}	1.5×10^{-2}	1.7×10^{-6}	6.8×10^{-3}	7.8×10^{-7}	7.6×10^{-3}	8.6×10^{-7}	3.8×10^{-3}	4.3×10^{-7}	3.9×10^{-2}	4.4×10^{-6}	3.9×10^{-2}	4.4×10^{-6}	8.3×10^{-3}	9.5×10^{-7}	9.05	1.0×10^{-3}
Boyden Lab	3.9×10^{-3}	4.4×10^{-7}	1.9×10^{-3}	2.2×10^{-7}	8.8×10^{-2}	1.0×10^{-5}	9.7×10^{-4}	1.1×10^{-7}	4.4×10^{-4}	5.0×10^{-8}	4.8×10^{-4}	5.5×10^{-8}	2.4×10^{-4}	2.8×10^{-8}	2.5×10^{-3}	2.8×10^{-7}	2.5×10^{-3}	2.8×10^{-7}	5.3×10^{-4}	6.1×10^{-8}	0.58	6.6×10^{-5}
Chapman Hall	1.0×10^{-2}	1.2×10^{-6}	5.0×10^{-3}	5.8×10^{-7}	0.23	2.6×10^{-5}	2.5×10^{-3}	2.9×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.3×10^{-3}	1.4×10^{-7}	6.3×10^{-4}	7.2×10^{-8}	6.4×10^{-3}	7.4×10^{-7}	6.4×10^{-3}	7.3×10^{-7}	1.4×10^{-3}	1.6×10^{-7}	1.51	1.7×10^{-4}
Chemical Sciences	0.12	1.4×10^{-5}	6.0×10^{-2}	6.9×10^{-6}	2.74	3.1×10^{-4}	3.0×10^{-2}	3.5×10^{-6}	1.4×10^{-2}	1.6×10^{-6}	1.5×10^{-2}	1.7×10^{-6}	7.6×10^{-3}	8.6×10^{-7}	7.7×10^{-2}	8.8×10^{-6}	7.7×10^{-2}	8.8×10^{-6}	1.7×10^{-2}	1.9×10^{-6}	18.1	2.1×10^{-3}
Entomology	2.2×10^{-2}	2.6×10^{-6}	1.1×10^{-2}	1.3×10^{-6}	0.51	5.8×10^{-5}	5.6×10^{-3}	6.4×10^{-7}	2.5×10^{-3}	2.9×10^{-7}	2.8×10^{-3}	3.2×10^{-7}	1.4×10^{-3}	1.6×10^{-7}	1.4×10^{-2}	1.6×10^{-6}	1.4×10^{-2}	1.6×10^{-6}	3.1×10^{-3}	3.5×10^{-7}	3.36	3.8×10^{-4}
Fawcett Lab	1.0×10^{-2}	1.2×10^{-6}	5.0×10^{-3}	5.8×10^{-7}	0.23	2.6×10^{-5}	2.5×10^{-3}	2.9×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	1.3×10^{-3}	1.4×10^{-7}	6.3×10^{-4}	7.2×10^{-8}	6.4×10^{-3}	7.4×10^{-7}	6.4×10^{-3}	7.3×10^{-7}	1.4×10^{-3}	1.6×10^{-7}	1.51	1.7×10^{-4}
Genomics	2.4×10^{-2}	2.7×10^{-6}	1.2×10^{-2}	1.4×10^{-6}	0.54	6.2×10^{-5}	6.0×10^{-3}	6.9×10^{-7}	2.7×10^{-3}	3.1×10^{-7}	3.0×10^{-3}	3.4×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.5×10^{-2}	1.8×10^{-6}	1.5×10^{-2}	1.7×10^{-6}	3.3×10^{-3}	3.8×10^{-7}	3.60	4.1×10^{-4}
Geology	5.7×10^{-2}	6.5×10^{-6}	2.9×10^{-2}	3.3×10^{-6}	1.30	1.5×10^{-4}	1.4×10^{-2}	1.6×10^{-6}	6.5×10^{-3}	7.4×10^{-7}	7.2×10^{-3}	8.2×10^{-7}	3.6×10^{-3}	4.1×10^{-7}	3.7×10^{-2}	4.2×10^{-6}	3.7×10^{-2}	4.2×10^{-6}	7.9×10^{-3}	9.0×10^{-7}	8.58	9.8×10^{-4}
Greenhouse 1	1.6×10^{-3}	1.8×10^{-7}	7.8×10^{-4}	8.8×10^{-8}	3.5×10^{-2}	4.0×10^{-6}	3.9×10^{-4}	4.4×10^{-8}	1.7×10^{-4}	2.0×10^{-8}	1.9×10^{-4}	2.2×10^{-8}	9.7×10^{-5}	1.1×10^{-8}	9.9×10^{-4}	1.1×10^{-7}	9.9×10^{-4}	1.1×10^{-7}	2.1×10^{-4}	2.4×10^{-8}	0.23	2.6×10^{-5}
Greenhouse 2	7.8×10^{-4}	8.8×10^{-8}	3.9×10^{-4}	4.4×10^{-8}	1.8×10^{-2}	2.0×10^{-6}	1.9×10^{-4}	2.2×10^{-8}	8.7×10^{-5}	1.0×10^{-8}	9.7×10^{-5}	1.1×10^{-8}	4.8×10^{-5}	5.5×10^{-9}	5.0×10^{-4}	5.7×10^{-8}	4.9×10^{-4}	5.6×10^{-8}	1.1×10^{-4}	1.2×10^{-8}	0.12	1.3×10^{-5}
Greenhouse 3	7.8×10^{-4}	8.8×10^{-8}	3.9×10^{-4}	4.4×10^{-8}	1.8×10^{-2}	2.0×10^{-6}	1.9×10^{-4}	2.2×10^{-8}	8.7×10^{-5}	1.0×10^{-8}	9.7×10^{-5}	1.1×10^{-8}	4.8×10^{-5}	5.5×10^{-9}	5.0×10^{-4}	5.7×10^{-8}	4.9×10^{-4}	5.6×10^{-8}	1.1×10^{-4}	1.2×10^{-8}	0.12	1.3×10^{-5}
Greenhouse 6	7.8×10^{-4}	8.8×10^{-8}	3.9×10^{-4}	4.4×10^{-8}	1.8×10^{-2}	2.0×10^{-6}	1.9×10^{-4}	2.2×10^{-8}	8.7×10^{-5}	1.0×10^{-8}	9.7×10^{-5}	1.1×10^{-8}	4.8×10^{-5}	5.5×10^{-9}	5.0×10^{-4}	5.7×10^{-8}	4.9×10^{-4}	5.6×10^{-8}	1.1×10^{-4}	1.2×10^{-8}	0.12	1.3×10^{-5}
Greenhouse 7	2.3×10^{-3}	2.7×10^{-7}	1.2×10^{-3}	1.3×10^{-7}	5.3×10^{-2}	6.0×10^{-6}	5.8×10^{-4}	6.6×10^{-8}	2.6×10^{-4}	3.0×10^{-8}	2.9×10^{-4}	3.3×10^{-8}	1.5×10^{-4}	1.7×10^{-8}	1.5×10^{-3}	1.7×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	3.2×10^{-4}	3.6×10^{-8}	0.35	4.0×10^{-5}
Greenhouse 9	7.8×10^{-4}	8.8×10^{-8}	3.9×10^{-4}	4.4×10^{-8}	1.8×10^{-2}	2.0×10^{-6}	1.9×10^{-4}	2.2×10^{-8}	8.7×10^{-5}	1.0×10^{-8}	9.7×10^{-5}	1.1×10^{-8}	4.8×10^{-5}	5.5×10^{-9}	5.0×10^{-4}	5.7×10^{-8}	4.9×10^{-4}	5.6×10^{-8}	1.1×10^{-4}	1.2×10^{-8}	0.12	1.3×10^{-5}
Greenhouse 10	7.8×10^{-4}	8.8×10^{-8}	3.9×10^{-4}	4.4×10^{-8}	1.8×10^{-2}	2.0×10^{-6}	1.9×10^{-4}	2.2×10^{-8}	8.7×10^{-5}	1.0×10^{-8}	9.7×10^{-5}	1.1×10^{-8}	4.8×10^{-5}	5.5×10^{-9}	5.0×10^{-4}	5.7×10^{-8}	4.9×10^{-4}	5.6×10^{-8}	1.1×10^{-4}	1.2×10^{-8}	0.12	1.3×10^{-5}
Greenhouse 12	7.8×10^{-4}	8.8×10^{-8}	3.9×10^{-4}	4.4×10^{-8}	1.8×10^{-2}	2.0×10^{-6}	1.9×10^{-4}	2.2×10^{-8}	8.7×10^{-5}	1.0×10^{-8}	9.7×10^{-5}	1.1×10^{-8}	4.8×10^{-5}	5.5×10^{-9}	5.0×10^{-4}	5.7×10^{-8}	4.9×10^{-4}	5.6×10^{-8}	1.1×10^{-4}	1.2×10^{-8}	0.12	1.3×10^{-5}
Greenhouse 13	7.8×10^{-4}	8.8×10^{-8}	3.9×10^{-4}	4.4×10^{-8}	1.8×10^{-2}	2.0×10^{-6}	1.9×10^{-4}	2.2×10^{-8}	8.7×10^{-5}	1.0×10^{-8}	9.7×10^{-5}	1.1×10^{-8}	4.8×10^{-5}	5.5×10^{-9}	5.0×10^{-4}	5.7×10^{-8}	4.9×10^{-4}	5.6×10^{-8}	1.1×10^{-4}	1.2×10^{-8}	0.12	1.3×10^{-5}
Greenhouse 20	7.8×10^{-4}	8.8×10^{-8}	3.9×10^{-4}	4.4×10^{-8}	1.8×10^{-2}	2.0×10^{-6}	1.9×10^{-4}	2.2×10^{-8}	8.7×10^{-5}	1.0×10^{-8}	9.7×10^{-5}	1.1×10^{-8}	4.8×10^{-5}	5.5×10^{-9}	5.0×10^{-4}	5.7×10^{-8}	4.9×10^{-4}	5.6×10^{-8}	1.1×10^{-4}	1.2×10^{-8}	0.12	1.3×10^{-5}
Materials Science & Engineering	1.4×10^{-2}	1.6×10^{-6}	7.0×10^{-3}	8.0×10^{-7}	0.32	3.6×10^{-5}	3.5×10^{-3}	4.0×10^{-7}	1.6×10^{-3}	1.8×10^{-7}	1.7×10^{-3}	2.0×10^{-7}	8.7×10^{-4}	1.0×10^{-7}	8.9×10^{-3}	1.0×10^{-6}	8.9×10^{-3}	1.0×10^{-6}	1.9×10^{-3}	2.2×10^{-7}	2.09	2.4×10^{-4}
Physics	1.7×10^{-2}	1.9×10^{-6}	8.5×10^{-3}	9.7×10^{-7}	0.39	4.4×10^{-5}	4.3×10^{-3}	4.9×10^{-7}	1.9×10^{-3}	2.2×10^{-7}	2.1×10^{-3}	2.4×10^{-7}	1.1×10^{-3}	1.2×10^{-7}	1.1×10^{-2}	1.2×10^{-6}	1.1×10^{-2}	1.2×10^{-6}	2.3×10^{-3}	2.7×10^{-7}	2.55	2.9×10^{-4}
Pierce Hall	0.10	1.2×10^{-5}	5.0×10^{-2}	5.8×10^{-6}	2.28	2.6×10^{-4}	2.5×10^{-2}	2.9×10^{-6}	1.1×10^{-2}	1.3×10^{-6}	1.3×10^{-2}	1.4×10^{-6}	6.3×10^{-3}	7.2×10^{-7}	6.4×10^{-2}	7.4×10^{-6}	6.4×10^{-2}	7.3×10^{-6}	1.4×10^{-2}	1.6×10^{-6}	15.1	1.7×10^{-3}
Science Lab 1	5.7×10^{-2}	6.5×10^{-6}	2.9×10^{-2}	3.3×10^{-6}	1.30	1.5×10^{-4}	1.4×10^{-2}	1.6×10^{-6}	6.5×10^{-3}	7.4×10^{-7}	7.2×10^{-3}	8.2×10^{-7}	3.6×10^{-3}	4.1×10^{-7}	3.7×10^{-2}	4.2×10^{-6}	3.7×10^{-2}	4.2×10^{-6}	7.9×10^{-3}	9.0×10^{-7}	8.58	9.8×10^{-4}
School of Medicine – Research	3.9×10^{-3}	4.4×10^{-7}	1.9×10^{-3}	2.2×10^{-7}	8.8×10^{-2}	1.0×10^{-5}	9.7×10^{-4}	1.1×10^{-7}	4.4×10^{-4}	5.0×10^{-8}	4.8×10^{-4}	5.5×10^{-8}	2.4×10^{-4}	2.8×10^{-8}	2.5×10^{-3}	2.8×10^{-7}	2.5×10^{-3}	2.8×10^{-7}	5.3×10^{-4}	6.1×10^{-8}	0.58	6.6×10^{-5}
Spieth Hall	3.6×10^{-2}	4.2×10^{-6}	1.8×10^{-2}	2.1×10^{-6}	0.82	9.4×10^{-5}	9.1×10^{-3}	1.0×10^{-6}	4.1×10^{-3}	4.7×10^{-7}	4.6×10^{-3}	5.2×10^{-7}	2.3×10^{-3}	2.6×10^{-7}	2.3×10^{-2}	2.7×10^{-6}	2.3×10^{-2}	2.7×10^{-6}	5.0×10^{-3}	5.7×10^{-7}	5.45	6.2×10^{-4}
University Lab Building	5.4×10^{-3}	6.2×10^{-7}	2.7×10^{-3}	3.1×10^{-7}	0.12	1.4×10^{-5}	1.4×10^{-3}	1.5×10^{-7}	6.1×10^{-4}	7.0×10^{-8}	6.8×10^{-4}	7.7×10^{-8}	3.4×10^{-4}	3.9×10^{-8}	3.5×10^{-3}	4.0×10^{-7}	3.5×10^{-3}	3.9×10^{-7}	7.5×10^{-4}	8.5×10^{-8}	0.81	9.3×10^{-5}
Webber Hall	2.3×10^{-2}	2.7×10^{-6}	1.2×10^{-2}	1.3×10^{-6}	0.53	6.0×10^{-5}	5.8×10^{-3}	6.6×10^{-7}	2.6×10^{-3}	3.0×10^{-7}	2.9×10^{-3}	3.3×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.5×10^{-2}	1.7×10^{-6}	1.5×10^{-2}	1.7×10^{-6}	3.2×10^{-3}	3.6×10^{-7}	3.48	4.0×10^{-4}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

	Anthracene [PAH, POM]		Benzene		1,3-Butadiene		Cadmium		Carbon tetrachloride		Chlorine		Chloroform		Copper		Crystalline silica		Ethylene dibromide (1,2-Dibromoethane)		Ethylene dichloride (1,2-Dichloroethane)	
Source	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**
Batchelor Hall	5.2×10^{-2}	5.9×10^{-6}	1.48	1.7×10^{-4}	6.0×10^{-2}	6.8×10^{-6}	2.5×10^{-2}	2.8×10^{-6}	0.84	9.6×10^{-5}	6.5×10^{-3}	7.4×10^{-7}	15.2	1.7×10^{-3}	0.13	1.4×10^{-5}	3.8×10^{-2}	4.3×10^{-6}	0.19	2.2×10^{-5}	1.19	1.4×10^{-4}
Biological Sciences	1.8×10^{-2}	2.0×10^{-6}	0.51	5.8×10^{-5}	2.1×10^{-2}	2.3×10^{-6}	8.5×10^{-3}	9.7×10^{-7}	0.29	3.3×10^{-5}	2.2×10^{-3}	2.5×10^{-7}	5.21	5.9×10^{-4}	4.3×10^{-2}	4.9×10^{-6}	1.3×10^{-2}	1.5×10^{-6}	6.6×10^{-2}	7.5×10^{-6}	0.41	4.7×10^{-5}
Bourns Hall	5.0×10^{-2}	5.8×10^{-6}	1.44	1.6×10^{-4}	5.8×10^{-2}	6.6×10^{-6}	2.4×10^{-2}	2.7×10^{-6}	0.82	9.3×10^{-5}	6.3×10^{-3}	7.2×10^{-7}	14.7	1.7×10^{-3}	0.12	1.4×10^{-5}	3.7×10^{-2}	4.2×10^{-6}	0.19	2.1×10^{-5}	1.15	1.3×10^{-4}
Boyce Hall	6.0×10^{-2}	6.9×10^{-6}	1.72	2.0×10^{-4}	7.0×10^{-2}	7.9×10^{-6}	2.9×10^{-2}	3.3×10^{-6}	0.98	1.1×10^{-4}	7.6×10^{-3}	8.6×10^{-7}	17.7	2.0×10^{-3}	0.15	1.7×10^{-5}	4.4×10^{-2}	5.0×10^{-6}	0.22	2.6×10^{-5}	1.38	1.6×10^{-4}
Boyden Lab	3.9×10^{-3}	4.4×10^{-7}	0.11	1.3×10^{-5}	4.5×10^{-3}	5.1×10^{-7}	1.8×10^{-3}	2.1×10^{-7}	6.3×10^{-2}	7.2×10^{-6}	4.8×10^{-4}	5.5×10^{-8}	1.13	1.3×10^{-4}	9.4×10^{-3}	1.1×10^{-6}	2.8×10^{-3}	3.2×10^{-7}	1.4×10^{-2}	1.6×10^{-6}	8.9×10^{-2}	1.0×10^{-5}
Chapman Hall	1.0×10^{-2}	1.2×10^{-6}	0.29	3.3×10^{-5}	1.2×10^{-2}	1.3×10^{-6}	4.8×10^{-3}	5.5×10^{-7}	0.16	1.9×10^{-5}	1.3×10^{-3}	1.4×10^{-7}	2.94	3.4×10^{-4}	2.4×10^{-2}	2.8×10^{-6}	7.3×10^{-3}	8.3×10^{-7}	3.7×10^{-2}	4.3×10^{-6}	0.23	2.6×10^{-5}
Chemical Sciences	0.12	1.4×10^{-5}	3.45	3.9×10^{-4}	0.14	1.6×10^{-5}	5.8×10^{-2}	6.6×10^{-6}	2.0e+00	2.2×10^{-4}	1.5×10^{-2}	1.7×10^{-6}	35.3	4.0×10^{-3}	0.29	3.3×10^{-5}	8.8×10^{-2}	1.0×10^{-5}	0.45	5.1×10^{-5}	2.77	3.2×10^{-4}
Entomology	2.2×10^{-2}	2.6×10^{-6}	0.64	7.3×10^{-5}	2.6×10^{-2}	3.0×10^{-6}	1.1×10^{-2}	1.2×10^{-6}	0.37	4.2×10^{-5}	2.8×10^{-3}	3.2×10^{-7}	6.56	7.5×10^{-4}	5.5×10^{-2}	6.2×10^{-6}	1.6×10^{-2}	1.9×10^{-6}	8.3×10^{-2}	9.5×10^{-6}	0.51	5.9×10^{-5}
Fawcett Lab	1.0×10^{-2}	1.2×10^{-6}	0.29	3.3×10^{-5}	1.2×10^{-2}	1.3×10^{-6}	4.8×10^{-3}	5.5×10^{-7}	0.16	1.9×10^{-5}	1.3×10^{-3}	1.4×10^{-7}	2.94	3.4×10^{-4}	2.4×10^{-2}	2.8×10^{-6}	7.3×10^{-3}	8.3×10^{-7}	3.7×10^{-2}	4.3×10^{-6}	0.23	2.6×10^{-5}
Genomics	2.4×10^{-2}	2.7×10^{-6}	0.68	7.8×10^{-5}	2.8×10^{-2}	3.2×10^{-6}	1.1×10^{-2}	1.3×10^{-6}	0.39	4.5×10^{-5}	3.0×10^{-3}	3.4×10^{-7}	7.02	8.0×10^{-4}	5.8×10^{-2}	6.7×10^{-6}	1.7×10^{-2}	2.0×10^{-6}	8.9×10^{-2}	1.0×10^{-5}	0.55	6.3×10^{-5}
Geology	5.7×10^{-2}	6.5×10^{-6}	1.63	1.9×10^{-4}	6.6×10^{-2}	7.5×10^{-6}	2.7×10^{-2}	3.1×10^{-6}	0.93	1.1×10^{-4}	7.2×10^{-3}	8.2×10^{-7}	16.7	1.9×10^{-3}	0.14	1.6×10^{-5}	4.2×10^{-2}	4.7×10^{-6}	0.21	2.4×10^{-5}	1.31	1.5×10^{-4}
Greenhouse 1	1.6×10^{-3}	1.8×10^{-7}	4.4×10^{-2}	5.0×10^{-6}	1.8×10^{-3}	2.0×10^{-7}	7.4×10^{-4}	8.4×10^{-8}	2.5×10^{-2}	2.9×10^{-6}	1.9×10^{-4}	2.2×10^{-8}	0.45	5.2×10^{-5}	3.8×10^{-3}	4.3×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	5.7×10^{-3}	6.5×10^{-7}	3.5×10^{-2}	4.0×10^{-6}
Greenhouse 2	7.8×10^{-4}	8.8×10^{-8}	2.2×10^{-2}	2.5×10^{-6}	8.9×10^{-4}	1.0×10^{-7}	3.7×10^{-4}	4.2×10^{-8}	1.3×10^{-2}	1.4×10^{-6}	9.7×10^{-5}	1.1×10^{-8}	0.23	2.6×10^{-5}	1.9×10^{-3}	2.1×10^{-7}	5.6×10^{-4}	6.4×10^{-8}	2.9×10^{-3}	3.3×10^{-7}	1.8×10^{-2}	2.0×10^{-6}
Greenhouse 3	7.8×10^{-4}	8.8×10^{-8}	2.2×10^{-2}	2.5×10^{-6}	8.9×10^{-4}	1.0×10^{-7}	3.7×10^{-4}	4.2×10^{-8}	1.3×10^{-2}	1.4×10^{-6}	9.7×10^{-5}	1.1×10^{-8}	0.23	2.6×10^{-5}	1.9×10^{-3}	2.1×10^{-7}	5.6×10^{-4}	6.4×10^{-8}	2.9×10^{-3}	3.3×10^{-7}	1.8×10^{-2}	2.0×10^{-6}
Greenhouse 6	7.8×10^{-4}	8.8×10^{-8}	2.2×10^{-2}	2.5×10^{-6}	8.9×10^{-4}	1.0×10^{-7}	3.7×10^{-4}	4.2×10^{-8}	1.3×10^{-2}	1.4×10^{-6}	9.7×10^{-5}	1.1×10^{-8}	0.23	2.6×10^{-5}	1.9×10^{-3}	2.1×10^{-7}	5.6×10^{-4}	6.4×10^{-8}	2.9×10^{-3}	3.3×10^{-7}	1.8×10^{-2}	2.0×10^{-6}
Greenhouse 7	2.3×10^{-3}	2.7×10^{-7}	6.6×10^{-2}	7.6×10^{-6}	2.7×10^{-3}	3.1×10^{-7}	1.1×10^{-3}	1.3×10^{-7}	3.8×10^{-2}	4.3×10^{-6}	2.9×10^{-4}	3.3×10^{-8}	0.68	7.8×10^{-5}	5.6×10^{-3}	6.4×10^{-7}	1.7×10^{-3}	1.9×10^{-7}	8.6×10^{-3}	9.8×10^{-7}	5.3×10^{-2}	6.1×10^{-6}
Greenhouse 9	7.8×10^{-4}	8.8×10^{-8}	2.2×10^{-2}	2.5×10^{-6}	8.9×10^{-4}	1.0×10^{-7}	3.7×10^{-4}	4.2×10^{-8}	1.3×10^{-2}	1.4×10^{-6}	9.7×10^{-5}	1.1×10^{-8}	0.23	2.6×10^{-5}	1.9×10^{-3}	2.1×10^{-7}	5.6×10^{-4}	6.4×10^{-8}	2.9×10^{-3}	3.3×10^{-7}	1.8×10^{-2}	2.0×10^{-6}
Greenhouse 10	7.8×10^{-4}	8.8×10^{-8}	2.2×10^{-2}	2.5×10^{-6}	8.9×10^{-4}	1.0×10^{-7}	3.7×10^{-4}	4.2×10^{-8}	1.3×10^{-2}	1.4×10^{-6}	9.7×10^{-5}	1.1×10^{-8}	0.23	2.6×10^{-5}	1.9×10^{-3}	2.1×10^{-7}	5.6×10^{-4}	6.4×10^{-8}	2.9×10^{-3}	3.3×10^{-7}	1.8×10^{-2}	2.0×10^{-6}
Greenhouse 12	7.8×10^{-4}	8.8×10^{-8}	2.2×10^{-2}	2.5×10^{-6}	8.9×10^{-4}	1.0×10^{-7}	3.7×10^{-4}	4.2×10^{-8}	1.3×10^{-2}	1.4×10^{-6}	9.7×10^{-5}	1.1×10^{-8}	0.23	2.6×10^{-5}	1.9×10^{-3}	2.1×10^{-7}	5.6×10^{-4}	6.4×10^{-8}	2.9×10^{-3}	3.3×10^{-7}	1.8×10^{-2}	2.0×10^{-6}
Greenhouse 13	7.8×10^{-4}	8.8×10^{-8}	2.2×10^{-2}	2.5×10^{-6}	8.9×10^{-4}	1.0×10^{-7}	3.7×10^{-4}	4.2×10^{-8}	1.3×10^{-2}	1.4×10^{-6}	9.7×10^{-5}	1.1×10^{-8}	0.23	2.6×10^{-5}	1.9×10^{-3}	2.1×10^{-7}	5.6×10^{-4}	6.4×10^{-8}	2.9×10^{-3}	3.3×10^{-7}	1.8×10^{-2}	2.0×10^{-6}
Greenhouse 20	7.8×10^{-4}	8.8×10^{-8}	2.2×10^{-2}	2.5×10^{-6}	8.9×10^{-4}	1.0×10^{-7}	3.7×10^{-4}	4.2×10^{-8}	1.3×10^{-2}	1.4×10^{-6}	9.7×10^{-5}	1.1×10^{-8}	0.23	2.6×10^{-5}	1.9×10^{-3}	2.1×10^{-7}	5.6×10^{-4}	6.4×10^{-8}	2.9×10^{-3}	3.3×10^{-7}	1.8×10^{-2}	2.0×10^{-6}
Materials Science & Engineering	1.4×10^{-2}	1.6×10^{-6}	0.40	4.5×10^{-5}	1.6×10^{-2}	1.8×10^{-6}	6.6×10^{-3}	7.6×10^{-7}	0.23	2.6×10^{-5}	1.7×10^{-3}	2.0×10^{-7}	4.07	4.7×10^{-4}	3.4×10^{-2}	3.9×10^{-6}	1.0×10^{-2}	1.2×10^{-6}	5.2×10^{-2}	5.9×10^{-6}	0.32	3.6×10^{-5}
Physics	1.7×10^{-2}	1.9×10^{-6}	0.49	5.5×10^{-5}	2.0×10^{-2}	2.2×10^{-6}	8.1×10^{-3}	9.3×10^{-7}	0.28	3.2×10^{-5}	2.1×10^{-3}	2.4×10^{-7}	4.98	5.7×10^{-4}	4.1×10^{-2}	4.7×10^{-6}	1.2×10^{-2}	1.4×10^{-6}	6.3×10^{-2}	7.2×10^{-6}	0.39	4.5×10^{-5}
Pierce Hall	0.10	1.2×10^{-5}	2.87	3.3×10^{-4}	0.12	1.3×10^{-5}	4.8×10^{-2}	5.5×10^{-6}	1.64	1.9×10^{-4}	1.3×10^{-2}	1.4×10^{-6}	29.4	3.4×10^{-3}	0.24	2.8×10^{-5}	7.3×10^{-2}	8.3×10^{-6}	0.37	4.3×10^{-5}	2.30	2.6×10^{-4}
Science Lab 1	5.7×10^{-2}	6.5×10^{-6}	1.63	1.9×10^{-4}	6.6×10^{-2}	7.5×10^{-6}	2.7×10^{-2}	3.1×10^{-6}	0.93	1.1×10^{-4}	7.2×10^{-3}	8.2×10^{-7}	16.7	1.9×10^{-3}	0.14	1.6×10^{-5}	4.2×10^{-2}	4.7×10^{-6}	0.21	2.4×10^{-5}	1.31	1.5×10^{-4}
School of Medicine – Research	3.9×10^{-3}	4.4×10^{-7}	0.11	1.3×10^{-5}	4.5×10^{-3}	5.1×10^{-7}	1.8×10^{-3}	2.1×10^{-7}	6.3×10^{-2}	7.2×10^{-6}	4.8×10^{-4}	5.5×10^{-8}	1.13	1.3×10^{-4}	9.4×10^{-3}	1.1×10^{-6}	2.8×10^{-3}	3.2×10^{-7}	1.4×10^{-2}	1.6×10^{-6}	8.9×10^{-2}	1.0×10^{-5}
Spieth Hall	3.6×10^{-2}	4.2×10^{-6}	1.04	1.2×10^{-4}	4.2×10^{-2}	4.8×10^{-6}	1.7×10^{-2}	2.0×10^{-6}	0.59	6.8×10^{-5}	4.6×10^{-3}	5.2×10^{-7}	10.6	1.2×10^{-3}	8.8×10^{-2}	1.0×10^{-5}	2.6×10^{-2}	3.0×10^{-6}	0.13	1.5×10^{-5}	0.83	9.5×10^{-5}
University Lab Building	5.4×10^{-3}	6.2×10^{-7}	0.15	1.8×10^{-5}	6.2×10^{-3}	7.1×10^{-7}	2.6×10^{-3}	2.9×10^{-7}	8.8×10^{-2}	1.0×10^{-5}	6.8×10^{-4}	7.7×10^{-8}	1.58	1.8×10^{-4}	1.3×10^{-2}	1.5×10^{-6}	3.9×10^{-3}	4.5×10^{-7}	2.0×10^{-2}	2.3×10^{-6}	0.12	1.4×10^{-5}
Webber Hall	2.3×10^{-2}	2.7×10^{-6}	0.66	7.6×10^{-5}	2.7×10^{-2}	3.1×10^{-6}	1.1×10^{-2}	1.3×10^{-6}	0.38	4.3×10^{-5}	2.9×10^{-3}	3.3×10^{-7}	6.79	7.8×10^{-4}	5.6×10^{-2}	6.4×10^{-6}	1.7×10^{-2}	1.9×10^{-6}	8.6×10^{-2}	9.8×10^{-6}	0.53	6.1×10^{-5}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

	Ethylene glycol monoethyl ether		Ethylene glycol monomethyl ether		Ethylene oxide		Fluorene [PAH, POM]		Formaldehyde		Hexachlorobenzene		Hexamethylene-1,6-diisocyanate		Hexane		Hydrazine		Hydrochloric acid		Hydrogen fluoride (hydrofluoric acid)	
Source	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**
Batchelor Hall	0.57	6.5×10^{-5}	9.7×10^{-2}	1.1×10^{-5}	1.0×10^{-2}	1.2×10^{-6}	1.9×10^{-2}	2.1×10^{-6}	3.43	3.9×10^{-4}	2.6×10^{-3}	3.0×10^{-7}	3.9×10^{-4}	4.4×10^{-8}	9.93	1.1×10^{-3}	1.9×10^{-2}	2.2×10^{-6}	56.2	6.4×10^{-3}	0.97	1.1×10^{-4}
Biological Sciences	0.20	2.2×10^{-5}	3.3×10^{-2}	3.8×10^{-6}	3.6×10^{-3}	4.1×10^{-7}	6.5×10^{-3}	7.4×10^{-7}	1.18	1.3×10^{-4}	8.9×10^{-4}	1.0×10^{-7}	1.3×10^{-4}	1.5×10^{-8}	3.41	3.9×10^{-4}	6.5×10^{-3}	7.4×10^{-7}	19.3	2.2×10^{-3}	0.33	3.8×10^{-5}
Bourns Hall	0.55	6.3×10^{-5}	9.4×10^{-2}	1.1×10^{-5}	1.0×10^{-2}	1.2×10^{-6}	1.8×10^{-2}	2.1×10^{-6}	3.33	3.8×10^{-4}	2.5×10^{-3}	2.9×10^{-7}	3.8×10^{-4}	4.3×10^{-8}	9.63	1.1×10^{-3}	1.8×10^{-2}	2.1×10^{-6}	54.5	6.2×10^{-3}	0.94	1.1×10^{-4}
Boyce Hall	0.67	7.6×10^{-5}	0.11	1.3×10^{-5}	1.2×10^{-2}	1.4×10^{-6}	2.2×10^{-2}	2.5×10^{-6}	4.00	4.6×10^{-4}	3.0×10^{-3}	3.5×10^{-7}	4.5×10^{-4}	5.2×10^{-8}	11.6	1.3×10^{-3}	2.2×10^{-2}	2.5×10^{-6}	65.4	7.5×10^{-3}	1.13	1.3×10^{-4}
Boyden Lab	4.3×10^{-2}	4.9×10^{-6}	7.3×10^{-3}	8.3×10^{-7}	7.8×10^{-4}	8.8×10^{-8}	1.4×10^{-3}	1.6×10^{-7}	0.26	2.9×10^{-5}	1.9×10^{-4}	2.2×10^{-8}	2.9×10^{-5}	3.3×10^{-9}	0.74	8.5×10^{-5}	1.4×10^{-3}	1.6×10^{-7}	4.19	4.8×10^{-4}	7.3×10^{-2}	8.3×10^{-6}
Chapman Hall	0.11	1.3×10^{-5}	1.9×10^{-2}	2.2×10^{-6}	2.0×10^{-3}	2.3×10^{-7}	3.7×10^{-3}	4.2×10^{-7}	0.67	7.6×10^{-5}	5.0×10^{-4}	5.8×10^{-8}	7.6×10^{-5}	8.6×10^{-9}	1.93	2.2×10^{-4}	3.7×10^{-3}	4.2×10^{-7}	10.9	1.2×10^{-3}	0.19	2.2×10^{-5}
Chemical Sciences	1.33	1.5×10^{-4}	0.23	2.6×10^{-5}	2.4×10^{-2}	2.8×10^{-6}	4.4×10^{-2}	5.0×10^{-6}	8.00	9.1×10^{-4}	6.0×10^{-3}	6.9×10^{-7}	9.1×10^{-4}	1.0×10^{-7}	23.1	2.6×10^{-3}	4.4×10^{-2}	5.0×10^{-6}	131	1.5×10^{-2}	2.27	2.6×10^{-4}
Entomology	0.25	2.8×10^{-5}	4.2×10^{-2}	4.8×10^{-6}	4.5×10^{-3}	5.1×10^{-7}	8.1×10^{-3}	9.3×10^{-7}	1.49	1.7×10^{-4}	1.1×10^{-3}	1.3×10^{-7}	1.7×10^{-4}	1.9×10^{-8}	4.30	4.9×10^{-4}	8.2×10^{-3}	9.4×10^{-7}	24.3	2.8×10^{-3}	0.42	4.8×10^{-5}
Fawcett Lab	0.11	1.3×10^{-5}	1.9×10^{-2}	2.2×10^{-6}	2.0×10^{-3}	2.3×10^{-7}	3.7×10^{-3}	4.2×10^{-7}	0.67	7.6×10^{-5}	5.0×10^{-4}	5.8×10^{-8}	7.6×10^{-5}	8.6×10^{-9}	1.93	2.2×10^{-4}	3.7×10^{-3}	4.2×10^{-7}	10.9	1.2×10^{-3}	0.19	2.2×10^{-5}
Genomics	0.26	3.0×10^{-5}	4.5×10^{-2}	5.1×10^{-6}	4.8×10^{-3}	5.5×10^{-7}	8.7×10^{-3}	9.9×10^{-7}	1.59	1.8×10^{-4}	1.2×10^{-3}	1.4×10^{-7}	1.8×10^{-4}	2.1×10^{-8}	4.59	5.2×10^{-4}	8.8×10^{-3}	1.0×10^{-6}	26.0	3.0×10^{-3}	0.45	5.1×10^{-5}
Geology	0.63	7.2×10^{-5}	0.11	1.2×10^{-5}	1.1×10^{-2}	1.3×10^{-6}	2.1×10^{-2}	2.4×10^{-6}	3.79	4.3×10^{-4}	2.9×10^{-3}	3.3×10^{-7}	4.3×10^{-4}	4.9×10^{-8}	11.0	1.3×10^{-3}	2.1×10^{-2}	2.4×10^{-6}	62.1	7.1×10^{-3}	1.08	1.2×10^{-4}
Greenhouse 1	1.7×10^{-2}	1.9×10^{-6}	2.9×10^{-3}	3.3×10^{-7}	3.1×10^{-4}	3.5×10^{-8}	5.6×10^{-4}	6.4×10^{-8}	0.10	1.2×10^{-5}	7.8×10^{-5}	8.8×10^{-9}	1.2×10^{-5}	1.3×10^{-9}	0.30	3.4×10^{-5}	5.7×10^{-4}	6.5×10^{-8}	1.68	1.9×10^{-4}	2.9×10^{-2}	3.3×10^{-6}
Greenhouse 2	8.5×10^{-3}	9.7×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.6×10^{-4}	1.8×10^{-8}	2.8×10^{-4}	3.2×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	3.9×10^{-5}	4.4×10^{-9}	5.8×10^{-6}	6.6×10^{-10}	0.15	1.7×10^{-5}	2.8×10^{-4}	3.2×10^{-8}	0.84	9.6×10^{-5}	1.5×10^{-2}	1.7×10^{-6}
Greenhouse 3	8.5×10^{-3}	9.7×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.6×10^{-4}	1.8×10^{-8}	2.8×10^{-4}	3.2×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	3.9×10^{-5}	4.4×10^{-9}	5.8×10^{-6}	6.6×10^{-10}	0.15	1.7×10^{-5}	2.8×10^{-4}	3.2×10^{-8}	0.84	9.6×10^{-5}	1.5×10^{-2}	1.7×10^{-6}
Greenhouse 6	8.5×10^{-3}	9.7×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.6×10^{-4}	1.8×10^{-8}	2.8×10^{-4}	3.2×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	3.9×10^{-5}	4.4×10^{-9}	5.8×10^{-6}	6.6×10^{-10}	0.15	1.7×10^{-5}	2.8×10^{-4}	3.2×10^{-8}	0.84	9.6×10^{-5}	1.5×10^{-2}	1.7×10^{-6}
Greenhouse 7	2.6×10^{-2}	2.9×10^{-6}	4.4×10^{-3}	5.0×10^{-7}	4.7×10^{-4}	5.3×10^{-8}	8.4×10^{-4}	9.6×10^{-8}	0.15	1.8×10^{-5}	1.2×10^{-4}	1.3×10^{-8}	1.7×10^{-5}	2.0×10^{-9}	0.44	5.1×10^{-5}	8.5×10^{-4}	9.7×10^{-8}	2.52	2.9×10^{-4}	4.4×10^{-2}	5.0×10^{-6}
Greenhouse 9	8.5×10^{-3}	9.7×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.6×10^{-4}	1.8×10^{-8}	2.8×10^{-4}	3.2×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	3.9×10^{-5}	4.4×10^{-9}	5.8×10^{-6}	6.6×10^{-10}	0.15	1.7×10^{-5}	2.8×10^{-4}	3.2×10^{-8}	0.84	9.6×10^{-5}	1.5×10^{-2}	1.7×10^{-6}
Greenhouse 10	8.5×10^{-3}	9.7×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.6×10^{-4}	1.8×10^{-8}	2.8×10^{-4}	3.2×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	3.9×10^{-5}	4.4×10^{-9}	5.8×10^{-6}	6.6×10^{-10}	0.15	1.7×10^{-5}	2.8×10^{-4}	3.2×10^{-8}	0.84	9.6×10^{-5}	1.5×10^{-2}	1.7×10^{-6}
Greenhouse 12	8.5×10^{-3}	9.7×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.6×10^{-4}	1.8×10^{-8}	2.8×10^{-4}	3.2×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	3.9×10^{-5}	4.4×10^{-9}	5.8×10^{-6}	6.6×10^{-10}	0.15	1.7×10^{-5}	2.8×10^{-4}	3.2×10^{-8}	0.84	9.6×10^{-5}	1.5×10^{-2}	1.7×10^{-6}
Greenhouse 13	8.5×10^{-3}	9.7×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.6×10^{-4}	1.8×10^{-8}	2.8×10^{-4}	3.2×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	3.9×10^{-5}	4.4×10^{-9}	5.8×10^{-6}	6.6×10^{-10}	0.15	1.7×10^{-5}	2.8×10^{-4}	3.2×10^{-8}	0.84	9.6×10^{-5}	1.5×10^{-2}	1.7×10^{-6}
Greenhouse 20	8.5×10^{-3}	9.7×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	1.6×10^{-4}	1.8×10^{-8}	2.8×10^{-4}	3.2×10^{-8}	5.1×10^{-2}	5.9×10^{-6}	3.9×10^{-5}	4.4×10^{-9}	5.8×10^{-6}	6.6×10^{-10}	0.15	1.7×10^{-5}	2.8×10^{-4}	3.2×10^{-8}	0.84	9.6×10^{-5}	1.5×10^{-2}	1.7×10^{-6}
Materials Science & Engineering	0.15	1.8×10^{-5}	2.6×10^{-2}	3.0×10^{-6}	2.8×10^{-3}	3.2×10^{-7}	5.1×10^{-3}	5.8×10^{-7}	0.92	1.1×10^{-4}	7.0×10^{-4}	8.0×10^{-8}	1.0×10^{-4}	1.2×10^{-8}	2.67	3.0×10^{-4}	5.1×10^{-3}	5.8×10^{-7}	15.1	1.7×10^{-3}	0.26	3.0×10^{-5}
Physics	0.19	2.1×10^{-5}	3.2×10^{-2}	3.6×10^{-6}	3.4×10^{-3}	3.9×10^{-7}	6.2×10^{-3}	7.1×10^{-7}	1.13	1.3×10^{-4}	8.5×10^{-4}	9.7×10^{-8}	1.3×10^{-4}	1.5×10^{-8}	3.26	3.7×10^{-4}	6.2×10^{-3}	7.1×10^{-7}	18.4	2.1×10^{-3}	0.32	3.6×10^{-5}
Pierce Hall	1.11	1.3×10^{-4}	0.19	2.2×10^{-5}	2.0×10^{-2}	2.3×10^{-6}	3.7×10^{-2}	4.2×10^{-6}	6.66	7.6×10^{-4}	5.0×10^{-3}	5.8×10^{-7}	7.6×10^{-4}	8.6×10^{-8}	19.3	2.2×10^{-3}	3.7×10^{-2}	4.2×10^{-6}	109	1.2×10^{-2}	1.89	2.2×10^{-4}
Science Lab 1	0.63	7.2×10^{-5}	0.11	1.2×10^{-5}	1.1×10^{-2}	1.3×10^{-6}	2.1×10^{-2}	2.4×10^{-6}	3.79	4.3×10^{-4}	2.9×10^{-3}	3.3×10^{-7}	4.3×10^{-4}	4.9×10^{-8}	11.0	1.3×10^{-3}	2.1×10^{-2}	2.4×10^{-6}	62.1	7.1×10^{-3}	1.08	1.2×10^{-4}
School of Medicine – Research	4.3×10^{-2}	4.9×10^{-6}	7.3×10^{-3}	8.3×10^{-7}	7.8×10^{-4}	8.8×10^{-8}	1.4×10^{-3}	1.6×10^{-7}	0.26	2.9×10^{-5}	1.9×10^{-4}	2.2×10^{-8}	2.9×10^{-5}	3.3×10^{-9}	0.74	8.5×10^{-5}	1.4×10^{-3}	1.6×10^{-7}	4.19	4.8×10^{-4}	7.3×10^{-2}	8.3×10^{-6}
Spieth Hall	0.40	4.6×10^{-5}	6.8×10^{-2}	7.8×10^{-6}	7.3×10^{-3}	8.3×10^{-7}	1.3×10^{-2}	1.5×10^{-6}	2.41	2.7×10^{-4}	1.8×10^{-3}	2.1×10^{-7}	2.7×10^{-4}	3.1×10^{-8}	6.96	7.9×10^{-4}	1.3×10^{-2}	1.5×10^{-6}	39.4	4.5×10^{-3}	0.68	7.8×10^{-5}
University Lab Building	6.0×10^{-2}	6.8×10^{-6}	1.0×10^{-2}	1.2×10^{-6}	1.1×10^{-3}	1.2×10^{-7}	2.0×10^{-3}	2.2×10^{-7}	0.36	4.1×10^{-5}	2.7×10^{-4}	3.1×10^{-8}	4.1×10^{-5}	4.6×10^{-9}	1.04	1.2×10^{-4}	2.0×10^{-3}	2.3×10^{-7}	5.87	6.7×10^{-4}	0.10	1.2×10^{-5}
Webber Hall	0.26	2.9×10^{-5}	4.4×10^{-2}	5.0×10^{-6}	4.7×10^{-3}	5.3×10^{-7}	8.4×10^{-3}	9.6×10^{-7}	1.54	1.8×10^{-4}	1.2×10^{-3}	1.3×10^{-7}	1.7×10^{-4}	2.0×10^{-8}	4.44	5.1×10^{-4}	8.5×10^{-3}	9.7×10^{-7}	25.2	2.9×10^{-3}	0.44	5.0×10^{-5}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

Source	Lead compounds (inorganic)		Lindane (gamma-Hexa-chlorocyclohexane)		Manganese		Mercuric chloride		Mercury		Methanol		Methyl isobutyl ketone (Hexone)		Methylene chloride (Dichloromethane)		Methylene diphenyl diisocyanate [MDI] [POM]		Naphthalene [PAH, POM]		Nickel	
	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H	A	H
Batchelor Hall	1.6×10^{-2}	1.9×10^{-6}	1.3×10^{-3}	1.5×10^{-7}	1.0×10^{-2}	1.2×10^{-6}	7.8×10^{-2}	8.9×10^{-6}	9.7×10^{-2}	1.1×10^{-5}	29.6	3.4×10^{-3}	0.38	4.4×10^{-5}	19.6	2.2×10^{-3}	7.8×10^{-3}	8.9×10^{-7}	0.23	2.6×10^{-5}	5.8×10^{-3}	6.7×10^{-7}
Biological Sciences	5.6×10^{-3}	6.4×10^{-7}	4.5×10^{-4}	5.1×10^{-8}	3.6×10^{-3}	4.1×10^{-7}	2.7×10^{-2}	3.1×10^{-6}	3.3×10^{-2}	3.8×10^{-6}	10.2	1.2×10^{-3}	0.13	1.5×10^{-5}	6.73	7.7×10^{-4}	2.7×10^{-3}	3.1×10^{-7}	7.9×10^{-2}	9.0×10^{-6}	2.0×10^{-3}	2.3×10^{-7}
Bourns Hall	1.6×10^{-2}	1.8×10^{-6}	1.3×10^{-3}	1.4×10^{-7}	1.0×10^{-2}	1.2×10^{-6}	7.6×10^{-2}	8.6×10^{-6}	9.4×10^{-2}	1.1×10^{-5}	28.7	3.3×10^{-3}	0.37	4.2×10^{-5}	19.0	2.2×10^{-3}	7.6×10^{-3}	8.6×10^{-7}	0.22	2.5×10^{-5}	5.7×10^{-3}	6.5×10^{-7}
Boyce Hall	1.9×10^{-2}	2.2×10^{-6}	1.5×10^{-3}	1.7×10^{-7}	1.2×10^{-2}	1.4×10^{-6}	9.1×10^{-2}	1.0×10^{-5}	0.11	1.3×10^{-5}	34.4	3.9×10^{-3}	0.45	5.1×10^{-5}	22.8	2.6×10^{-3}	9.1×10^{-3}	1.0×10^{-6}	0.27	3.0×10^{-5}	6.8×10^{-3}	7.8×10^{-7}
Boyden Lab	1.2×10^{-3}	1.4×10^{-7}	9.7×10^{-5}	1.1×10^{-8}	7.8×10^{-4}	8.8×10^{-8}	5.8×10^{-3}	6.6×10^{-7}	7.3×10^{-3}	8.3×10^{-7}	2.21	2.5×10^{-4}	2.9×10^{-2}	3.3×10^{-6}	1.46	1.7×10^{-4}	5.8×10^{-4}	6.6×10^{-8}	1.7×10^{-2}	2.0×10^{-6}	4.4×10^{-4}	5.0×10^{-8}
Chapman Hall	3.1×10^{-3}	3.6×10^{-7}	2.5×10^{-4}	2.9×10^{-8}	2.0×10^{-3}	2.3×10^{-7}	1.5×10^{-2}	1.7×10^{-6}	1.9×10^{-2}	2.2×10^{-6}	5.74	6.6×10^{-4}	7.4×10^{-2}	8.5×10^{-6}	3.80	4.3×10^{-4}	1.5×10^{-3}	1.7×10^{-7}	4.4×10^{-2}	5.1×10^{-6}	1.1×10^{-3}	1.3×10^{-7}
Chemical Sciences	3.8×10^{-2}	4.3×10^{-6}	3.0×10^{-3}	3.5×10^{-7}	2.4×10^{-2}	2.8×10^{-6}	0.18	2.1×10^{-5}	0.23	2.6×10^{-5}	68.9	7.9×10^{-3}	0.89	1.0×10^{-4}	45.7	5.2×10^{-3}	1.8×10^{-2}	2.1×10^{-6}	0.53	6.1×10^{-5}	1.4×10^{-2}	1.6×10^{-6}
Entomology	7.0×10^{-3}	8.0×10^{-7}	5.6×10^{-4}	6.4×10^{-8}	4.5×10^{-3}	5.1×10^{-7}	3.4×10^{-2}	3.8×10^{-6}	4.2×10^{-2}	4.8×10^{-6}	12.8	1.5×10^{-3}	0.17	1.9×10^{-5}	8.49	9.7×10^{-4}	3.4×10^{-3}	3.8×10^{-7}	9.9×10^{-2}	1.1×10^{-5}	2.5×10^{-3}	2.9×10^{-7}
Fawcett Lab	3.1×10^{-3}	3.6×10^{-7}	2.5×10^{-4}	2.9×10^{-8}	2.0×10^{-3}	2.3×10^{-7}	1.5×10^{-2}	1.7×10^{-6}	1.9×10^{-2}	2.2×10^{-6}	5.74	6.6×10^{-4}	7.4×10^{-2}	8.5×10^{-6}	3.80	4.3×10^{-4}	1.5×10^{-3}	1.7×10^{-7}	4.4×10^{-2}	5.1×10^{-6}	1.1×10^{-3}	1.3×10^{-7}
Genomics	7.5×10^{-3}	8.6×10^{-7}	6.0×10^{-4}	6.9×10^{-8}	4.8×10^{-3}	5.5×10^{-7}	3.6×10^{-2}	4.1×10^{-6}	4.5×10^{-2}	5.1×10^{-6}	13.7	1.6×10^{-3}	0.18	2.0×10^{-5}	9.07	1.0×10^{-3}	3.6×10^{-3}	4.1×10^{-7}	0.11	1.2×10^{-5}	2.7×10^{-3}	3.1×10^{-7}
Geology	1.8×10^{-2}	2.0×10^{-6}	1.4×10^{-3}	1.6×10^{-7}	1.1×10^{-2}	1.3×10^{-6}	8.6×10^{-2}	9.8×10^{-6}	0.11	1.2×10^{-5}	32.7	3.7×10^{-3}	0.42	4.8×10^{-5}	21.7	2.5×10^{-3}	8.6×10^{-3}	9.8×10^{-7}	0.25	2.9×10^{-5}	6.5×10^{-3}	7.4×10^{-7}
Greenhouse 1	4.8×10^{-4}	5.5×10^{-8}	3.9×10^{-5}	4.4×10^{-9}	3.1×10^{-4}	3.5×10^{-8}	2.3×10^{-3}	2.7×10^{-7}	2.9×10^{-3}	3.3×10^{-7}	0.88	1.0×10^{-4}	1.1×10^{-2}	1.3×10^{-6}	0.59	6.7×10^{-5}	2.3×10^{-4}	2.7×10^{-8}	6.8×10^{-3}	7.8×10^{-7}	1.7×10^{-4}	2.0×10^{-8}
Greenhouse 2	2.4×10^{-4}	2.8×10^{-8}	1.9×10^{-5}	2.2×10^{-9}	1.6×10^{-4}	1.8×10^{-8}	1.2×10^{-3}	1.3×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	0.44	5.0×10^{-5}	5.7×10^{-3}	6.5×10^{-7}	0.29	3.3×10^{-5}	1.2×10^{-4}	1.3×10^{-8}	3.4×10^{-3}	3.9×10^{-7}	8.7×10^{-5}	1.0×10^{-8}
Greenhouse 3	2.4×10^{-4}	2.8×10^{-8}	1.9×10^{-5}	2.2×10^{-9}	1.6×10^{-4}	1.8×10^{-8}	1.2×10^{-3}	1.3×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	0.44	5.0×10^{-5}	5.7×10^{-3}	6.5×10^{-7}	0.29	3.3×10^{-5}	1.2×10^{-4}	1.3×10^{-8}	3.4×10^{-3}	3.9×10^{-7}	8.7×10^{-5}	1.0×10^{-8}
Greenhouse 6	2.4×10^{-4}	2.8×10^{-8}	1.9×10^{-5}	2.2×10^{-9}	1.6×10^{-4}	1.8×10^{-8}	1.2×10^{-3}	1.3×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	0.44	5.0×10^{-5}	5.7×10^{-3}	6.5×10^{-7}	0.29	3.3×10^{-5}	1.2×10^{-4}	1.3×10^{-8}	3.4×10^{-3}	3.9×10^{-7}	8.7×10^{-5}	1.0×10^{-8}
Greenhouse 7	7.3×10^{-4}	8.3×10^{-8}	5.8×10^{-5}	6.6×10^{-9}	4.7×10^{-4}	5.3×10^{-8}	3.5×10^{-3}	4.0×10^{-7}	4.4×10^{-3}	5.0×10^{-7}	1.32	1.5×10^{-4}	1.7×10^{-2}	2.0×10^{-6}	0.88	1.0×10^{-4}	3.5×10^{-4}	4.0×10^{-8}	1.0×10^{-2}	1.2×10^{-6}	2.6×10^{-4}	3.0×10^{-8}
Greenhouse 9	2.4×10^{-4}	2.8×10^{-8}	1.9×10^{-5}	2.2×10^{-9}	1.6×10^{-4}	1.8×10^{-8}	1.2×10^{-3}	1.3×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	0.44	5.0×10^{-5}	5.7×10^{-3}	6.5×10^{-7}	0.29	3.3×10^{-5}	1.2×10^{-4}	1.3×10^{-8}	3.4×10^{-3}	3.9×10^{-7}	8.7×10^{-5}	1.0×10^{-8}
Greenhouse 10	2.4×10^{-4}	2.8×10^{-8}	1.9×10^{-5}	2.2×10^{-9}	1.6×10^{-4}	1.8×10^{-8}	1.2×10^{-3}	1.3×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	0.44	5.0×10^{-5}	5.7×10^{-3}	6.5×10^{-7}	0.29	3.3×10^{-5}	1.2×10^{-4}	1.3×10^{-8}	3.4×10^{-3}	3.9×10^{-7}	8.7×10^{-5}	1.0×10^{-8}
Greenhouse 12	2.4×10^{-4}	2.8×10^{-8}	1.9×10^{-5}	2.2×10^{-9}	1.6×10^{-4}	1.8×10^{-8}	1.2×10^{-3}	1.3×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	0.44	5.0×10^{-5}	5.7×10^{-3}	6.5×10^{-7}	0.29	3.3×10^{-5}	1.2×10^{-4}	1.3×10^{-8}	3.4×10^{-3}	3.9×10^{-7}	8.7×10^{-5}	1.0×10^{-8}
Greenhouse 13	2.4×10^{-4}	2.8×10^{-8}	1.9×10^{-5}	2.2×10^{-9}	1.6×10^{-4}	1.8×10^{-8}	1.2×10^{-3}	1.3×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	0.44	5.0×10^{-5}	5.7×10^{-3}	6.5×10^{-7}	0.29	3.3×10^{-5}	1.2×10^{-4}	1.3×10^{-8}	3.4×10^{-3}	3.9×10^{-7}	8.7×10^{-5}	1.0×10^{-8}
Greenhouse 20	2.4×10^{-4}	2.8×10^{-8}	1.9×10^{-5}	2.2×10^{-9}	1.6×10^{-4}	1.8×10^{-8}	1.2×10^{-3}	1.3×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	0.44	5.0×10^{-5}	5.7×10^{-3}	6.5×10^{-7}	0.29	3.3×10^{-5}	1.2×10^{-4}	1.3×10^{-8}	3.4×10^{-3}	3.9×10^{-7}	8.7×10^{-5}	1.0×10^{-8}
Materials Science & Engineering	4.4×10^{-3}	5.0×10^{-7}	3.5×10^{-4}	4.0×10^{-8}	2.8×10^{-3}	3.2×10^{-7}	2.1×10^{-2}	2.4×10^{-6}	2.6×10^{-2}	3.0×10^{-6}	7.95	9.1×10^{-4}	0.10	1.2×10^{-5}	5.27	6.0×10^{-4}	2.1×10^{-3}	2.4×10^{-7}	6.2×10^{-2}	7.0×10^{-6}	1.6×10^{-3}	1.8×10^{-7}
Physics	5.3×10^{-3}	6.1×10^{-7}	4.3×10^{-4}	4.9×10^{-8}	3.4×10^{-3}	3.9×10^{-7}	2.6×10^{-2}	2.9×10^{-6}	3.2×10^{-2}	3.6×10^{-6}	9.72	1.1×10^{-3}	0.13	1.4×10^{-5}	6.44	7.4×10^{-4}	2.6×10^{-3}	2.9×10^{-7}	7.5×10^{-2}	8.6×10^{-6}	1.9×10^{-3}	2.2×10^{-7}
Pierce Hall	3.1×10^{-2}	3.6×10^{-6}	2.5×10^{-3}	2.9×10^{-7}	2.0×10^{-2}	2.3×10^{-6}	0.15	1.7×10^{-5}	0.19	2.2×10^{-5}	57.4	6.6×10^{-3}	0.74	8.5×10^{-5}	38.0	4.3×10^{-3}	1.5×10^{-2}	1.7×10^{-6}	0.44	5.1×10^{-5}	1.1×10^{-2}	1.3×10^{-6}
Science Lab 1	1.8×10^{-2}	2.0×10^{-6}	1.4×10^{-3}	1.6×10^{-7}	1.1×10^{-2}	1.3×10^{-6}	8.6×10^{-2}	9.8×10^{-6}	0.11	1.2×10^{-5}	32.7	3.7×10^{-3}	0.42	4.8×10^{-5}	21.7	2.5×10^{-3}	8.6×10^{-3}	9.8×10^{-7}	0.25	2.9×10^{-5}	6.5×10^{-3}	7.4×10^{-7}
School of Medicine – Research	1.2×10^{-3}	1.4×10^{-7}	9.7×10^{-5}	1.1×10^{-8}	7.8×10^{-4}	8.8×10^{-8}	5.8×10^{-3}	6.6×10^{-7}	7.3×10^{-3}	8.3×10^{-7}	2.21	2.5×10^{-4}	2.9×10^{-2}	3.3×10^{-6}	1.46	1.7×10^{-4}	5.8×10^{-4}	6.6×10^{-8}	1.7×10^{-2}	2.0×10^{-6}	4.4×10^{-4}	5.0×10^{-8}
Spieth Hall	1.1×10^{-2}	1.3×10^{-6}	9.1×10^{-4}	1.0×10^{-7}	7.3×10^{-3}	8.3×10^{-7}	5.5×10^{-2}	6.2×10^{-6}	6.8×10^{-2}	7.8×10^{-6}	20.8	2.4×10^{-3}	0.27	3.1×10^{-5}	13.8	1.6×10^{-3}	5.5×10^{-3}	6.2×10^{-7}	0.16	1.8×10^{-5}	4.1×10^{-3}	4.7×10^{-7}
University Lab Building	1.7×10^{-3}	1.9×10^{-7}	1.4×10^{-4}	1.5×10^{-8}	1.1×10^{-3}	1.2×10^{-7}	8.1×10^{-3}	9.3×10^{-7}	1.0×10^{-2}	1.2×10^{-6}	3.09	3.5×10^{-4}	4.0×10^{-2}	4.6×10^{-6}	2.05	2.3×10^{-4}	8.1×10^{-4}	9.3×10^{-8}	2.4×10^{-2}	2.7×10^{-6}	6.1×10^{-4}	7.0×10^{-8}
Webber Hall	7.3×10^{-3}	8.3×10^{-7}	5.8×10^{-4}	6.6×10^{-8}	4.7×10^{-3}	5.3×10^{-7}	3.5×10^{-2}	4.0×10^{-6}	4.4×10^{-2}	5.0×10^{-6}	13.2	1.5×10^{-3}	0.17	2.0×10^{-5}	8.78	1.0×10^{-3}	3.5×10^{-3}	4.0×10^{-7}	0.10	1.2×10^{-5}	2.6×10^{-3}	3.0×10^{-7}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

	Oleum		p-Dichlorobenzene (1,4-Dichlorobenzene)		Perchloroethylene (Tetrachloro-ethene)		Phenanthrene [PAH, POM]		Phosphoric acid		Propylene oxide		Pyrene [PAH, POM]		Selenium		Sodium hydroxide		Sulfuric acid		Toluene	
Source	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**
Batchelor Hall	9.3×10^{-2}	1.1×10^{-5}	3.9×10^{-2}	4.4×10^{-6}	8.4×10^{-2}	9.6×10^{-6}	1.2×10^{-2}	1.4×10^{-6}	4.46	5.1×10^{-4}	9.1×10^{-2}	1.0×10^{-5}	1.6×10^{-2}	1.9×10^{-6}	1.4×10^{-2}	1.6×10^{-6}	7.75	8.8×10^{-4}	5.94	6.8×10^{-4}	6.82	7.8×10^{-4}
Biological Sciences	3.2×10^{-2}	3.6×10^{-6}	1.3×10^{-2}	1.5×10^{-6}	2.9×10^{-2}	3.3×10^{-6}	4.2×10^{-3}	4.8×10^{-7}	1.53	1.7×10^{-4}	3.1×10^{-2}	3.6×10^{-6}	5.6×10^{-3}	6.4×10^{-7}	4.9×10^{-3}	5.6×10^{-7}	2.66	3.0×10^{-4}	2.04	2.3×10^{-4}	2.34	2.7×10^{-4}
Bourns Hall	9.0×10^{-2}	1.0×10^{-5}	3.8×10^{-2}	4.3×10^{-6}	8.2×10^{-2}	9.3×10^{-6}	1.2×10^{-2}	1.4×10^{-6}	4.33	4.9×10^{-4}	8.8×10^{-2}	1.0×10^{-5}	1.6×10^{-2}	1.8×10^{-6}	1.4×10^{-2}	1.6×10^{-6}	7.52	8.6×10^{-4}	5.76	6.6×10^{-4}	6.62	7.6×10^{-4}
Boyce Hall	0.11	1.2×10^{-5}	4.5×10^{-2}	5.2×10^{-6}	9.8×10^{-2}	1.1×10^{-5}	1.4×10^{-2}	1.6×10^{-6}	5.19	5.9×10^{-4}	0.11	1.2×10^{-5}	1.9×10^{-2}	2.2×10^{-6}	1.7×10^{-2}	1.9×10^{-6}	9.02	1.0×10^{-3}	6.91	7.9×10^{-4}	7.94	9.1×10^{-4}
Boyden Lab	6.9×10^{-3}	7.9×10^{-7}	2.9×10^{-3}	3.3×10^{-7}	6.3×10^{-3}	7.2×10^{-7}	9.2×10^{-4}	1.1×10^{-7}	0.33	3.8×10^{-5}	6.8×10^{-3}	7.7×10^{-7}	1.2×10^{-3}	1.4×10^{-7}	1.1×10^{-3}	1.2×10^{-7}	0.58	6.6×10^{-5}	0.44	5.1×10^{-5}	0.51	5.8×10^{-5}
Chapman Hall	1.8×10^{-2}	2.1×10^{-6}	7.6×10^{-3}	8.6×10^{-7}	1.6×10^{-2}	1.9×10^{-6}	2.4×10^{-3}	2.7×10^{-7}	0.87	9.9×10^{-5}	1.8×10^{-2}	2.0×10^{-6}	3.1×10^{-3}	3.6×10^{-7}	2.8×10^{-3}	3.2×10^{-7}	1.50	1.7×10^{-4}	1.15	1.3×10^{-4}	1.32	1.5×10^{-4}
Chemical Sciences	0.22	2.5×10^{-5}	9.1×10^{-2}	1.0×10^{-5}	0.20	2.2×10^{-5}	2.9×10^{-2}	3.3×10^{-6}	10.4	1.2×10^{-3}	0.21	2.4×10^{-5}	3.8×10^{-2}	4.3×10^{-6}	3.3×10^{-2}	3.8×10^{-6}	18.0	2.1×10^{-3}	13.8	1.6×10^{-3}	15.9	1.8×10^{-3}
Entomology	4.0×10^{-2}	4.6×10^{-6}	1.7×10^{-2}	1.9×10^{-6}	3.7×10^{-2}	4.2×10^{-6}	5.3×10^{-3}	6.1×10^{-7}	1.93	2.2×10^{-4}	3.9×10^{-2}	4.5×10^{-6}	7.0×10^{-3}	8.0×10^{-7}	6.2×10^{-3}	7.1×10^{-7}	3.35	3.8×10^{-4}	2.57	2.9×10^{-4}	2.95	3.4×10^{-4}
Fawcett Lab	1.8×10^{-2}	2.1×10^{-6}	7.6×10^{-3}	8.6×10^{-7}	1.6×10^{-2}	1.9×10^{-6}	2.4×10^{-3}	2.7×10^{-7}	0.87	9.9×10^{-5}	1.8×10^{-2}	2.0×10^{-6}	3.1×10^{-3}	3.6×10^{-7}	2.8×10^{-3}	3.2×10^{-7}	1.50	1.7×10^{-4}	1.15	1.3×10^{-4}	1.32	1.5×10^{-4}
Genomics	4.3×10^{-2}	4.9×10^{-6}	1.8×10^{-2}	2.1×10^{-6}	3.9×10^{-2}	4.5×10^{-6}	5.7×10^{-3}	6.5×10^{-7}	2.06	2.4×10^{-4}	4.2×10^{-2}	4.8×10^{-6}	7.5×10^{-3}	8.6×10^{-7}	6.6×10^{-3}	7.5×10^{-7}	3.59	4.1×10^{-4}	2.75	3.1×10^{-4}	3.16	3.6×10^{-4}
Geology	0.10	1.2×10^{-5}	4.3×10^{-2}	4.9×10^{-6}	9.3×10^{-2}	1.1×10^{-5}	1.4×10^{-2}	1.6×10^{-6}	4.93	5.6×10^{-4}	0.10	1.1×10^{-5}	1.8×10^{-2}	2.0×10^{-6}	1.6×10^{-2}	1.8×10^{-6}	8.56	9.8×10^{-4}	6.56	7.5×10^{-4}	7.54	8.6×10^{-4}
Greenhouse 1	2.8×10^{-3}	3.2×10^{-7}	1.2×10^{-3}	1.3×10^{-7}	2.5×10^{-3}	2.9×10^{-7}	3.7×10^{-4}	4.2×10^{-8}	0.13	1.5×10^{-5}	2.7×10^{-3}	3.1×10^{-7}	4.8×10^{-4}	5.5×10^{-8}	4.3×10^{-4}	4.9×10^{-8}	0.23	2.6×10^{-5}	0.18	2.0×10^{-5}	0.20	2.3×10^{-5}
Greenhouse 2	1.4×10^{-3}	1.6×10^{-7}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.8×10^{-4}	2.1×10^{-8}	6.7×10^{-2}	7.6×10^{-6}	1.4×10^{-3}	1.5×10^{-7}	2.4×10^{-4}	2.8×10^{-8}	2.1×10^{-4}	2.4×10^{-8}	0.12	1.3×10^{-5}	8.9×10^{-2}	1.0×10^{-5}	0.10	1.2×10^{-5}
Greenhouse 3	1.4×10^{-3}	1.6×10^{-7}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.8×10^{-4}	2.1×10^{-8}	6.7×10^{-2}	7.6×10^{-6}	1.4×10^{-3}	1.5×10^{-7}	2.4×10^{-4}	2.8×10^{-8}	2.1×10^{-4}	2.4×10^{-8}	0.12	1.3×10^{-5}	8.9×10^{-2}	1.0×10^{-5}	0.10	1.2×10^{-5}
Greenhouse 6	1.4×10^{-3}	1.6×10^{-7}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.8×10^{-4}	2.1×10^{-8}	6.7×10^{-2}	7.6×10^{-6}	1.4×10^{-3}	1.5×10^{-7}	2.4×10^{-4}	2.8×10^{-8}	2.1×10^{-4}	2.4×10^{-8}	0.12	1.3×10^{-5}	8.9×10^{-2}	1.0×10^{-5}	0.10	1.2×10^{-5}
Greenhouse 7	4.2×10^{-3}	4.7×10^{-7}	1.7×10^{-3}	2.0×10^{-7}	3.8×10^{-3}	4.3×10^{-7}	5.5×10^{-4}	6.3×10^{-8}	0.20	2.3×10^{-5}	4.1×10^{-3}	4.6×10^{-7}	7.3×10^{-4}	8.3×10^{-8}	6.4×10^{-4}	7.3×10^{-8}	0.35	4.0×10^{-5}	0.27	3.0×10^{-5}	0.31	3.5×10^{-5}
Greenhouse 9	1.4×10^{-3}	1.6×10^{-7}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.8×10^{-4}	2.1×10^{-8}	6.7×10^{-2}	7.6×10^{-6}	1.4×10^{-3}	1.5×10^{-7}	2.4×10^{-4}	2.8×10^{-8}	2.1×10^{-4}	2.4×10^{-8}	0.12	1.3×10^{-5}	8.9×10^{-2}	1.0×10^{-5}	0.10	1.2×10^{-5}
Greenhouse 10	1.4×10^{-3}	1.6×10^{-7}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.8×10^{-4}	2.1×10^{-8}	6.7×10^{-2}	7.6×10^{-6}	1.4×10^{-3}	1.5×10^{-7}	2.4×10^{-4}	2.8×10^{-8}	2.1×10^{-4}	2.4×10^{-8}	0.12	1.3×10^{-5}	8.9×10^{-2}	1.0×10^{-5}	0.10	1.2×10^{-5}
Greenhouse 12	1.4×10^{-3}	1.6×10^{-7}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.8×10^{-4}	2.1×10^{-8}	6.7×10^{-2}	7.6×10^{-6}	1.4×10^{-3}	1.5×10^{-7}	2.4×10^{-4}	2.8×10^{-8}	2.1×10^{-4}	2.4×10^{-8}	0.12	1.3×10^{-5}	8.9×10^{-2}	1.0×10^{-5}	0.10	1.2×10^{-5}
Greenhouse 13	1.4×10^{-3}	1.6×10^{-7}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.8×10^{-4}	2.1×10^{-8}	6.7×10^{-2}	7.6×10^{-6}	1.4×10^{-3}	1.5×10^{-7}	2.4×10^{-4}	2.8×10^{-8}	2.1×10^{-4}	2.4×10^{-8}	0.12	1.3×10^{-5}	8.9×10^{-2}	1.0×10^{-5}	0.10	1.2×10^{-5}
Greenhouse 20	1.4×10^{-3}	1.6×10^{-7}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.8×10^{-4}	2.1×10^{-8}	6.7×10^{-2}	7.6×10^{-6}	1.4×10^{-3}	1.5×10^{-7}	2.4×10^{-4}	2.8×10^{-8}	2.1×10^{-4}	2.4×10^{-8}	0.12	1.3×10^{-5}	8.9×10^{-2}	1.0×10^{-5}	0.10	1.2×10^{-5}
Materials Science & Engineering	2.5×10^{-2}	2.8×10^{-6}	1.0×10^{-2}	1.2×10^{-6}	2.3×10^{-2}	2.6×10^{-6}	3.3×10^{-3}	3.8×10^{-7}	1.20	1.4×10^{-4}	2.4×10^{-2}	2.8×10^{-6}	4.4×10^{-3}	5.0×10^{-7}	3.8×10^{-3}	4.4×10^{-7}	2.08	2.4×10^{-4}	1.60	1.8×10^{-4}	1.83	2.1×10^{-4}
Physics	3.0×10^{-2}	3.5×10^{-6}	1.3×10^{-2}	1.5×10^{-6}	2.8×10^{-2}	3.2×10^{-6}	4.0×10^{-3}	4.6×10^{-7}	1.46	1.7×10^{-4}	3.0×10^{-2}	3.4×10^{-6}	5.3×10^{-3}	6.1×10^{-7}	4.7×10^{-3}	5.4×10^{-7}	2.54	2.9×10^{-4}	1.95	2.2×10^{-4}	2.24	2.6×10^{-4}
Pierce Hall	0.18	2.1×10^{-5}	7.6×10^{-2}	8.6×10^{-6}	0.16	1.9×10^{-5}	2.4×10^{-2}	2.7×10^{-6}	8.65	9.9×10^{-4}	0.18	2.0×10^{-5}	3.1×10^{-2}	3.6×10^{-6}	2.8×10^{-2}	3.2×10^{-6}	15.0	1.7×10^{-3}	11.5	1.3×10^{-3}	13.2	1.5×10^{-3}
Science Lab 1	0.10	1.2×10^{-5}	4.3×10^{-2}	4.9×10^{-6}	9.3×10^{-2}	1.1×10^{-5}	1.4×10^{-2}	1.6×10^{-6}	4.93	5.6×10^{-4}	0.10	1.1×10^{-5}	1.8×10^{-2}	2.0×10^{-6}	1.6×10^{-2}	1.8×10^{-6}	8.56	9.8×10^{-4}	6.56	7.5×10^{-4}	7.54	8.6×10^{-4}
School of Medicine – Research	6.9×10^{-3}	7.9×10^{-7}	2.9×10^{-3}	3.3×10^{-7}	6.3×10^{-3}	7.2×10^{-7}	9.2×10^{-4}	1.1×10^{-7}	0.33	3.8×10^{-5}	6.8×10^{-3}	7.7×10^{-7}	1.2×10^{-3}	1.4×10^{-7}	1.1×10^{-3}	1.2×10^{-7}	0.58	6.6×10^{-5}	0.44	5.1×10^{-5}	0.51	5.8×10^{-5}
Spieth Hall	6.5×10^{-2}	7.4×10^{-6}	2.7×10^{-2}	3.1×10^{-6}	5.9×10^{-2}	6.8×10^{-6}	8.7×10^{-3}	9.9×10^{-7}	3.13	3.6×10^{-4}	6.4×10^{-2}	7.3×10^{-6}	1.1×10^{-2}	1.3×10^{-6}	1.0×10^{-2}	1.1×10^{-6}	5.44	6.2×10^{-4}	4.17	4.8×10^{-4}	4.79	5.5×10^{-4}
University Lab Building	9.7×10^{-3}	1.1×10^{-6}	4.1×10^{-3}	4.6×10^{-7}	8.8×10^{-3}	1.0×10^{-6}	1.3×10^{-3}	1.5×10^{-7}	0.47	5.3×10^{-5}	9.5×10^{-3}	1.1×10^{-6}	1.7×10^{-3}	1.9×10^{-7}	1.5×10^{-3}	1.7×10^{-7}	0.81	9.2×10^{-5}	0.62	7.1×10^{-5}	0.71	8.1×10^{-5}
Webber Hall	4.2×10^{-2}	4.7×10^{-6}	1.7×10^{-2}	2.0×10^{-6}	3.8×10^{-2}	4.3×10^{-6}	5.5×10^{-3}	6.3×10^{-7}	2.00	2.3×10^{-4}	4.1×10^{-2}	4.6×10^{-6}	7.3×10^{-3}	8.3×10^{-7}	6.4×10^{-3}	7.3×10^{-7}	3.47	4.0×10^{-4}	2.66	3.0×10^{-4}	3.05	3.5×10^{-4}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

	Trichloroethylene		Trichlorofluoromethane (Freon 11)		Trichlorotrifluoro-ethane (CFC-113)		Triethylene glycol dimethyl ether		Urethane (Ethyl carbamate)		Xylenes	
Source	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**
Batchelor Hall	0.60	6.9×10^{-5}	3.9×10^{-2}	4.4×10^{-6}	8.4×10^{-2}	9.6×10^{-6}	0.87	9.9×10^{-5}	2.1×10^{-2}	2.4×10^{-6}	3.62	4.1×10^{-4}
Biological Sciences	0.21	2.4×10^{-5}	1.3×10^{-2}	1.5×10^{-6}	2.9×10^{-2}	3.3×10^{-6}	0.30	3.4×10^{-5}	7.1×10^{-3}	8.1×10^{-7}	1.24	1.4×10^{-4}
Bourns Hall	0.59	6.7×10^{-5}	3.8×10^{-2}	4.3×10^{-6}	8.2×10^{-2}	9.3×10^{-6}	0.84	9.6×10^{-5}	2.0×10^{-2}	2.3×10^{-6}	3.51	4.0×10^{-4}
Boyce Hall	0.70	8.0×10^{-5}	4.5×10^{-2}	5.2×10^{-6}	9.8×10^{-2}	1.1×10^{-5}	1.01	1.2×10^{-4}	2.4×10^{-2}	2.8×10^{-6}	4.21	4.8×10^{-4}
Boyden Lab	4.5×10^{-2}	5.1×10^{-6}	2.9×10^{-3}	3.3×10^{-7}	6.3×10^{-3}	7.2×10^{-7}	6.5×10^{-2}	7.4×10^{-6}	1.6×10^{-3}	1.8×10^{-7}	0.27	3.1×10^{-5}
Chapman Hall	0.12	1.3×10^{-5}	7.6×10^{-3}	8.6×10^{-7}	1.6×10^{-2}	1.9×10^{-6}	0.17	1.9×10^{-5}	4.0×10^{-3}	4.6×10^{-7}	0.70	8.0×10^{-5}
Chemical Sciences	1.41	1.6×10^{-4}	9.1×10^{-2}	1.0×10^{-5}	2.0 x 10-1	2.2×10^{-5}	2.03	2.3×10^{-4}	4.8×10^{-2}	5.5×10^{-6}	8.42	9.6×10^{-4}
Entomology	0.26	3.0×10^{-5}	1.7×10^{-2}	1.9×10^{-6}	3.7×10^{-2}	4.2×10^{-6}	0.38	4.3×10^{-5}	9.0×10^{-3}	1.0×10^{-6}	1.56	1.8×10^{-4}
Fawcett Lab	0.12	1.3×10^{-5}	7.6×10^{-3}	8.6×10^{-7}	1.6×10^{-2}	1.9×10^{-6}	0.17	1.9×10^{-5}	4.0×10^{-3}	4.6×10^{-7}	0.70	8.0×10^{-5}
Genomics	0.28	3.2×10^{-5}	1.8×10^{-2}	2.1×10^{-6}	3.9×10^{-2}	4.5×10^{-6}	0.40	4.6×10^{-5}	9.6×10^{-3}	1.1×10^{-6}	1.67	1.9×10^{-4}
Geology	0.67	7.6×10^{-5}	4.3×10^{-2}	4.9×10^{-6}	9.3×10^{-2}	1.1×10^{-5}	0.96	1.1×10^{-4}	2.3×10^{-2}	2.6×10^{-6}	3.99	4.6×10^{-4}
Greenhouse 1	1.8×10^{-2}	2.1×10^{-6}	1.2×10^{-3}	1.3×10^{-7}	2.5×10^{-3}	2.9×10^{-7}	2.6×10^{-2}	3.0×10^{-6}	6.2×10^{-4}	7.1×10^{-8}	0.11	1.2×10^{-5}
Greenhouse 2	9.0×10^{-3}	1.0×10^{-6}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.3×10^{-2}	1.5×10^{-6}	3.1×10^{-4}	3.5×10^{-8}	5.4×10^{-2}	6.2×10^{-6}
Greenhouse 3	9.0×10^{-3}	1.0×10^{-6}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.3×10^{-2}	1.5×10^{-6}	3.1×10^{-4}	3.5×10^{-8}	5.4×10^{-2}	6.2×10^{-6}
Greenhouse 6	9.0×10^{-3}	1.0×10^{-6}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.3×10^{-2}	1.5×10^{-6}	3.1×10^{-4}	3.5×10^{-8}	5.4×10^{-2}	6.2×10^{-6}
Greenhouse 7	2.7×10^{-2}	3.1×10^{-6}	1.7×10^{-3}	2.0×10^{-7}	3.8×10^{-3}	4.3×10^{-7}	3.9×10^{-2}	4.4×10^{-6}	9.3×10^{-4}	1.1×10^{-7}	0.16	1.8×10^{-5}
Greenhouse 9	9.0×10^{-3}	1.0×10^{-6}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.3×10^{-2}	1.5×10^{-6}	3.1×10^{-4}	3.5×10^{-8}	5.4×10^{-2}	6.2×10^{-6}
Greenhouse 10	9.0×10^{-3}	1.0×10^{-6}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.3×10^{-2}	1.5×10^{-6}	3.1×10^{-4}	3.5×10^{-8}	5.4×10^{-2}	6.2×10^{-6}
Greenhouse 12	9.0×10^{-3}	1.0×10^{-6}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.3×10^{-2}	1.5×10^{-6}	3.1×10^{-4}	3.5×10^{-8}	5.4×10^{-2}	6.2×10^{-6}
Greenhouse 13	9.0×10^{-3}	1.0×10^{-6}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.3×10^{-2}	1.5×10^{-6}	3.1×10^{-4}	3.5×10^{-8}	5.4×10^{-2}	6.2×10^{-6}
Greenhouse 20	9.0×10^{-3}	1.0×10^{-6}	5.8×10^{-4}	6.6×10^{-8}	1.3×10^{-3}	1.4×10^{-7}	1.3×10^{-2}	1.5×10^{-6}	3.1×10^{-4}	3.5×10^{-8}	5.4×10^{-2}	6.2×10^{-6}
Materials Science & Engineering	0.16	1.9×10^{-5}	1.0×10^{-2}	1.2×10^{-6}	2.3×10^{-2}	2.6×10^{-6}	0.23	2.7×10^{-5}	5.6×10^{-3}	6.4×10^{-7}	0.97	1.1×10^{-4}
Physics	0.20	2.3×10^{-5}	1.3×10^{-2}	1.5×10^{-6}	2.8×10^{-2}	3.2×10^{-6}	0.29	3.3×10^{-5}	6.8×10^{-3}	7.8×10^{-7}	1.19	1.4×10^{-4}
Pierce Hall	1.17	1.3×10^{-4}	7.6×10^{-2}	8.6×10^{-6}	1.6 x 10-1	1.9×10^{-5}	1.69	1.9×10^{-4}	4.0×10^{-2}	4.6×10^{-6}	7.02	8.0×10^{-4}
Science Lab 1	0.67	7.6×10^{-5}	4.3×10^{-2}	4.9×10^{-6}	9.3×10^{-2}	1.1×10^{-5}	0.96	1.1×10^{-4}	2.3×10^{-2}	2.6×10^{-6}	3.99	4.6×10^{-4}
School of Medicine – Research	4.5×10^{-2}	5.1×10^{-6}	2.9×10^{-3}	3.3×10^{-7}	6.3×10^{-3}	7.2×10^{-7}	6.5×10^{-2}	7.4×10^{-6}	1.6×10^{-3}	1.8×10^{-7}	0.27	3.1×10^{-5}
Spieth Hall	0.42	4.8×10^{-5}	2.7×10^{-2}	3.1×10^{-6}	5.9×10^{-2}	6.8×10^{-6}	0.61	7.0×10^{-5}	1.5×10^{-2}	1.7×10^{-6}	2.54	2.9×10^{-4}
University Lab Building	6.3×10^{-2}	7.2×10^{-6}	4.1×10^{-3}	4.6×10^{-7}	8.8×10^{-3}	1.0×10^{-6}	9.1×10^{-2}	1.0×10^{-5}	2.2×10^{-3}	2.5×10^{-7}	0.38	4.3×10^{-5}
Webber Hall	0.27	3.1×10^{-5}	1.7×10^{-2}	2.0×10^{-6}	3.8×10^{-2}	4.3×10^{-6}	0.39	4.4×10^{-5}	9.3×10^{-3}	1.1×10^{-6}	1.62	1.8×10^{-4}

A = annual emissions (lbs/year); H = hourly emissions (lbs/hr); PAHs = polycyclic aromatic hydrocarbons; POM = polycyclic organic matter

Table B-10 Diesel Truck Emissions – Baseline Scenario

Route Type[1,2]	Emissions[3,4] Annual (lbs/year)	Emissions[3,4] Hourly (lbs/hour)
Hazardous Waste	1.43×10^{-1}	2.19×10^{-3}
Dining Facilities	3.87	1.06×10^{-2}
Chameleon Food Truck	2.39	6.76×10^{-3}
Municipal Waste Trash/Refuse Service	2.05	1.46×10^{-3}
Airgas	1.04×10^{-1}	3.99×10^{-4}

[1] Delivery and service frequency information was provided by UCR on October 29, 2020.

[2] There are 5 delivery and service routes that were modeled: hazardous waste pickup, dining facilities deliveries, food trucks, municipal waste and refuse services, and Airgas deliveries. As noted in Table 4, some routes had varying delivery or service frequencies based on the service. Emissions were modeled based on route and therefore are presented here as the sum by route rather than service type.

[3] Annual and hourly emissions are based on the number of trips, route mileage, vehicle class and associated emission factors for each type of delivery or service identified by UCR.

[4] The following assumptions were used for vehicle class: Hazardous waste trucks = 100% HHDT; Dining Facilities = 4% LDT2, 56% MHDT, and 40% HHDT; Chameleon Food Trucks = 44% LHDT2 and 56%% MHDT; Municipal Waste Trash/Refuse Service Trucks = 100% HHDT; Airgas trucks = 100% HHDT

Table B-11 Diesel Truck Emissions – Future Scenario

Route Type[1,2]	Emissions[3,4] Annual (lbs/year)	Emissions[3,4] Hourly (lbs/hour)
Hazardous Waste	3.18×10^{-2}	4.89×10^{-4}
Dining Facilities	4.14×10^{-1}	1.14×10^{-3}
Chameleon Food Truck	5.22×10^{-1}	1.48×10^{-3}
Municipal Waste Trash/Refuse Service	4.57×10^{-1}	3.26×10^{-4}
Airgas	2.31×10^{-2}	8.88×10^{-5}

[1] Delivery and service frequency information was provided by UCR on October 29, 2020.

[2] There are 5 delivery and service routes that were modeled: hazardous waste pickup, dining facilities deliveries, food trucks, municipal waste and refuse services, and Airgas deliveries. As noted in Table 13, some routes had varying delivery or service frequencies based on the service. Emissions were modeled based on route and therefore are presented here as the sum by route rather than service type.

[3] Annual and hourly emissions are based on the number of trips, route mileage, vehicle class and associated emission factors for each type of delivery or service identified by UCR. Future number of trips and mileage is presented in Table 5.

[4] The following assumptions were used for vehicle class and weighted emission factors: Hazardous waste trucks = 100% HHDT; Dining Facilities = 4% LDT2, 56% MHDT, and 40% HHDT; Chameleon Food Trucks = 44% LHDT2 and 56%% MHDT; Municipal Waste Trash/Refuse Service Trucks = 100% HHDT; Airgas trucks = 100% HHDT

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Appendix C

AERMOD and Hotspots Analysis and Reporting Program Model Outputs
Digital Appendix – Available Upon Request at UCR Office of Planning, Design & Construction

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