January 5, 2021

Karen Ruggels
KLR Planning
San Diego, CA

SUBJECT: Air Emission Memorandum for the 63rd and Montezuma Student Housing Project, San Diego, California

Dear Ms. Ruggels;

Birdseye Planning Group (BPG) is pleased to submit this memorandum addressing air emissions associated with the proposed 63rd and Montezuma Student Housing Project, San Diego, California. The *63rd and Montezuma* project site encompasses approximately 0.43 acres and is currently developed with three single family dwelling units. The project site is located on the south side of Montezuma Road and west of 63rd Street in the College Area Community of the City of San Diego. Mostly one-story residential developments surround the project site, with a five-story residential development bordering the project site to the west and institutional uses (San Diego State University) located nearby to the north and northwest. The proposed project involves the demolition of approximately 18,751 square feet of buildings and related facilities and construction of a five-story, 38-unit, multi-family residential development totaling 52,350 square feet.

The proposed project includes a rezone of the site from the current RM-1-1 zone to RM-3-9. In addition to evaluating the proposed 38-unit residential project, as part of the environmental review process, an evaluation of the most intense use that could occur on the site under the RM-3-9 zone should the proposed 63rd and Montezuma project not proceed has also been performed. The most intense development is what could be developed ministerially under the proposed zone, if approved. Because the RM zones allow limited commercial uses in addition to multi-family residential uses and due to the site's location and size, the most intense development of the project site is assumed to be a mixed-use development with 32 multi-family residential units and 12,657 square feet of local-serving commercial uses. The local-serving uses could include food beverage, and groceries, convenience sales, and personal services that would serve the SDSU student population and near-by single family neighborhoods. Eating and drinking establishments are not permitted in the RM-3-9 zone.

To evaluate potential air emissions and related air quality impacts, construction and operational emissions for the proposed project and the most intensive development scenario described above

were evaluated. The following summarizes criteria pollutants evaluated, thresholds of significance, methodology and findings.

Criteria Pollutant Overview

San Diego County is listed as a federal non-attainment area for ozone (eight hour) and a state non-attainment area for ozone (one hour and eight-hour standards), PM_{10} and $PM_{2.5}$. The San Diego Air Basin is in attainment for the state and federal standards for nitrogen dioxide, carbon monoxide, sulfur dioxide and lead. Characteristics of ozone, carbon monoxide, nitrogen dioxide, and suspended particulates are described below.

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and reactive organic gases (ROG)[1]. Nitrogen oxides are formed during the combustion of fuels, while reactive organic compounds are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide. Carbon monoxide is a local pollutant that is found in high concentrations only near the source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Nitrogen Dioxide. Nitrogen dioxide (NO_2) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. Nitrogen dioxide is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Nitrogen dioxide absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM_{10} and acid rain.

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[1] Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air quality perspective two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC).

Suspended Particulates. PM_{10} is particulate matter measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM_{10} and $PM_{2.5}$ are by-products of fuel combustion and wind erosion of soil and unpaved roads and are directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates ($PM_{2.5}$) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. Fine particulate matter is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

State Implementation Plan/Air Quality Management Plan/Regional Air Quality Strategy

The federal Clean Air Act Amendments (CAAA) mandate that states submit and implement a State Implementation Plan (SIP) for areas not meeting air quality standards. SIPs are comprehensive plans that describe how an area will attain national and state ambient air quality standards. SIPs are a compilation of new and previously submitted plans, programs (i.e., monitoring, modeling and permitting programs), district rules, state regulations and federal controls and include pollution control measures that demonstrate how the standards will be met through those measures. The Regional Air Quality Strategy (RAQS) and Air Quality Management Plan (AQMP) prepared by SDAPCD and referenced herein become part of the SIP as the material relates to efforts ongoing in San Diego to achieve the national and state ambient air quality standards. The most recent SIP element for San Diego County was submitted in December 2016. The document identifies control measures and associated emission reductions necessary to demonstrate attainment of the 2008 Federal 8-hour ozone standard by July 20, 2018.

Thresholds of Significance

Based on City of San Diego Significance Determination Thresholds Guidelines, a project would have a significant air quality impact if it would:

a) *Conflict with or obstruct implementation of the applicable air quality plan;*
b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*

c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);*

d) *Expose sensitive receptors to substantial pollutant concentrations;*

e) *Create objectionable odors affecting a substantial number of people. or*

f) *Release substantial quantities of air contaminants beyond the boundaries of the premises upon which the stationary source emitting the contaminants is located.*

A significant adverse air quality impact may occur when a project individually or cumulatively interferes with progress toward the attainment of the ozone standard by generating emissions that equal or exceed the established long term quantitative thresholds for pollutants or exceed a state or federal ambient air quality standard for any criteria pollutant.

The SDAPCD has established thresholds in Rule 20.2 for new or modified stationary sources (SDAPCD, 2015). With the exception of Volatile Organic Compounds (VOCs) and $PM_{2.5}$ thresholds, the City of San Diego screening quantities shown in the *California Environmental Quality Act Significance Determination Thresholds,* Table A-2, (City of San Diego, 2016) incorporate screening level thresholds from Rule 20.2 for use in air quality reports and for determining CEQA air quality impacts. The City does not show a standard for $PM_{2.5}$ but does include a threshold for Reactive Organic Gas/Volatile Organic Compounds (ROG/VOC) emissions. Collectively, the standards shown in Table A-2 of the City's 2016 CEQA Determination Thresholds and the $PM_{2.5}$ threshold shown in Table 20.2-1 of SDAPCD Rule 20.2, are used herein to determine whether project emissions would cause a significant air quality impact. The construction and operational emission thresholds for pollutants evaluated are as follows:

- Carbon Monoxide (CO) - 550 pounds/day;
- Nitrogen Oxides (NOx) - 100 pounds/day;
- Particulate Matter (PM_{10}) - 100 pounds/day;
- Particulate Matter ($PM_{2.5}$) - 67 pounds/day;
- Sulfur Oxides (SOx) - 250 pounds/day; and
- Volatile Organic Compounds (VOCs)/Reactive Organic Gases(ROGs) - 137 pounds/day.

Construction Emissions

Project construction would generate temporary air emissions. These impacts are associated with fugitive dust (PM_{10} and $PM_{2.5}$) from soil disturbance and exhaust emissions (NO_x and CO) from heavy construction vehicles. The number of haul trips to remove demolition debris were estimated based on cubic yards and CalEEMod haul trip default values. Site preparation and grading would involve the greatest concentration of heavy equipment use and the highest potential for fugitive dust emissions.

The project would be required to comply with SDAPCD Rules 52 and 54 which identify measures to reduce fugitive dust and is required to be implemented at all construction sites located within the SDAB. Therefore, the following conditions, which are required to reduce fugitive dust in compliance with SDAPCD Rules 52 and 54, were included in CalEEMod for site preparation and grading phases of construction.

1. **Minimization of Disturbance.** Construction contractors should minimize the area disturbed by clearing, grading, earth moving, or excavation operations to prevent excessive amounts of dust.

2. **Soil Treatment.** Construction contractors should treat all graded and excavated material, exposed soil areas and active portions of the construction site, including unpaved on-site roadways to minimize fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. Watering shall be done as often as necessary, and at least twice daily, preferably in the late morning and after work is done for the day. Note – it was assumed watering would occur twice daily for modeling purposes.

3. **Soil Stabilization.** Construction contractors should monitor all graded and/or excavated inactive areas of the construction site at least weekly for dust stabilization. Soil stabilization methods, such as water and roll compaction, and environmentally safe dust control materials shall be applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until landscape growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust.

4. **No Grading During High Winds.** Construction contractors should stop all clearing, grading, earth moving, and excavation operations during periods of high winds (20 miles per hour or greater, as measured continuously over a one-hour period).

5. **Street Sweeping.** Construction contractors should sweep all on-site driveways and adjacent streets and roads at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.

Construction is assumed to begin in mid-2021 and be completed in late 2022 for the proposed project. A similar 14-18 month construction schedule is also assumed for the most intense project development that could occur with the proposed RM-3-9 zone. In addition to SDAPCD Rules 52 and 54 requirements, emissions modeling also accounts for the use of low-VOC paint (150 g/L for non-flat coatings) as required by SDAPCD Rule 67. Table 1a summarizes the estimated maximum daily emissions of pollutants occurring during the construction period for the proposed project. Table 1b shows the construction emissions for the most intensive development scenario.

As shown in Tables 1a and 1b, construction of the proposed project or the most intensive use project would not exceed the SDAPCD regional construction emission thresholds for daily emissions. Thus, the project construction would not conflict with the SIP, RAQS or AQMP, violate an air quality standard or contribute to an existing or projected violation, result in a cumulatively considerable increase in ozone or particulate matter emissions or expose receptors to substantial pollutant concentrations (thresholds a-f).

Table 1a
Estimated Maximum Daily Construction Emissions – Proposed Project

Construction Phase		Maximum Emissions (lbs/day)				
	ROG	NO_x	CO	SOx	PM_{10}	$PM_{2.5}$
2021 Maximum lbs/day	18.3	39.7	15.6	0.08	4.7	2.3
City of San Diego Screening Thresholds	*137*	*100*	*550*	*250*	*100*	67
Threshold Exceeded 2021	**No**	**No**	**No**	**No**	**No**	**No**
Threshold Exceeded 2022	**No**	**No**	**No**	**No**	**No**	**No**

See Appendix for CalEEMod ver. 2016.3.2 computer model output. Summer emissions shown.

Table 1b
Estimated Maximum Daily Construction Emissions – Most Intense Use Under Proposed RM-3-9 Zone

Construction Phase		Maximum Emissions (lbs/day)				
	ROG	NO_x	CO	SOx	PM_{10}	$PM_{2.5}$
2021 Maximum lbs/day	2.0	28.5	14.8	0.05	4.2	2.2
2022 Maximum lbs/day	17.2	14.4	15.4	0.02	0.9	0.7
City of San Diego Screening Thresholds	*137*	*100*	*550*	*250*	*100*	67
Threshold Exceeded 2021	**No**	**No**	**No**	**No**	**No**	**No**
Threshold Exceeded 2022	**No**	**No**	**No**	**No**	**No**	**No**

See Appendix for CalEEMod ver. 2016.3.2 computer model output. Summer emissions shown.

Operational Emissions

Table 2a summarizes emissions associated with operation of the proposed project. Table 2b summarized emissions associated with operation of the most intense use. Operational emissions

include emissions from electricity consumption (energy sources), vehicle trips (mobile sources), area sources, landscape equipment and evaporative emissions as the structure is repainted over the life of the project. The majority of operational emissions are associated with vehicle trips to and from the project site. As shown in Tables 2a and 2b, emissions would not exceed the SDAPCD thresholds for ROG, NO_X, CO, SO_X, PM_{10} or $PM_{2.5}$. Therefore, the project's regional air quality impacts (including impacts related to criteria pollutants, sensitive receptors and violations of air quality standards per threshold c-f) would be less than significant.

Objectionable Odors

The proposed project would involve the use of diesel-powered construction equipment. Diesel exhaust may be noticeable temporarily at adjacent properties; however, construction activities would be temporary. The project does not include industrial or agricultural uses that are typically associated with objectionable odors. Therefore, impacts associated with objectionable odors (significance threshold e) would be less than significant.

Table 2a
Estimated Operational Emissions – Proposed Project

	Estimated Emissions (lbs/day)					
	ROG	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project						
Area	1.1	0.1	3.1	0.01	0.02	0.02
Energy	0.01	0.07	0.3	0.01	0.01	0.01
Mobile	0.4	1.7	3.9	0.01	1.5	0.4
Maximum lbs/day	**1.5**	**1.8**	**4.9**	**0.03**	**1.6**	**0.4**
SDAPCD Thresholds	*137*	*100*	*550*	*250*	*100*	67
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

See Appendix for CalEEMod ver. 2016.3.2 computer model output. Summer emissions shown.

Table 2b
Estimated Operational Emissions – Most Intense Use under Proposed RM-3-9 Zone

	Estimated Emissions (lbs/day)					
	ROG	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Proposed Project						
Area	1.2	0.06	2.6	0.01	0.01	0.01
Energy	0.1	0.06	0.03	0.01	0.01	0.01
Mobile	1.0	3.9	10.3	0.03	2.9	0.8
Maximum lbs/day	**2.2**	**4.1**	**13.0**	**0.03**	**2.9**	**0.8**
SDAPCD Thresholds	*137*	*100*	*550*	*250*	*100*	67
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

See Appendix for CalEEMod ver. 2016.3.2 computer model output. Summer emissions shown.

SIP/AQMP/RAQS Consistency

As noted, the RAQS relies on information from CARB and SANDAG, including projected growth in the County, mobile, area and all other source emissions to project future emissions and determine from that the strategies necessary for the reduction of stationary source emissions through regulatory controls. Projects that propose development that is consistent with the growth anticipated by the general plan is consistent with the SIP, AQMP and RAQS. The project proposes redevelopment of the project site with 38 multi-family units. Additionally, the project proposes a rezone of the site from the current RM-1-1 zone to RM-3-9 which could allow a more intense ministerial development of the project site.. The most intense development of the site is assumed to be a mixed-use development with 32 multi-family residential units and 12,657 square feet of local-serving commercial uses.

The project, as well as development of the site with the most intense use under the proposed RM-3-9 zone, would not induce growth and the increased density would be consistent with multifamily projects in the area and provide necessary student housing in proximity to SDSU. The additional housing would reduce vehicle trips required to commute from locations less proximal to SDSU. Further, any commercial uses that could occur under the RM-3-9 zone are intended to serve building residents and people living in the area. Overall, redevelopment of the project site as proposed or as the most intense use would reduce vehicle trips and address demand for housing in proximity to the SDSU campus. The project or redevelopment of the project site as proposed or as the most intense use would be consistent with the SIP, AQMP and RAQS and significance threshold (a - air quality plans) referenced above. Impacts related to this threshold would be less than significant.

In summary, the proposed project or the most intense development that could occur on the site with the proposed zoning would not cause an exceedance of the SDAPCD thresholds of significance or conflict with the remaining CEQA thresholds of significance identified herein. Please let me know if you have questions or would like to discuss the findings presented. Thank you for the opportunity to support the project.

Regards,

Ryan Birdseye
Principal