FINAL

SHARP GROSSMONT HOSPITAL CENTER FOR NEUROSCIENCES INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

PREPARED FOR:

City of La Mesa
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PREPARED BY:

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September 2022

ICF. 2022. *Sharp Grossmont Hospital Center for Neurosciences Initial Study/ Mitigated Negative Declaration*. Final. September. (ICF 103874) Prepared for the City of La Mesa, CA.

Contents

Final Initial Study/Mitigated Negative Declaration

Tables

Figures

Acronyms and Abbreviations

AB	Assembly Bill
BMP	best management practice
BSA	Biological Survey Area
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CEQA	California Environmental Quality Act
City	City of La Mesa
dBA	A-weighted decibels
DPM	diesel particulate matter
EIR	environmental impact report
GHG	greenhouse gas
HWD	Helix Water District
I-	Interstate
in/s	inch per second
IS	Initial Study
ITE	Institute of Transportation Engineers
LID	low-impact development
MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
MSCP	Multiple Species Conservation Plan
MTCO$_2$e	metric tons of carbon dioxide equivalent
NPDES	National Pollutant Discharge Elimination System
OPR	Office of Planning and Research
PM10	particulate matter less than 10 microns in diameter
PM2.5	particulate matter less than 2.5 microns in diameter
PPV	peak particle velocity
PRC	California Public Resources Code
PRMMP	Paleontological Resources Monitoring and Mitigation Plan
proposed project	Sharp Grossmont Hospital Center for Neurosciences project
project area	Sharp Grossmont Hospital campus
project site	Footprint of the proposed project
PV	photovoltaic
RB-G-D	Residential Business/Grossmont Specific Plan Overlay/Urban Design Overlay
RAQS	Regional Air Quality Standards
SANDAG	San Diego Association of Governments
SB	Senate Bill
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SIP	State Implementation Plan
SLT	screening level threshold
SR-	State Route
ST	short-term

SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
TIA	transportation impact analysis
VHFHSZ	Very High Fire Hazard Severity Zones
VMT	vehicle miles traveled

Responses to Comments

This Final IS/MND has been prepared in accordance with the requirements of CEQA (California Public Resources Code [PCR] 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR] 15000 et seq.) The only comment letter received was from Mitchell M. Tsai, an attorney, submitted on behalf of the Southwest Regional Council of Carpenters (SWRCC).

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VIA E-MAIL

September 12, 2022

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RE: City of La Mesa's Sharp Grossmont Hospital Center for Neurosciences (SCH #2022080420)

Dear Megan Wiegelman and Laura Traffenstedt,

On behalf of the Southwest Regional Council of Carpenters ("**Southwest Carpenters**" or "**SWRCC**"), my Office is submitting these comments for the City of La Mesa's ("**City**") September 12, 2022, Design Review Board for Agenda Item 6.2, Sharp Grossmont Hospital Center for Neurosciences ("**Project**").

The Southwest Carpenters is a labor union representing 57,000 union carpenters in six states, including California, and has a strong interest in well-ordered land use planning and in addressing the environmental impacts of development projects.

Individual members of the Southwest Carpenters live, work, and recreate in the City and surrounding communities and would be directly affected by the Project's environmental impacts.

The Southwest Carpenters expressly reserves the right to supplement these comments at or prior to hearings on the Project, and at any later hearing and proceeding related to this Project. Gov. Code, § 65009, subd. (b); Pub. Res. Code, § 21177, subd. (a); see *Bakersfield Citizens for Local Control v. Bakersfield* (2004) 124 Cal.App.4th 1184, 1199-

1203; see also *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal.App.4th 1109, 1121.

The Southwest Carpenters incorporates by reference all comments raising issues regarding the Environmental Impact Report (EIR) submitted prior to certification of the EIR for the Project. See *Citizens for Clean Energy v City of Woodland* (2014) 225 Cal.App.4th 173, 191 (finding that any party who has objected to the project's environmental documentation may assert any issue timely raised by other parties).

Moreover, the Southwest Carpenters requests that the City provide notice for any and all notices referring or related to the Project issued under the California Environmental Quality Act (**CEQA**) (Pub. Res. Code, § 21000 *et seq.*), and the California Planning and Zoning Law ("**Planning and Zoning Law**") (Gov. Code, §§ 65000–65010). California Public Resources Code Sections 21092.2, and 21167(f) and California Government Code Section 65092 require agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.

The City should require the use of a local skilled and trained workforce to benefit the community's economic development and environment. The City should require the use of workers who have graduated from a Joint Labor-Management Apprenticeship Program approved by the State of California, have at least as many hours of on-the-job experience in the applicable craft which would be required to graduate from such a state-approved apprenticeship training program, or who are registered apprentices in a state-approved apprenticeship training program.

Community benefits such as local hire and skilled and trained workforce requirements can also be helpful to reduce environmental impacts and improve the positive economic impact of the Project. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project site can reduce the length of vendor trips, reduce greenhouse gas emissions, and provide localized economic benefits. As environmental consultants Matt Hagemann and Paul E. Rosenfeld note:

> [A]ny local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the

> reduction would vary based on the location and urbanization level of the project site.

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling.

Skilled and trained workforce requirements promote the development of skilled trades that yield sustainable economic development. As the California Workforce Development Board and the University of California, Berkeley Center for Labor Research and Education concluded:

> [L]abor should be considered an investment rather than a cost—and investments in growing, diversifying, and upskilling California's workforce can positively affect returns on climate mitigation efforts. In other words, well-trained workers are key to delivering emissions reductions and moving California closer to its climate targets.[1]

Furthermore, local skilled and trained workforce requirements and policies have significant environmental benefits given that they improve an area's jobs-housing balance, decreasing the amount and length of job commutes and the associated greenhouse gas (GHG) emissions. In fact, on May 7, 2021, the South Coast Air Quality Management District found that that the "[u]se of a local state-certified apprenticeship program or a skilled and trained workforce with a local hire component" can result in air pollutant reductions.[2]

Cities are increasingly incorporating local skilled and trained workforce policies and requirements into general plans and municipal codes. For example, the City of Hayward's 2040 General Plan requires the city to "promote local hiring . . . to help

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[1] California Workforce Development Board (2020) Putting California on the High Road: A Jobs and Climate Action Plan for 2030 at p. ii, *available at* https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf.

[2] South Coast Air Quality Management District (May 7, 2021) Certify Final Environmental Assessment and Adopt Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions Program, and Proposed Rule 316 – Fees for Rule 2305, Submit Rule 2305 for Inclusion Into the SIP, and Approve Supporting Budget Actions, *available at* http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10.

achieve a more positive jobs-housing balance, and reduce regional commuting, gas consumption, and greenhouse gas emissions."[3]

The City of Hayward has even gone as far as incorporating a Skilled Labor Force policy into its Downtown Specific Plan and municipal code, requiring developments in its downtown area to require that the City "[c]ontribute to the stabilization of regional construction markets by spurring applicants of housing and nonresidential developments to require contractors to utilize apprentices from state-approved joint labor-management training programs[.]"[4] The City of Hayward mandates the same measure on all projects that are 30,000 square feet or larger.[5]

Locating jobs closer to residential areas can have significant environmental benefits. As the California Planning Roundtable noted in 2008:

> People who live and work in the same jurisdiction would be more likely to take transit, walk, or bicycle to work than residents of less balanced communities and their vehicle trips would be shorter. Benefits would include potential reductions in both vehicle miles traveled and vehicle hours traveled.[6]

Moreover, local hire mandates and skill-training are critical facets of a strategy to reduce vehicle miles traveled (VMT). As planning experts Robert Cervero and Michael Duncan have noted, simply placing jobs near housing stock is insufficient to achieve VMT reductions given that the skill requirements of available local jobs must match those held by local residents.[7] Some municipalities have even tied local hire and skilled and trained workforce policies to local development permits to address transportation issues. Cervero and Duncan note that:

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[3] City of Hayward (2014) Hayward 2040 General Plan Policy Document at p. 3-99, *available at* https://www.hayward-ca.gov/sites/default/files/documents/General_Plan_FINAL.pdf.

[4] City of Hayward (2019) Hayward Downtown Specific Plan at p. 5-24, *available at* https://www.hayward-ca.gov/sites/default/files/Hayward%20Downtown%20Specific%20Plan.pdf.

[5] City of Hayward Municipal Code, Chapter 10, § 28.5.3.020(C).

[6] California Planning Roundtable (2008) Deconstructing Jobs-Housing Balance at p. 6, *available at* https://cproundtable.org/static/media/uploads/publications/cpr-jobs-housing.pdf

[7] Cervero, Robert and Duncan, Michael (2006) Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? Journal of the American Planning Association 72 (4), 475-490, 482, *available at* http://reconnectingamerica.org/assets/Uploads/UTCT-825.pdf.

> In nearly built-out Berkeley, CA, the approach to balancing jobs and housing is to create local jobs rather than to develop new housing. The city's First Source program encourages businesses to hire local residents, especially for entry- and intermediate-level jobs, and sponsors vocational training to ensure residents are employment-ready. While the program is voluntary, some 300 businesses have used it to date, placing more than 3,000 city residents in local jobs since it was launched in 1986. When needed, these carrots are matched by sticks, since the city is not shy about negotiating corporate participation in First Source as a condition of approval for development permits.

Therefore, the City should consider utilizing skilled and trained workforce policies and requirements to benefit the local area economically and to mitigate greenhouse gas, improve air quality, and reduce transportation impacts.

Sincerely,

Mitchell M. Tsai
Attorneys for Southwest Regional
Council of Carpenters

Attached:

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling (Exhibit A);

Air Quality and GHG Expert Paul Rosenfeld CV (Exhibit B); and

Air Quality and GHG Expert Matt Hagemann CV (Exhibit C).

EXHIBIT A

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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March 8, 2021

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Subject: Local Hire Requirements and Considerations for Greenhouse Gas Modeling

Dear Mr. Tsai,

Soil Water Air Protection Enterprise ("SWAPE") is pleased to provide the following draft technical report explaining the significance of worker trips required for construction of land use development projects with respect to the estimation of greenhouse gas ("GHG") emissions. The report will also discuss the potential for local hire requirements to reduce the length of worker trips, and consequently, reduced or mitigate the potential GHG impacts.

Worker Trips and Greenhouse Gas Calculations

The California Emissions Estimator Model ("CalEEMod") is a "statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects."[1] CalEEMod quantifies construction-related emissions associated with land use projects resulting from off-road construction equipment; on-road mobile equipment associated with workers, vendors, and hauling; fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads; and architectural coating activities; and paving.[2]

The number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[3]

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[1] "California Emissions Estimator Model." CAPCOA, 2017*, available at:* http://www.aqmd.gov/caleemod/home.
[2] "California Emissions Estimator Model." CAPCOA, 2017*, available at:* http://www.aqmd.gov/caleemod/home.
[3] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.

Specifically, the number and length of vehicle trips is utilized to estimate the vehicle miles travelled ("VMT") associated with construction. Then, utilizing vehicle-class specific EMFAC 2014 emission factors, CalEEMod calculates the vehicle exhaust, evaporative, and dust emissions resulting from construction-related VMT, including personal vehicles for worker commuting.[4]

Specifically, in order to calculate VMT, CalEEMod multiplies the average daily trip rate by the average overall trip length (see excerpt below):

> "$VMT_d = \Sigma(\text{Average Daily Trip Rate}_i * \text{Average Overall Trip Length}_i)_n$
>
> Where:
>
> n = Number of land uses being modeled."[5]

Furthermore, to calculate the on-road emissions associated with worker trips, CalEEMod utilizes the following equation (see excerpt below):

> "$\text{Emissions}_{\text{pollutant}} = VMT * EF_{\text{running,pollutant}}$
>
> Where:
>
> $\text{Emissions}_{\text{pollutant}}$ = emissions from vehicle running for each pollutant
>
> VMT = vehicle miles traveled
>
> $EF_{\text{running,pollutant}}$ = emission factor for running emissions."[6]

Thus, there is a direct relationship between trip length and VMT, as well as a direct relationship between VMT and vehicle running emissions. In other words, when the trip length is increased, the VMT and vehicle running emissions increase as a result. Thus, vehicle running emissions can be reduced by decreasing the average overall trip length, by way of a local hire requirement or otherwise.

Default Worker Trip Parameters and Potential Local Hire Requirements

As previously discussed, the number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[7] In order to understand how local hire requirements and associated worker trip length reductions impact GHG emissions calculations, it is important to consider the CalEEMod default worker trip parameters. CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.[8] The default number of construction-related worker trips is calculated by multiplying the

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[4] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14-15.

[5] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 23.

[6] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.

[7] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.

[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 1, 9.

number of pieces of equipment for all phases by 1.25, with the exception of worker trips required for the building construction and architectural coating phases.[9] Furthermore, the worker trip vehicle class is a 50/25/25 percent mix of light duty autos, light duty truck class 1 and light duty truck class 2, respectively."[10] Finally, the default worker trip length is consistent with the length of the operational home-to-work vehicle trips.[11] The operational home-to-work vehicle trip lengths are:

> "[B]ased on the *location* and *urbanization* selected on the project characteristic screen. These values were *supplied by the air districts or use a default average for the state*. Each district (or county) also assigns trip lengths for urban and rural settings" (emphasis added). [12]

Thus, the default worker trip length is based on the location and urbanization level selected by the User when modeling emissions. The below table shows the CalEEMod default rural and urban worker trip lengths by air basin (see excerpt below and Attachment A).[13]

Worker Trip Length by Air Basin

Air Basin	Rural (miles)	Urban (miles)
Great Basin Valleys	16.8	10.8
Lake County	16.8	10.8
Lake Tahoe	16.8	10.8
Mojave Desert	16.8	10.8
Mountain Counties	16.8	10.8
North Central Coast	17.1	12.3
North Coast	16.8	10.8
Northeast Plateau	16.8	10.8
Sacramento Valley	16.8	10.8
Salton Sea	14.6	11
San Diego	16.8	10.8
San Francisco Bay Area	10.8	10.8
San Joaquin Valley	16.8	10.8
South Central Coast	16.8	10.8
South Coast	19.8	14.7
Average	**16.47**	**11.17**
Minimum	**10.80**	**10.80**
Maximum	**19.80**	**14.70**
Range	**9.00**	**3.90**

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[9] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.

[10] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.

[11] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14.

[12] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 21.

[13] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-84 – D-86.

As demonstrated above, default rural worker trip lengths for air basins in California vary from 10.8- to 19.8-miles, with an average of 16.47 miles. Furthermore, default urban worker trip lengths vary from 10.8- to 14.7-miles, with an average of 11.17 miles. Thus, while default worker trip lengths vary by location, default urban worker trip lengths tend to be shorter in length. Based on these trends evident in the CalEEMod default worker trip lengths, we can reasonably assume that the efficacy of a local hire requirement is especially dependent upon the urbanization of the project site, as well as the project location.

Practical Application of a Local Hire Requirement and Associated Impact

To provide an example of the potential impact of a local hire provision on construction-related GHG emissions, we estimated the significance of a local hire provision for the Village South Specific Plan ("Project") located in the City of Claremont ("City"). The Project proposed to construct 1,000 residential units, 100,000-SF of retail space, 45,000-SF of office space, as well as a 50-room hotel, on the 24-acre site. The Project location is classified as Urban and lies within the Los Angeles-South Coast County. As a result, the Project has a default worker trip length of 14.7 miles.[14] In an effort to evaluate the potential for a local hire provision to reduce the Project's construction-related GHG emissions, we prepared an updated model, reducing all worker trip lengths to 10 miles (see Attachment B). Our analysis estimates that if a local hire provision with a 10-mile radius were to be implemented, the GHG emissions associated with Project construction would decrease by approximately 17% (see table below and Attachment C).

Local Hire Provision Net Change	
Without Local Hire Provision	
Total Construction GHG Emissions (MT CO_2e)	3,623
Amortized Construction GHG Emissions (MT CO_2e/year)	120.77
With Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,024
Amortized Construction GHG Emissions (MT CO_2e/year)	100.80
% Decrease in Construction-related GHG Emissions	***17%***

As demonstrated above, by implementing a local hire provision requiring 10 mile worker trip lengths, the Project could reduce potential GHG emissions associated with construction worker trips. More broadly, any local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

This serves as an example of the potential impacts of local hire requirements on estimated project-level GHG emissions, though it does not indicate that local hire requirements would result in reduced construction-related GHG emission for all projects. As previously described, the significance of a local hire requirement depends on the worker trip length enforced and the default worker trip length for the project's urbanization level and location.

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[14] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-85.

Disclaimer

SWAPE has received limited discovery. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

Matt Hagemann, P.G., C.Hg.

Paul Rosenfeld

Paul E. Rosenfeld, Ph.D.

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Paul Rosenfeld, Ph.D.

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Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling operations, oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, and many other industrial and agricultural sources. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at dozens of sites and has testified as an expert witness on more than ten cases involving exposure to air contaminants from industrial sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

Remy, L.L., Clay T., Byers, V., **Rosenfeld P. E.** (2019) Hospital, Health, and Community Burden After Oil Refinery Fires, Richmond, California 2007 and 2012. *Environmental Health.* 18:48

Simons, R.A., Seo, Y. **Rosenfeld, P**., (2015) Modeling the Effect of Refinery Emission On Residential Property Value. Journal of Real Estate Research. 27(3):321-342

Chen, J. A, Zapata A. R., Sutherland A. J., Molmen, D.R., Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

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Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

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Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

Rosenfeld P. E., J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004.* New Orleans, October 2-6, 2004.

Rosenfeld, P.E., and Suffet, I.H. (2004). Understanding Odorants Associated With Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.

Rosenfeld, P. E., Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

Rosenfeld, P.E., Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS–6), Sacramento, CA Publication #442-02-008.

Rosenfeld, P.E., and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

Rosenfeld, P.E., and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality.* 29, 1662-1668.

Rosenfeld, P.E., C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affect on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.

Rosenfeld, P.E., and C.L. Henry. (2001). Activated Carbon and Wood Ash Sorption of Wastewater, Compost, and Biosolids Odorants. *Water Environment Research*, 73, 388-393.

Rosenfeld, P.E., and Henry C. L., (2001). High carbon wood ash effect on biosolids microbial activity and odor. *Water Environment Research*. 131(1-4), 247-262.

Chollack, T. and **P. Rosenfeld. (**1998). Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23^{rd} Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case: No 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
    Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
    Case Number cc-11-01650-E
    Rosenfeld Deposition: March and September 2013
    Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
    John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
    Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
    Rosenfeld Deposition: October 2012

In the United States District Court of Southern District of Texas Galveston Division
    Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
    Case 3:10-cv-00622
    Rosenfeld Deposition: February 2012
    Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
    Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
    Case Number: 03-C-12-012487 OT
    Rosenfeld Deposition: September 2013

EXHIBIT C

SWAPE
Technical Consultation, Data Analysis and
Litigation Support for the Environment

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Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

<u>Senior Regulatory and Litigation Support Analyst:</u>

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

<u>Other Experience:</u>

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

Responses to Comments: The Draft IS/MND was distributed for public review from August 19, 2022 to September 19, 2022 to interested agencies, organizations, and individual members of the public. The following provides a summary of the only letter received during the public review period, and the City of La Mesa's response to this comment.

SWRCC letter dated September 12, 2022

The letter requests the City to require the use of a local and skilled workforce to benefit the communities' economic development and environment, specifically to include a provision that requests a certain percentage of workers reside within 10 miles or less of the project site, which would reduce the length of vendor trips, reduce greenhouse gas emissions, and provide localized economic benefits.

Response to SWRCC letter dated September 12, 2022

Construction workforce is outside of the purview of CEQA. As this comment does not raise any environmental issues with respect to the adequacy of the IS/MND, no further response is required.

Chapter 1
Introduction

1.1 Purpose

This Initial Study (IS) Checklist/Mitigated Negative Declaration (MND) has been prepared for the Sharp Grossmont Hospital Center for Neurosciences project (proposed project) in accordance with the California Environmental Quality Act (CEQA), California Public Resources Code (PRC) Sections 21000 et seq., and associated State CEQA Guidelines, California Code of Regulations Title 14, Sections 15000 et seq. This IS Checklist includes a description of the proposed project and surrounding land uses, evaluation of the potential environmental impacts of the project, and recommended mitigation measures to reduce such impacts to a less-than-significant level. The goal of this IS Checklist is to support the City of La Mesa's (City's) determination that an MND would suffice for analyzing the proposed project. The City is the lead agency for the project and would have the principal responsibility for approving the project. Sharp Healthcare is the project Applicant and is proposing the project that is analyzed in this IS Checklist.

1.2 Summary of Findings

Chapter 3, *Environmental Checklist*, discusses the potential environmental impacts of the proposed project and the recommended mitigation program, including mitigation measures that would reduce all potential impacts to levels considered less than significant. According to Section 15370 of the State CEQA Guidelines, *mitigation* includes the following:

> (a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments.

Implementation of the proposed project would result in potentially significant impacts on biological resources and geology, soils, and paleontology, prior to implementation of mitigation measures. Implementation of the mitigation measures, as detailed in each environmental analysis presented in Chapter 3, would reduce all potentially significant impacts to a less-than-significant level. With respect to tribal cultural resources, outreach pursuant to Assembly Bill (AB) 52 requirements for consultation was conducted; however, no responses were received.

1.3 Outline of Initial Study Checklist

This IS Checklist is organized as follows.

- Chapter 1, *Introduction*, provides an overview of the IS Checklist process.
- Chapter 2, *Project Description*, identifies the project location, describes the environmental setting of the project site and vicinity, and discusses the details of the proposed project.

- Section 3, *Environmental Checklist*, analyzes the potential environmental impacts of the proposed project and includes the following for each of the resource topics:
    - Environmental setting and in-depth analysis of identified environmental impacts
    - Mitigation measures that would reduce potential significant impacts to less-than-significant levels
- Chapter 4, *References Cited*, lists the sources of information consulted in preparation of this IS/MND.

Chapter 2

Project Description

2.1 Project Overview

Sharp Grossmont Hospital is a healthcare facility offering medical services. The proposed project consists of remodeling and additions to the existing single-story rehabilitation center to create a two-story Center for Neurosciences. Landscaping would include a rose garden and seating areas at locations still to be determined. Parking for the proposed project would be provided primarily in the existing adjacent parking structure and would be accessible through new walkway connections.

2.2 Project Location

The proposed project would occur entirely within the existing Sharp Grossmont Hospital property, which is currently occupied by a rehabilitation facility, administrative offices, and a small park open space. The proposed project site is in the City of La Mesa, San Diego County, California (Figure 2-1) at 5555 Grossmont Center Drive. The site currently has a footprint of approximately 25,000 square feet and is accessible by driveway entry via Vista Hill Avenue and Health Center Circle.

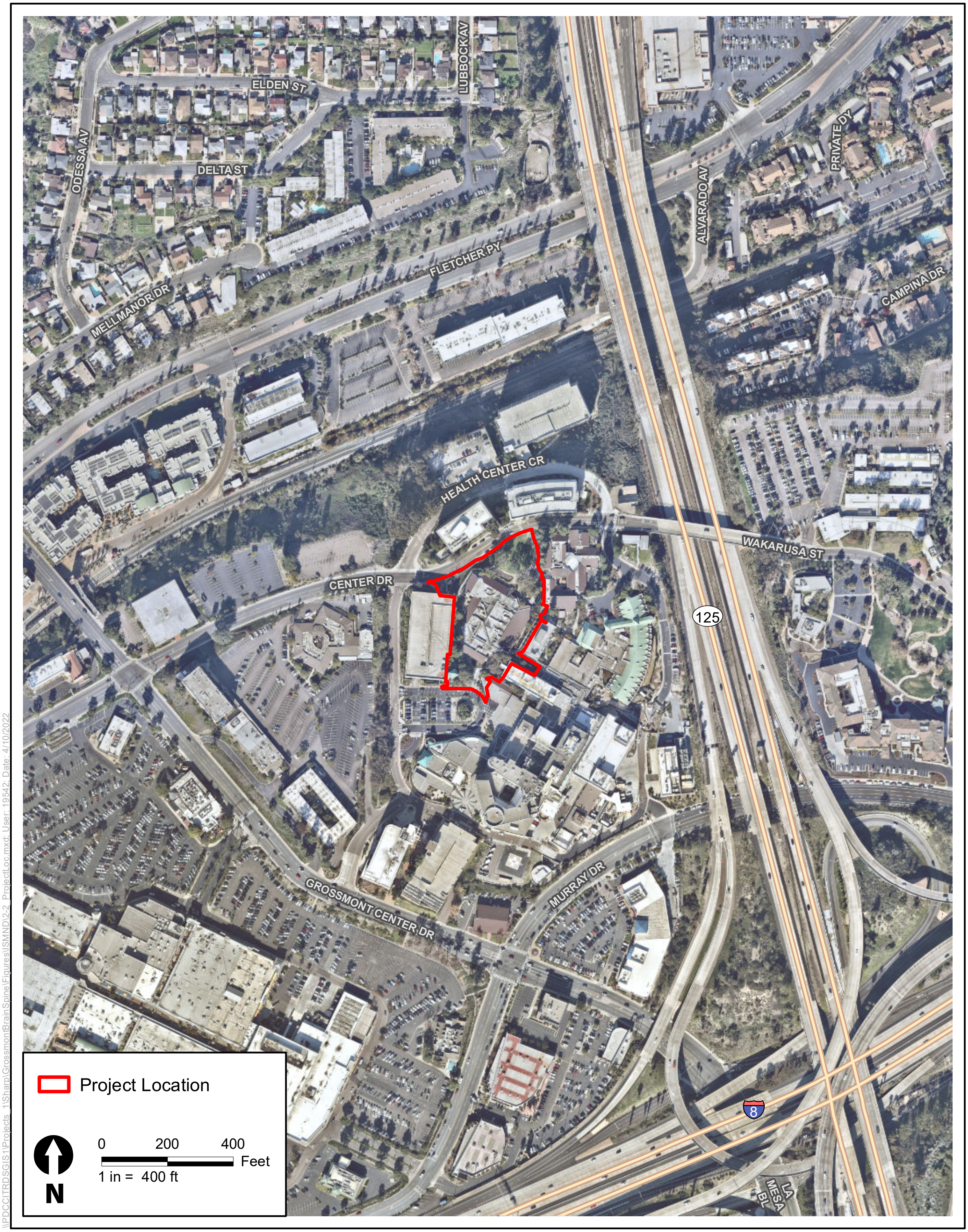
2.3 Surrounding Land Uses

The proposed project would occur in the northwestern portion of the existing Sharp Grossmont Hospital campus. The proposed project's location in relationship to the surrounding San Diego region is depicted on Figure 2-2. The proposed project site is about 10 miles northwest of downtown San Diego. Regional access is provided by Interstate (I-) 8, which is approximately 0.25 mile south of the project site, and State Route (SR-) 125, which runs adjacent to the eastern border of the project site. The building is near the main entrance and is accessed via the main driveway drop-off to the south or the adjacent parking structure to the west.

Surrounding land uses primarily consist of hospital facilities, as shown on Figures 2-3 and 2-4. These include the administration building and existing north wing of the main hospital to the east, open space between the rehabilitation building and the behavioral health building to the north, the main entry drive to the main hospital and parking structure to the south, additional care facilities to the north, and an open space area to the northwest. Other uses surrounding the Sharp Grossmont Hospital lot include SR-125 to the east; with a parking structure, Brier Patch facilities, Briercrest Park, and the Herrick Community Health Library beyond. To the north and northwest lie the trolley tracks; beyond the tracks are medical and office buildings, Fletcher Parkway, and apartments. To the west and southwest, across Grossmont Center Drive, is the Grossmont shopping center. South and southwest of the hospital, across Murray Drive, is Trader Joe's, an office building, and a retail building containing the Guitar Center and Mattress FIRM stores.

\\PDCCITRDSGIS1\Projects_1\Sharp\GrossmontBrainSpine\Figures\Fig01_Regional.mxd; User: 19542; Date: 4/9/2022

Figure 2-1
Regional Vicinity



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ICF

Figure 2-2
Project Location

Source: ICF; SANGIS 2020

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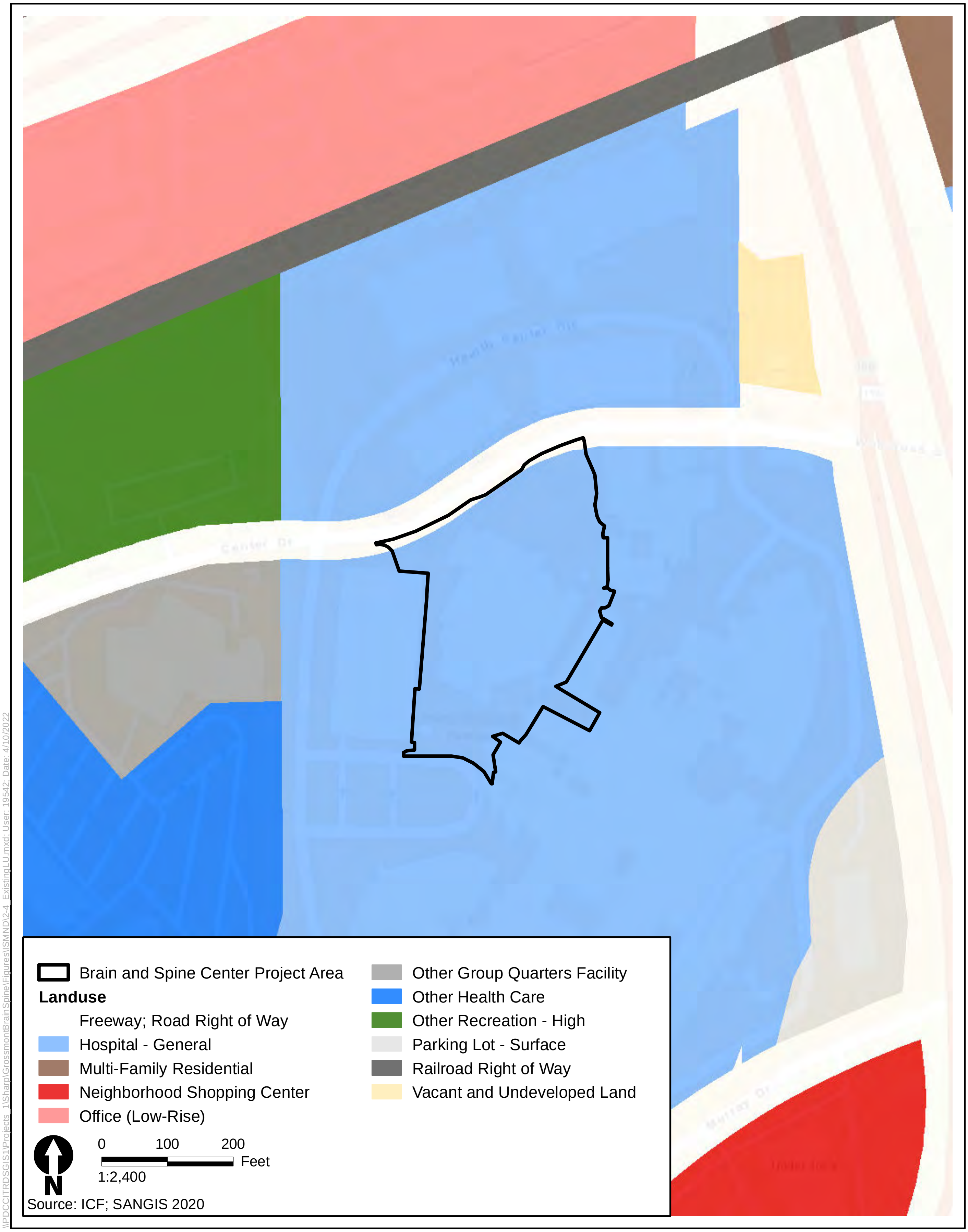
Figure 2-3
Existing Zoning



Source: ICF; SANGIS 2020

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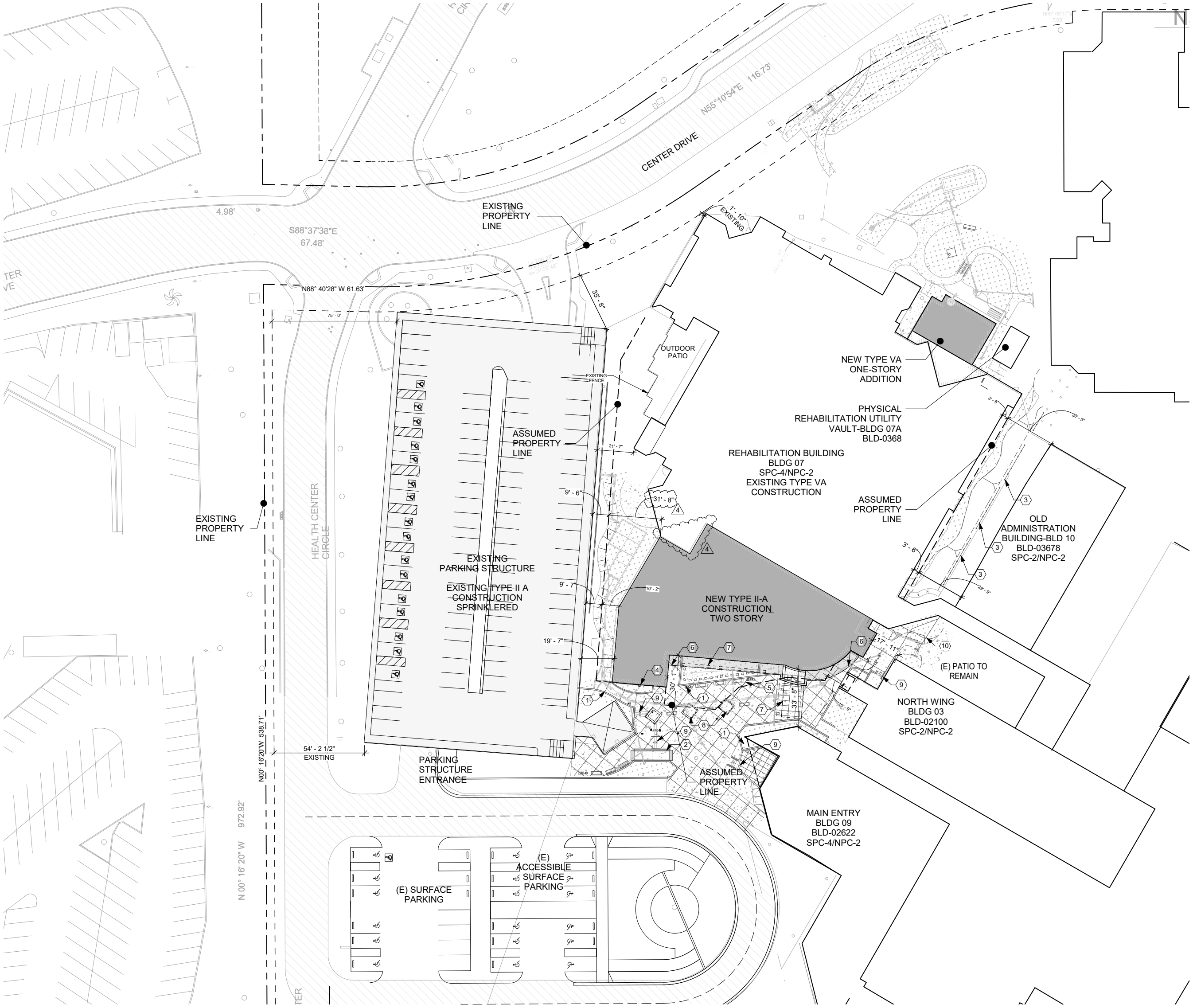
Figure 2-4
Existing Land Use



SITE PLAN LEGEND

- - - - PROPERTY LINE

☐ EXISTING BUILDING TO REMAIN

▨ FIRE LANE

■ NEW ADDITION

GENERAL NOTES

1.SEE CIVIL SHEET C-2 FOR GRADING AND ADDITIONAL SITE RENOVATION.

⬡ KEYNOTES

1. (N) 3'-0" MAX TALL PLANTER WALL, FOR DETAILS REFER TO LANDSCAPE DRAWINGS
2. (N) ACCESSIBLE RAMPS
3. (N) 6' PRIVACY FENCE PER LANDSCAPE
4. (N) GREEN VEGETATION WALL, FOR DETAILS REFER TO LANDSCAPE DRAWINGS
5. (N) OUTDOOR SEATING BENCHES, REFER TO LANDSCAPE DRAWINGS FOR DETAILS
6. (N) EXTERIOR HORIZONTAL "EYE-BROW" & "HALO", FOR MATERIAL PLEASE REFER TO EXTERIOR ELEVATIONS
7. (N) BUILDING SIGNAGE PLEASE REFER TO EXTERIOR ELEVATIONS FOR MATERIAL & SIZE
8. (N) LOW PLANTER FOR DETAILS REFER TO LANDSCAPE DRAWINGS
9. (N) EXTERIOR STAIRS FOR DETAILS AND FINISH REFER TO LANDCAPE DRAWINGS
10. (E) FENCE TO BE REMOVED AND REINSTALLED UPON COMPLETION OF CONSTRUCTION

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Source: Mascari Warner Dinh Architects, 2022.

Figure 2-5
Site Plan

2.4 Project Description

The proposed project consists of remodeling and additions to the existing single-story rehabilitation center into the Center for Neurosciences (Figure 2-5). Specifically, the project would consist of partial demolition and an addition to the southwest corner of the building, an addition to the north side of the building, a tunnel, and creation of shear walls with new footings inside the building at locations still to be determined. The proposed project would add 20,182 square feet (including the 792 square-foot tunnel) to the total building area for a total of 51,672 square feet post-project. The project would add 16 intensive care unit beds and 16 medical surgical beds and remove 12 existing medical surgical beds (resulting in a net increase of 20 beds). Additionally, 18 beds in the existing in-patient rehabilitation center would receive a cosmetic refresh.

The exterior design intent of the building would mimic other existing buildings on campus, namely the West Tower completed around 2010, to create a more uniform look across the public-facing campus. The interior design would be Planetree, meaning the intent is to create an inviting space for patients and families with finishes and furnishings that would traditionally be found within the hospitality realm.

2.5 Construction

Construction and remodeling of the new Center for Neurosciences is anticipated to occur over a 20-month period. Any construction activities would occur between 7 a.m. and 10 p.m. (Monday through Friday) in accordance with the City of La Mesa Noise Ordinance (La Mesa Municipal Code Section 10.80.040). Construction of the proposed project would occur in three phases and would include the following activities:

- Phase 1: Progressive Care Unit/In-House Rehab Part 1
    - Demolition and underground
    - Framing and rough-in
    - Finishes
- Phase 2: In-House Rehab Part 2
    - Framing
    - Drywall
    - Final paint/caulk
- Phase 3: Two-Story Addition
    - Earthwork and foundation
    - Structure and shell
    - Exterior finishes
    - Roofing
    - Interior buildout intensive care unit/lobby
    - Extension canopy/sitework

Equipment for construction would include excavators, backhoes, Bobcats®, skip loaders, cranes, drilling rigs, and miscellaneous small equipment. Large material and major equipment deliveries would require street permits and may be scheduled for off hours during low traffic times in coordination with hospital activities.

Construction would begin in October 2022 and continue over a 20-month period, ending in July 2024.

2.6 Operation

The proposed project is anticipated to be operational by 2024. Parking for the proposed project would be provided primarily in the adjacent parking structure; with the addition of the project, the total existing supply of 3,232 off-street spaces would continue to provide a surplus. The proposed Project is anticipated to generate approximately 400 additional trips, though is presumed to have a less than significant VMT impact.

Chapter 3
Environmental Checklist

1. **Project Title:** Sharp Grossmont Hospital Center for Neurosciences
2. **Lead Agency Name and Address:** City of La Mesa
   8130 Allison Avenue
   La Mesa, CA 91942
3. **Contact Person and Phone Number:** Laura Traffenstedt, (619) 667-1188
4. **Project Location:** 5555 Grossmont Centre Drive
   La Mesa, CA 91942
5. **Project Sponsor's Name and Address:** Sheri Kwok, Sharp Healthcare, 8695 Spectrum Center Blvd, San Diego, CA 92123
6. **General Plan Designation:** Institutional
7. **Zoning:** RB-G-D (Residential Business/Grossmont Specific Plan Overlay/Urban Design Overlay)
8. **Description of Project:** Remodeling and additions to the existing single-story rehabilitation center to create a two-story Center for Neurosciences

9. **Surrounding Land Uses and Setting:**

   Surrounding land uses primarily consist of hospital facilities. As shown on Figures 2-3 and 2-4, other surrounding uses include SR-125 to the east, the administration building and existing north wing of the main hospital to the east, open space between the rehabilitation building and the behavioral health building to the north, and the main entry drive to the main hospital and parking structure to the south.

10. **Other Public Agencies Whose Approval is Required:**

    Not applicable

11. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?**

    The City of La Mesa sent letters to the Barona, Mesa Grande, and Torres Martinez Tribes on May 5, 2022 and did not receive any comments.

3.1 Environmental Factors Potentially Affected

The environmental factors checked below would potentially be affected by this project (i.e., the project would involve at least one impact that is a "Potentially Significant Impact"), as indicated by the checklist on the following pages.

- ☐ Aesthetics
- ☐ Agricultural and Forestry Resources
- ☐ Air Quality
- ☒ Biological Resources
- ☐ Cultural Resources
- ☐ Energy
- ☒ Geology/Soils/ Paleontological Resources
- ☐ Greenhouse Gas Emissions
- ☐ Hazards and Hazardous Materials
- ☐ Hydrology/Water Quality
- ☐ Land Use/Planning
- ☐ Mineral Resources
- ☐ Noise
- ☐ Population/Housing
- ☐ Public Services
- ☐ Recreation
- ☐ Transportation
- ☐ Tribal Cultural Resources
- ☐ Utilities/Service Systems
- ☐ Wildfire
- ☐ Mandatory Findings of Significance

3.2 Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards and (2) has been addressed by mitigation measures based on the earlier analysis, as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Laura Traffenstedt
Signature

09/20/2022
Date

Laura Traffenstedt
Printed Name

For

3.3 Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained if it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an environmental impact report (EIR) is required.
4. “Negative Declaration: Less than Significant with Mitigation Incorporated” applies when the incorporation of mitigation measures has reduced an effect from a “Potentially Significant Impact” to a “Less-than-Significant Impact.” The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level. (Mitigation measures from earlier analyses, as described in #5 below, may be cross-referenced.)
5. Earlier analyses may be used if, pursuant to tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where earlier analyses are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are “Less than Significant with Mitigation Incorporated,” describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, when appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a. the significance criteria or threshold, if any, used to evaluate each question; and
    b. the mitigation measure identified, if any, to reduce the impact to a less-than-significant level.

I. Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	☐	☐	☒	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

Discussion

a. Have a substantial adverse effect on a scenic vista?

Less-than-Significant Impact. The project site is within an urbanized area characterized predominantly by medical facilities. The proposed project would occur entirely within the existing Sharp Grossmont Hospital lot, which is currently occupied by a rehabilitation facility, administrative offices, and a small park open space. As shown on Figures 2-3 and 2-4, other surrounding uses include SR-125 to the east, the administration building and existing north wing of the main hospital to the east, open space between the rehabilitation building and the behavioral health building to the north, and the main entry drive to the main hospital and parking structure to the south. The proposed project site does not feature scenic views or contain other scenic resources, including scenic vistas or viewpoints as designated in the *2012 Centennial General Plan* (City of La Mesa 2012a).

Nearby scenic features include a panoramic view from the intersection of Fletcher Parkway and Amaya Drive, looking south, and a vista along Fletcher Parkway, looking southwest, as designated by the City of La Mesa's Urban Design Program (City of La Mesa 2012a). The proposed project could be partially visible from the vista along Fletcher Parkway; however, the proposed development would be in the heart of the campus and sandwiched between an existing three-story patient care tower and a taller parking structure. Additionally, this view would be partially obstructed by trees. As a result, the proposed project would not result in adverse effects on scenic vistas, and impacts would be less than significant.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?

Less-than-Significant Impact. Officially Designated State Scenic Highways within San Diego County include portions of SR-52, SR-75, SR-78, and SR-163, none of which are in the vicinity of the project site. SR-125, which borders the project site to the east, is the closest Eligible Scenic Highway. This portion of SR-125 is officially designated from Route 94 near Spring Valley to I-8 near La Mesa (Caltrans 2019). The scenic portion of SR-125 ends at the I-8/SR-125 interchange. The proposed project would not be visible from this interchange, as views are obstructed by existing freeway ramps. Additionally, the project site is surrounded by an urban environment and there are no other scenic resources, including trees and rock outcroppings, within or adjacent to the project site. Historic buildings are discussed in Section V, *Cultural Resources*. As such, the proposed project's impacts on scenic resources, including trees, rock outcroppings, historic buildings, or any other scenic resources along a scenic highway, would be less than significant.

c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less-than-Significant Impact. As previously described, the proposed project site is within an urbanized area characterized predominantly by medical facilities. Overall, the visual character of the area is that of a typical urban developed area with surrounding residences, medical offices, and outpatient rehabilitation facilities. The project site is currently occupied by a rehabilitation facility, administrative offices, and a small park open space.

Construction of the proposed project would occur entirely within the developed Sharp Grossmont Hospital property footprint and may require the use of large pieces of construction equipment such as a crane; however, that use would be temporary. During project operation, the visual character would be similar to the existing visual character, which is that of a hospital and medical facility–related uses. Refer to Figure 3-1 for a rendering of the remodeled Center for Neurosciences.

Additionally, the proposed project is zoned as Residential Business/Grossmont Specific Plan Overlay/Urban Design Overlay (RB-G-D) and would comply with all applicable zoning regulations and other regulations governing scenic quality (City of La Mesa 2022).

As such, no substantial visual changes are expected to occur on the project site. Therefore, impacts on the visual character or quality of the site or surrounding area would be less than significant.

Source: Mascari Warner Dinh Architects, 2021.

Figure 3-1
Rendering of the Remodeled Center for Neurosciences

d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Less-than-Significant Impact. Project construction activities would occur only during permitted daytime hours from 7 a.m. to 10 p.m. (standard work hours between 7 a.m. and 3:30 p.m.) in accordance with the City's Municipal Code. As such, construction of the proposed project would not introduce any new sources of substantial nighttime lighting or glare.

During project operation, the visual character and exterior lighting would be similar to that of the existing building and the design intent of the building would mimic other existing buildings on campus. The proposed project has the potential to result in significant impacts by increasing the amount of lighting that would radiate out from the site onto adjacent areas and also contribute to sky glow; however, intervening features (e.g., other buildings and landscaping associated and not associated with the project) would obscure views of lighting emanating from the proposed project. Additionally, adherence to the City's Zoning Code, which requires that lighting be designed, installed, and maintained to project light primarily on the owner's property, would reduce the level of impact from light and glare.

Additionally, the proposed project would comply with the Urban Design Program guidelines related to lighting. The proposed project would consider appropriate lighting structures and intensity of exterior lighting, provide area lighting that is down-directed to minimize glare or spill-over, and use fixtures mounted at an appropriate height. Therefore, potential impacts on daytime and/or nighttime views in the area associated with light or glare would be less than significant.

Mitigation Measures

Project implementation would not result in significant impacts on aesthetics. Therefore, no mitigation is required.

II. Agricultural and Forestry Resources

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts on forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project, and forest carbon measurement methodology provided in the Forest Protocols adopted by the California Air Resources Board. Would the project:					
a.	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	☐	☐	☐	☒
c.	Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d.	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The project site is in an urbanized area where there are no farmlands or agricultural resources. According to the California Department of Conservation's 1984–2018 San Diego County Important Farmland map, the project site is classified as "Urban and Built-Up Land," which does not contain agricultural uses or areas that have been designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (California Department of Conservation 2022). The project site is currently occupied by a rehabilitation facility, administrative offices, and a small park open space with a land use designation of "Institutional" and is zoned as RB-G-D (City of La Mesa 2022). As such, construction and operation of the proposed project would not result in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use. Therefore, no impact would occur.

b. Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?

No Impact. As discussed above, the project site is in an urbanized area where there are no farmlands or agricultural resources. The project site is currently under the land use designation "Institutional" and is zoned as RB-G-D. The Williamson Act applies to parcels consisting of at least 20 acres of Prime Farmland or at least 40 acres of land not designated as Prime Farmland. The purpose of the act is to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land for use as agricultural or related open space. The project site is classified as "Urban and Built-Up Land" (California Department of Conservation 2018). Therefore, the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and there would be no impact.

c. Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. As discussed above, the project site is in an urbanized area where there are no farmlands or forest resources. The project site is currently under the land use designation "Institutional" and is classified as "Urban and Built-Up Land." No land zoned as forest land, timberland, or timberland zoned Timberland Production exists within the proposed project boundaries. As such, the proposed project would not conflict with existing zoning for, or cause rezoning of, forest land or timberland resources. Therefore, there would be no impact.

d. Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As discussed above, the project site is in an urbanized area where there are no farmlands or forest resources. Additionally, no land acquisition would be required to implement the proposed project. The project site is currently under the land use designation "Institutional" and is zoned as RB-G-D. As such, the proposed project would not result in a loss of forest land or conversion of forest land to non-forest uses. Therefore, there would be no impact.

e. Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

No Impact. Implementation of the proposed project would have no impact on agriculture and/or forestry resources. The project site is classified as "Urban and Built-Up Land," which does not contain any agricultural uses or areas designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Implementation of the proposed project would not involve changes to the existing environment that, due to their location or nature, would result in the conversion of Farmland to non-agricultural use or forest land to non-forest use. Therefore, no impact would occur.

Mitigation Measures

Project implementation would not result in significant impacts on agriculture. Therefore, no mitigation is required.

III. Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Discussion

a. Conflict with or obstruct implementation of the applicable air quality plan?

Less-than-Significant Impact. The project site is in the San Diego Air Basin (SDAB), which is contiguous with San Diego County. The San Diego Air Pollution Control District (SDAPCD) is required, pursuant to the federal and state Clean Air Acts, to reduce emissions of criteria pollutants for which the county is in nonattainment (i.e., ozone, particulate matter less than 10 microns in diameter [PM10], and particulate matter less than 2.5 microns in diameter [PM2.5]). The most recent SDAPCD air quality attainment plans are the 2016 Regional Air Quality Standards (RAQS), the 2020 State Implementation Plan (SIP), and the 2016 SIP. The simplest test to assess project consistency is to determine if the project proposes development that is consistent with the growth anticipated by the relevant land use plans that were used in the formulation of the air quality attainment plans; if so, then the project would be consistent with the attainment plans. The City of La Mesa General Plan is the governing land use document for physical development within the City.

The project site is within an existing Sharp Grossmont Hospital property in a built-out, urbanized community. Construction of the proposed project would result in the generation of temporary construction jobs; however, the additional jobs are temporary and are expected to be filled by the existing local labor force in the San Diego region. The proposed project would not directly or indirectly induce population growth, as it does not propose new homes or include the extension of roadways or other infrastructure and would operate as a population-serving facility.

Furthermore, the proposed project would comply with the plan designations and applicable provisions of the *2012 Centennial General Plan*. The project site is currently designated

"Institutional" by the general plan. Additionally, the proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. While the proposed project would result in an increase of 400 average daily trips (ADT), these trips and subsequent mobiles emissions would not exceed the SDAPCD daily operational thresholds; and the 400 ADTs would not represent a substantial increase of motor vehicle trips in the project area. Additionally, the proposed Project is located within ½ mile walking distance of the Grossmont Transit Center, which is a major transit stop based on Office of Planning and Research (OPR) guidance. Based on the proposed Project's characteristics and location it is presumed to have a less than significant VMT impact consistent with guidance from the Institute of Transportation Engineers (ITE) and OPR (Appendix E; LLG 2022). In total, the projects unmitigated construction and operational emission would be below the established SCAQMD thresholds; refer to Tables 1 and 2. A project that has construction and operational emissions below the adopted SCAQMD thresholds is not expected to cause an exceedance of the NAAQS and thus would be consistent with the goals of the 2016 RAQS, 2020 SIP, 2016 SIP.

Therefore, because the proposed project includes development that is consistent with the uses allowed by the General Plan, would be screened out of a VMT analysis, and would not exceed the adopted threshold levels for construction and operational emissions, the proposed would not conflict or obstruct implementation of the air quality plans. Impacts related to implementation of the RAQS or the SIP would be less than significant, and no mitigation measures are required.

b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard?

Less-than-Significant Impact. As discussed above and in Appendix A (ICF 2022a), the project site is in the SDAB, which is classified as a nonattainment area for federally and state-designated criteria pollutants, including ozone, PM10, and PM2.5. Table 1. Summary of Construction Criteria Pollutant Emission Estimates (pounds per day)

Construction Phase	VOC	NOX	CO	SOX	PM10	PM2.5
Demolition	2	17	15	<1	2	1
Site Preparation	2	16	12	<1	3	1
Grading	2	17	11	<1	8	4
Building Construction	2	15	16	<1	1	1
Paving	1	9	13	<1	1	1
Architectural Coating	2	1	3	<1	1	<1
Excavation	1	4	7	<1	1	<1
Maximum Daily Emissions	**11**	**79**	**77**	**<1**	**16**	**8**
County SLTs	75	250	550	250	100	55
Exceed SLT?	No	No	No	No	No	No

Source: Modeling outputs provided in Attachment 1.

Totals may not sum perfectly due to rounding. summarizes the modeled peak daily emissions of criteria pollutants associated with construction of the project. Construction of the proposed project is expected to be staggered over the course of the 20-month construction period. However, for purposes of presenting a conservative analysis, it was assumed that the maximum day from each construction phase would overlap on a single day. As shown, the maximum level of daily construction emissions generated by the project would not exceed the County's SLTs for any criteria pollutants on this peak concurrent day. As such, these construction emissions levels would not be expected to contribute a significant level of air pollution such that regional air quality within the SDAB would be degraded. Therefore, impacts related to construction-phase emissions would be less than significant, and no mitigation measures are required.

Table 1. Summary of Construction Criteria Pollutant Emission Estimates (pounds per day)

Construction Phase	**VOC**	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Demolition	2	17	15	<1	2	1
Site Preparation	2	16	12	<1	3	1
Grading	2	17	11	<1	8	4
Building Construction	2	15	16	<1	1	1
Paving	1	9	13	<1	1	1
Architectural Coating	2	1	3	<1	1	<1
Excavation	1	4	7	<1	1	<1
Maximum Daily Emissions	**11**	**79**	**77**	**<1**	**16**	**8**
County SLTs	75	250	550	250	100	55
Exceed SLT?	No	No	No	No	No	No

Source: Modeling outputs provided in Attachment 1.
Totals may not sum perfectly due to rounding. CO = carbon monoxide; NO_X = nitrogen oxides; SO_X = sulfur oxides; VOC = volatile organic compound

Table 1 summarizes the modeled daily emissions of criteria pollutants associated with operation of the project. As shown, the daily operational emissions generated by the project would not exceed the County of San Diego's SLTs for any criteria pollutants. As such, these operational emissions levels would not be expected to contribute a significant level of air pollution such that regional air quality within the SDAB would be degraded. Therefore, impacts related to operations-phase emissions would be less than significant, and no mitigation measures are required.

Table 1. Summary of Operational Criteria Pollutant Emission Estimates (pounds per day)

Operational Element	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	1	<1	<1	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	1	1	10	<1	2	1
Daily Operational Emissions	**2**	**1**	**10**	**<1**	**2**	**1**
County SLTs	75	250	550	250	100	55
Exceed SLT?	No	No	No	No	No	No

Source: Modeling outputs provided in Appendix A (ICF 2022a).
Totals may not sum perfectly due to rounding.
CO = carbon monoxide; NO_X = nitrogen oxides; SO_X = sulfur oxides; VOC = volatile organic compound

c. Expose sensitive receptors to substantial pollutant concentrations?

Less-than-Significant Impact. The proposed project would not expose sensitive receptors to substantial pollutant concentrations. Sensitive receptors are facilities and structures where people live or spend considerable amounts of time and include retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities. Sensitive receptors in proximity to the project site include Brier Patch Elementary School to the southeast, residential subdivisions of single-family homes, and an open-space park. The project site is also entirely within the existing Sharp Grossmont Hospital property.

Diesel particulate matter (DPM), which is classified as a carcinogenic toxic air contaminant (TAC) by the California Air Resources Board, is the primary exhaust pollutant of concern with regard to health risks to sensitive receptors. Diesel-powered vehicles, equipment, and vessels that operate throughout the proposed project area would emit DPM that could potentially expose nearby sensitive receptors to pollutant concentrations. Prolonged exposure to DPM can increase the risk of cardiovascular, cardiopulmonary, and respiratory disease, and lung cancer.

According to the project schedule, construction is expected to last 20 months, which is much shorter than the assumed 70-year exposure period used to estimate lifetime cancer risks. DPM emitted by these sources can remain airborne for several days, but dissipate as a function of distance from the emissions source. Receptors at the school, park, and residences across SR-125 would have limited exposure to diesel exhaust, with exposure limited to visitation that coincides with weekday construction activities. In addition, hospital receptors would have limited exposure to diesel exhaust, with exposure limited to outdoor activities that coincides with weekday construction activities. Moreover, pollutant concentrations inside the existing hospital would be greatly decreased from outdoor concentrations. Construction activities would be sporadic, transitory, and short term in nature, and would result in minimal DPM emissions. Once construction activities have ceased, so too would the source emissions. Diesel activity occurring on site would be short term and occur at distances not expected to expose sensitive receptor locations to substantial pollutant concentrations.

Once operational, the project is expected to result in 400 new daily vehicle trips to the project site. Similar to existing conditions, vehicle emissions are mostly generated by gasoline-powered passenger vehicles and pickups, which do not emit DPM. No new stationary sources or major sources of emissions are expected to be associated with the proposed uses. Therefore, operation of the project would not result in an increase in DPM emissions.

In addition, SDAPCD Rule 1200 establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit operational TACs, including DPM.[1] Under Rule 1200, permits to operate may not be issued when emissions of TACs result in an incremental cancer risk greater than 1 in 1 million without application of best available control technology or a health hazard index (chronic and acute) greater than one.

Given the brief construction schedule, nature of project operations, distance to sensitive receptors, and required compliance with SDAPCD Rule 1200, implementation of the proposed project is not anticipated to expose sensitive receptors to substantial DPM concentrations. Impacts related to sensitive receptor exposure to substantial DPM concentrations would be less than significant, and no mitigation measures are required.

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[1] Specifically, Rule 1200 applies to any new, relocated, or modified emission unit that may increase emissions of one or more TAC and for which an Authority to Construct or Permit to Operate is required pursuant to Rule 10, or for which a Notice of Intention or Application for Certification has been accepted by the California Energy Commission.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less-than-Significant Impact. During construction of the proposed project, exhaust from equipment and activities associated with the application of architectural coatings may produce discernible odors typical of most construction sites. Such odors would be a temporary source of nuisance to adjacent uses but would not affect a substantial number of people.

Potential odor emitters during operations would include exhaust from vehicles visiting the project site. However, odor impacts would be limited to the circulation routes, parking areas, and areas immediately adjacent to the project site, and would not exceed existing odor conditions. Although such brief exhaust odors may be considered unpleasant, they would not affect a substantial number of people, and any odor-related impacts would be less than significant.

Mitigation Measures

Project implementation would not result in significant impacts related to air quality. Therefore, no mitigation is required.

IV. Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant with Mitigation Incorporated. As detailed in the Biological Resources Report (Appendix B; ICF 2022b), no state- or federally listed endangered or threatened plant species were observed within the Biological Survey Area (BSA). No other sensitive or special-status species were observed. Thirty-eight sensitive plant species identified from the California Natural Diversity Database search and California Native Plant Society search within the La Mesa, California U.S.

Geological Survey 7.5-minute quadrangle were evaluated for their potential to occur within the BSA and are discussed in Appendix B (ICF 2022b). No evaluated species are expected to occur within the BSA. Due to the developed and disturbed nature of the site, the BSA has low potential to support other sensitive species. There are several contributing factors—such as disturbance and development—that preclude these species from being present.

The BSA and the surrounding areas are largely developed, likely precluding any special-status wildlife species from occurring in the vicinity. Appendix B discusses the potential to occur for species that were included in the California Natural Diversity Database search. No special-status wildlife species were determined to have a potential to occur, and no special-status wildlife species were observed during the biological survey. Disturbance factors such as little native vegetation; high anthropogenic activity; development, such as freeways and buildings; and lack of habitat connectivity contribute to the low potential for any special-status species to occur. As such, impacts on special-status wildlife would not occur.

The BSA and immediate vicinity contain trees, shrubs, and human-made structures (e.g., buildings) that provide suitable nesting habitat for common (non-sensitive) birds, including common raptors, protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code. Implementation of the project would result in direct, permanent impacts on ornamental trees within the BSA that have the potential to house nesting birds. Grading, vegetation clearing, and/or noise-generating activities could result in nest failures if they are conducted during the nesting season (generally February 15–August 31). Such impacts could result in removal of active nests or disruption in breeding success due to disturbance of breeding behaviors. However, implementation of **MM-BIO-1** would result in a less-than-significant impact on nesting birds protected under the MBTA.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less-than-Significant Impact. The U.S. Fish and Wildlife Service has not designated any critical habitat within the study area. No sensitive vegetation communities would be affected by the project. The limits of grading are expected to occur within the existing developed or ornamental areas; as such, no direct impacts on any special-status species, jurisdictional features, or sensitive natural communities are expected to occur. In addition, the BSA is within a highly urbanized city and is surrounded by development on all sides; as such, no indirect impacts are anticipated on any biological resources. The project would not result in impacts on any designated core wildlife areas or wildlife corridors.

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. As indicated in in the Biological Resources Report (Appendix B; ICF 2022b), the project site does not contain any jurisdictional waters or wetlands; therefore, no impact is anticipated.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less-than-Significant Impact. The project site is completely developed as an operating hospital and either paved or graded, with numerous buildings and other structures present, and is surrounded by development on all sides. The project site and surrounding area do not contain any streams or bodies of water that may be inhabited by any native resident or migratory fish species. The existing surrounding buildings and structures currently limit the amount of wildlife movement and do not provide a migratory wildlife corridor. As such, the proposed project would not interfere with the movement of fish or wildlife and would not affect wildlife corridors. Therefore, impacts would be less than significant.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The San Diego County Multiple Species Conservation Plan (MSCP) is the regulating document that outlines and sets protections for biological resources in San Diego County, and the La Mesa Natural Community Conservation Plan is the sub-area plan that implements the MSCP within the City of La Mesa. The project would not result in direct or indirect impacts on any biological resources mentioned in either of these regulations; therefore, the proposed project would not conflict with these plans. No impacts would occur.

f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

No Impact. As discussed in Threshold IVe, the proposed project would not affect any biological resources mentioned in the San Diego County MSCP or the City of La Mesa Natural Community Conservation Plan; therefore, there would be no conflicts with these plans. As such, no impact would occur.

Mitigation Measures

MM-BIO-1: Nesting Raptors and Migratory Birds. Grading, vegetation clearing, and/or noise-generating activities shall be scheduled outside the nesting bird season (approximately February 15–August 31), if feasible. If construction cannot be scheduled outside of the nesting bird season, a qualified wildlife biologist shall conduct preconstruction surveys of all potential nesting habitat within the project site. Preconstruction surveys for nesting raptors shall cover potential raptor nesting sites within 500 feet of the project site and within 100 feet of the project site for all other migratory birds, where accessible. Surveys shall be conducted no more than 3 days prior to construction activities, and the surveying biologist must be qualified to determine the status and stage of nesting without causing intrusive disturbance.

If active nests are detected during the preconstruction surveys, a suitable buffer from construction activities (500 feet for raptors and 100 feet for all other species) shall be applied until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged or the nest has failed). A qualified biologist will check the nest status at least once per week, using the least invasive method feasible (e.g., observation with binoculars from a distance). These buffers may be reduced at the discretion of a qualified biologist with sufficient avian experience as long as the nesting birds continue to behave normally and do not show signs of stress caused by construction.

V. Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☐	☒	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

Discussion

a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

No Impact. The proposed project would occur entirely within the existing Sharp Grossmont Hospital property, which is currently occupied by a rehabilitation facility, administrative offices, and a small park open space. No historical resources have been identified within the project site. Therefore, the proposed project would not cause an adverse change in the significance of a historical resource. No impact would occur.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less-than-Significant Impact. The project site has been substantially disturbed by the development of the Sharp Grossmont Hospital campus. If significant archaeological resources were within the project site, they would have likely been disturbed or unearthed during past grading activities. Therefore, it is unlikely that the proposed project would encounter and affect archaeological resources. Impacts would be less than significant.

c. Disturb any human remains, including those interred outside of dedicated cemeteries?

Less-than-Significant Impact. The project site is not a formal cemetery and is not near a formal cemetery. There are no known instances of human remains being identified during development of the area, and the site is not known to be on a burial ground. The project vicinity is fully developed, and construction of the proposed project would involve ground disturbance in an area that has previously been disturbed. Therefore, it is highly unlikely that the proposed project would disturb any human remains during proposed project activities.

Should human remains be uncovered during construction, as specified by California Health and Safety Code Section 7050.5, no further disturbance would occur until the county coroner has made the necessary findings as to the origin and disposition pursuant to PRC 5097.98. If such a discovery occurs, excavation or construction would halt in the area of the discovery, the area would be protected, and consultation and treatment would occur as prescribed by law. If the county coroner recognizes the remains to be Native American, he or she would contact the Native American Heritage Commission, who would appoint the most likely descendant. Additionally, if the remains are determined to be Native American, a plan would be developed regarding the treatment of human remains and associated burial objects. As required by PRC 5097.98, the plan would be implemented in coordination with the most likely descendant. Impacts would be less than significant.

Mitigation Measures

Project implementation would not result in significant impacts related to cultural resources. Therefore, no mitigation is required.

VI. Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Discussion

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less-than-Significant Impact. Energy resources include electricity, natural gas, transportation fuel, and other fuel and energy sources. During construction, there would be a temporary consumption of energy resources required in the form of fuels to power heavy-duty construction equipment, material delivery and haul vehicles, as well as construction worker commuting. Compliance with local, state, and federal regulations would reduce short-term energy demand during the project's construction to the extent feasible. Demand for fuel during construction would have no noticeable effect on peak or baseline demands for energy. Therefore, project construction would not result in a wasteful, inefficient, or unnecessary consumption of energy that could result in potentially significant environmental effects use.

The most relevant plan, policy, and regulatory program adopted for the purpose of reducing the emissions of greenhouse gases (GHGs) from energy, transportation, water use, and solid waste generation is the City of La Mesa's Climate Action Plan (CAP). The project's compliance with the City's CAP is expanded upon in Section VIII. The project would be consistent with all of the applicable CAP strategies designed to reduce GHG emissions within the City, including measures to reduce GHG emission from energy, transportation, water use, and solid waste generation during construction (Appendix A; ICF 2022a). Therefore, because the proposed project would be consistent with the City's general plan growth projections and land use designations and would implement all applicable measures of the City's CAP, impacts related to GHG emissions would have a less-than-significant cumulatively considerable contribution to climate change. Therefore, the project would not result in impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation. Energy impacts would be less than significant, and no mitigation is required.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less-than-Significant Impact. State and local agencies regulate the use and consumption of energy through various methods and programs. AB 32 and Senate Bill (SB) 32 both seek to reduce the effects of GHG emissions through various measures, including but not limited to renewable energy production and energy efficiency measures.

The proposed project would be required to comply with applicable requirements of the City of La Mesa's CAP and the Energy Efficiency Standards of Title 24. The City's CAP, adopted in 2018, includes numerous renewable energy and energy efficiency actions to be implemented or facilitated by the City. As shown in Table 8 of the attached Appendix A, the project would comply with CAP Strategies including T-3 continuous sidewalks; W-2 efficient landscaping design and irrigation; SW-2 75% diversion of construction and demolition-related solid waste from landfills; and SW-3 75% diversion of operation-phase solid waste from landfills. Electricity needs will be minimal, and all utilities are from the existing core central plant service. Therefore, the proposed project would not conflict with or obstruct state or local plans, and impacts would be less than significant.

Mitigation Measures

Project implementation would not result in significant impacts related to energy. Therefore, no mitigation is required.

VII. Geology, Soils, and Paleontological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
2. Strong seismic ground shaking?	☐	☐	☒	☐
3. Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
4. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

Discussion

a.1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or

based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less-than-Significant Impact. The project site is in a known seismically active region where several known earthquake faults occur; however, no known active faults exist beneath the project site itself (City of La Mesa 2012b). Additionally, the project site is not within a State of California Earthquake Fault Zone (formerly known as an Alquist-Priolo Special Studies Zone). A seismic event could cause significant ground shaking on the project site. While the potential for ground rupture due to faulting at the site is considered low, lurching or cracking of the ground surface as a result of a nearby seismic event is possible. However, compliance with all applicable building codes and standards would reduce project impacts to levels that are less than significant.

a.2. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Strong seismic ground shaking?

Less-than-Significant Impact. The primary seismic hazard for the project site, as with most of the Southern California region, is the susceptibility to ground shaking due to the presence of major active or potentially active faults in the region. The design and construction of the project would comply with all applicable building codes and standards established by regulatory agencies, including the City of La Mesa and the latest California Building Code, to minimize damage in the event of an earthquake. Compliance with all applicable building codes and standards would reduce project impacts to levels that are less than significant.

a.3. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Seismic-related ground failure, including liquefaction?

Less than Significant with Mitigation Incorporated. Potential secondary seismic effects of strong seismic ground shaking include liquefaction, lateral spreading, and seismically induced settlement/ differential compaction. Liquefaction is defined as a loss of strength of saturated, cohesionless soil generally due to seismic shaking. Granular soils tend to densify when subjected to shear strains induced by ground shaking during earthquakes. Research and historical data indicate that loose granular soils underlain by a near-surface groundwater table are most susceptible to liquefaction, while the most clayey materials are not susceptible to liquefaction. Liquefaction is characterized by a loss of shear strength in the affected soil layer, thereby causing the soil to behave as a viscous liquid. This effect may be manifested at the ground surface by settlement and, possibly, sand boils where insufficient confining overburden is present over liquefied layers. Where sloping ground conditions are present, liquefaction-induced instability can result.

The site is underlain at shallow depths by Stadium Conglomerate with upper portions of undocumented fill materials (Appendix C; Leighton Consulting 2021). The undocumented fill material may be potentially compressible and weathered and therefore impacts related to liquefaction would be potentially significant. These impacts would be less than significant with incorporation of **MM GEO-1**.

a.4. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Landslides?

Less-than-Significant Impact. Several formations within the San Diego region are particularly prone to landsliding. These formations generally have high clay content and mobilize when they become saturated with water. Other factors, such as steeply dipping bedding that projects out of the face of the slope and/or the presence of fracture planes, will also increase the potential for landsliding. No landslides or indications of deep-seated landsliding are present at the project site. The project site is underlain by generally massive, near-horizontal, favorably oriented geologic structure consisting of medium dense to very dense Stadium Conglomerate (Appendix C; Leighton Consulting 2021). Therefore, the potential for significant landslides or large-scale slope instability at the project site is considered low. As such, impacts would be less than significant.

b. Result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact. Soil erosion and the loss of topsoil could occur during grading and construction of the proposed project. The potential impacts of soil erosion on the project site would be minimized through implementation of a Stormwater Pollution Prevention Plan (SWPPP) in compliance with the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. The SWPPP would prescribe temporary best management practices (BMPs) to control wind and water erosion during and shortly after construction of the project. With implementation of BMPs as prescribed in the SWPPP, the impact on soil erosion and the loss of topsoil would be less than significant, and no mitigation measures are required.

c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-than-Significant Impact. Project site soils are composed of undocumented fill soils atop Stadium Conglomerate generally consisting of medium dense to very dense, light brownish gray, moist, clayey and silty sandstone and gravel conglomerate with variable amounts of gravel and well-rounded cobbles (Appendix C; Leighton Consulting 2021). As discussed under Threshold VIIa.4, the project site is not within an area mapped as a landslide or liquefaction hazard zone. As lateral spreading occurs when there are liquefiable soils, it is not anticipated to occur within the project site. As a result, the underlying geologic structure of the project site would not become unstable as a result of the project, resulting in an on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, impacts would be less than significant.

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less-than-Significant Impact. Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a significant increase in volume with an increase in water content and a significant decrease in volume with a decrease in water content. Changes in the water content of an expansive soil can result in severe distress to structures constructed upon the soil. The terrain of the project site and surrounding area is currently developed and relatively level. Soils that underlie the site generally have a low potential for expansion (Appendix C; Leighton Consulting 2021). The project would require soil disturbance; however, because of previous onsite development and grading activities, the potential for near-surface expansive soils at the project site is considered low. Construction activities associated with the proposed project would comply with the requirements of Section 8.21.130 of the California Building Code, which addresses expansive soils. Therefore, impacts related to expansive soils would be less than significant.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?

Less than Significant Impact. Sharp Grossmont Hospital uses the existing sewer system for the disposal of wastewater; however, the proposed Project would include underground storage tanks for emergency wastewater storage partially within the public right-of-way; however, the project would be required to comply with the applicable federal, state, and local laws and regulations (e.g., Regional Water Quality Control Board's applicable standards) to ensure that the tanks are adequately designed, located, sized, spaced, constructed and maintained. Therefore, the underground storage tanks would not be located on soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems and impacts would be less than significant.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant with Mitigation Incorporated. The Mission Valley Formation in the City of La Mesa is of high paleontological sensitivity. Any ground disturbance that extends to undisturbed deposits of the Mission Valley Formation has the potential to cause significant and adverse impacts on the paleontological resources preserved within this deposit. At the project site, the Tertiary-aged Stadium Conglomerate underlies the existing undocumented artificial fill soils. The proposed project would include excavation up to 5 feet, which would potentially destroy a unique paleontological resource or site or unique geologic feature if it were to extend through the undocumented fill and into the formation. Therefore, impacts on paleontological resources would be potentially significant. These impacts would be less than significant with incorporation of **MM GEO-2**.

Mitigation Measures

MM GEO-1: The upper 1 to 2 feet of undocumented artificial fill materials are considered potentially compressible and generally unsuitable in their present state to support additional fill or structural loads. Localized fills up to approximately 5 to 6 feet may be encountered as well. Accordingly, these soils are to be removed and recompacted.

MM GEO-2: If it is determined that excavation would extend below the artificial fill, a qualified paleontologist shall be retained by the Applicant prior to excavations reaching 10 feet or greater in depth. The qualified paleontologist shall develop and execute a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) and supervise a paleontological monitor who shall monitor all ground-disturbing activities associated with such excavations. The PRMMP would outline the procedures to follow with respect to paleontological resources (e.g., monitoring protocols, curation, data recovery of fossils, reporting). If fossils are found during such excavation, the paleontological monitor shall be authorized to halt ground-disturbing activities within 25 feet of the find in order to allow evaluation of the find and determination of appropriate treatment according to the PRMMP.

VIII. Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less-than-Significant Impact. The primary associated GHG emissions are carbon dioxide, methane, nitrous oxide, and fluoridated compounds. AB 32 sets forth the regulatory framework in California to reduce emissions to 1990 levels by 2020. SB 32 builds on AB 32 and establishes a longer-term goal of 40 percent below 1990 levels by 2030. Unlike criteria pollutants, which are primarily pollutants of regional and local concern, GHGs are a global problem. Therefore, GHG impacts and the analysis contained herein are inherently cumulative.

The State CEQA Guidelines do not indicate what amount of GHG emissions would constitute a significant impact on the environment. Instead, they authorize the lead agency to consider thresholds of significance that were previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence (State CEQA Guidelines Sections 15064.4(a) and 15064.7(c)). The courts have since confirmed that there are multiple potential pathways for evaluating project-level GHG emissions consistent with CEQA, depending on the circumstances of a given project. These potential pathways include reliance on a business-as-usual model, numeric thresholds, and compliance with regulatory emissions reduction plans and programs, including qualified CAPs.

SDAPCD has not yet formally adopted specific thresholds of significance with regard to GHG emissions, nor has it adopted a qualified plan, policy, or regulation to reduce GHG emissions that qualifies for tiering in CEQA documents (per State CEQA Guidelines Section 15183.5(a)). The City of La Mesa adopted its CAP in March 2018, which contains emissions reduction targets of 15 percent below baseline by 2020 and 53 percent below baseline by 2035. To reach these targets, the CAP includes measures and strategies related to energy, transportation and land use, water, solid waste, and infrastructure (City of La Mesa 2018).

Construction would involve demolition, grading, structure construction, paving, and application of architectural coatings. GHG emissions during construction would result from use of off-road equipment, employee and haul truck vehicle exhaust, and land clearing and material movement. Table 2 summarizes GHG emission estimates by construction phase and in total. As shown, total emissions were estimated to be 709 metric tons of carbon dioxide equivalent (MTCO$_2$e), which equates to 24 MTCO$_2$e per year over a 30-year project life.

Table 2. Summary of Construction Greenhouse Gas Emission Estimates

Construction Phase	Carbon Dioxide Equivalent (metric tons per year)
Demolition	37
Site Preparation	6
Grading	22
Building Construction	564
Paving	8
Architectural Coating	44
Excavation	28
Total Construction Emissions	**709**
Amortized Construction (averaged over a 30-year period)	24

Source: Modeling outputs provided in Appendix A (ICF 2022a).
Totals may not sum perfectly due to rounding.

Table 3 summarizes GHG emission estimates by operational element and in total. Operation would result in a minor increase in visitation and associated emissions to power and support the new building square footage. In addition, the project is not expected to result in population, employment, or development growth that is currently unplanned. As shown, total annual emissions were estimated to be 506 $MTCO_2e$ in opening year 2024. The majority of emissions would be due to motor vehicles and energy consumption.

Table 3. Summary of Operational Greenhouse Gas Emission Estimates

Operational Element	Carbon Dioxide Equivalent (metric tons per year)
Area	<1
Energy	136
Mobile	333
Solid Waste	7
Water	7
Amortized Construction	24
Total Operational Emissions	**506**

Source: Modeling outputs provided in Appendix A (ICF 2022a).
Totals may not sum perfectly due to rounding.

The most relevant plan, policy, and regulatory program adopted for the purpose of reducing the emissions of GHGs from energy, transportation, water use, and solid waste generation is the City's CAP. The project would be consistent with all of the applicable CAP strategies designed to reduce GHG emissions within the City, including measures to reduce GHG emissions from energy, transportation, water use, and solid waste generation during construction. As such, construction and operational GHG emissions are not expected to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Impacts would be less than significant.

b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. As discussed above, the proposed project is the expansion of the Center for Neurosciences on the existing Sharp Grossmont Hospital campus. Construction would involve demolition, grading, structure construction, paving, and application of architectural coatings. GHG emissions during construction would result from use of off-road equipment, employee and haul truck vehicle exhaust, and land clearing and material movement. Operation would result in a minor increase in visitation and associated emissions to power and support the new building square footage. In addition, the project is not expected to result in population, employment, or development growth that is currently unplanned.

The most relevant plan, policy, and regulatory program adopted for the purpose of reducing the emissions of GHGs is the City's CAP. If the proposed project implements all applicable measures of the CAP, then the project would be found to have a less-than-significant cumulatively considerable contribution to climate change impacts.

The proposed project's consistency with relevant CAP strategies is provided in Table 4. As shown, the project would be consistent with all of the applicable CAP strategies designed to reduce GHG emissions within the City, including measures to reduce GHG emissions from transportation, water use, and solid waste generation during construction. Therefore, because the proposed project would be consistent with the City's general plan growth projections and land use designations and would implement all applicable measures of the City's CAP, impacts related to GHG emissions would have a less-than-significant contribution to climate change.

Table 4. Project Consistency with Applicable CAP Strategies

Strategy	Strategy Summary	Consistency
T-3: Transportation Demand Management Program	Use SANDAG's iCommute program to reduce single-occupancy vehicle trips community wide.	**Consistent.** The project area includes various active transportation features to reduce vehicle trips, including continuous sidewalks along most of the roadways in the area, bike-friendly roads within the project area, Class II bike lanes proposed by the City along major roadways., and transit (both bus and light rail) within 0.5 mile of the project.
W-2: Water Sensitive Landscape Design and Irrigation	Conserve water through efficient landscaping design and irrigation.	**Consistent.** Implementation of the proposed project would ensure use of water-efficient landscaping.
SW-2: Construction and Demolition Waste Diversion Program	Continue to enforce the City's construction and demolition waste diversion ordinance.	**Consistent.** The proposed project Applicant and future contractors would ensure that at least 75% of waste generated during construction would be diverted from the landfill.

Strategy	Strategy Summary	Consistency
SW-3: 75% Waste Diversion Goal	Maximize waste diversion efforts community wide with a particular focus on organic and recyclable waste.	**Consistent.** The proposed project Applicant and future contractors would ensure that at least 75% of waste generated during construction would be diverted from the landfill.

Source: City of La Mesa 2018, 2021.
E= energy; T= transportation and land use; W= water; SW= solid waste

Mitigation Measures

Project implementation would not result in significant impacts related to GHG emissions. Therefore, no mitigation is required.

IX. Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

Discussion

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less-than-Significant Impact. Project construction would require the use of materials that are typically associated with construction activities, such as diesel fuels, hydraulic liquids, oils, solvents, and paints. Any potentially hazardous materials found on site would be removed in accordance with state and federal regulations regarding the transport, use, and storage of hazardous materials.

Once operational, the proposed project would not change the operation of the project site as a medical facility. The project would add 16 intensive care unit beds and 16 medical surgical beds and remove 12 existing medical surgical beds (resulting in a net increase of 20 beds). Additionally, 18 beds in the existing in-patient rehabilitation center would receive a cosmetic refresh.

Due to the nature of the aforementioned uses, the possibility exists for hazards related to the handling of hazardous materials, including biomedical materials and waste, to occur. The handling of hazardous materials would be required to adhere to all applicable federal, state, and local regulations for qualifying hazardous materials, including requirements of San Diego County Environmental Health and Quality's Hazardous Materials Division (HMD), and apply for applicable permits for any regulated substance that may pose a threat to public health and safety or the environment. The project would comply with the safety procedures mandated by applicable federal, state, and local laws and regulations (e.g., Resource Conservation and Recovery Act, California Hazardous Waste Control Law) to ensure that risks resulting from the routine use of hazardous materials and disposal of hazardous wastes remain less than significant. In addition, registration of the hazardous materials through HMD's Hazardous Materials Business Plan Program (San Diego County Environmental Health and Quality 2022) would be required to ensure safe and responsible handling of those qualifying materials. Impacts would be less than significant.

. Therefore, construction and operational impacts for these issues would be less than significant.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less-than-Significant Impact. The project site is situated entirely within the existing Sharp Grossmont Hospital property. Construction would require the use of typical materials associated with construction activities such as diesel fuels, hydraulic liquids, oils, solvents, and paints. It is possible that any of these substances could be released during construction activities. However, compliance with federal, state, and local regulations, in combination with construction BMPs (as required by a project-specific SWPPP), would ensure that all hazardous materials would be used, stored, and disposed of properly, minimizing potential impacts related to a hazardous materials release during the construction phase of the project. Hazardous materials use and waste produced during project operations would be regulated by all entities described under Threshold IXa. Impacts would be less than significant.

c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less-than-Significant Impact. The proposed project would occur 0.5 mile south of Parkway Middle School. However, as described under Threshold IXa, compliance with federal, state, and local regulations, in combination with construction BMPs (as required by a SWPPP), would reduce potential impacts associated with the handling of hazardous materials during construction to less-than-significant levels. Therefore, potential impacts associated with hazardous emissions or the handling of hazardous materials or waste within 0.25 mile of a school would be less than significant.

Operational activities associated with the project could include the handling of hazardous materials, including biomedical materials and waste. As mentioned under Threshold IXa, the handling of these hazardous materials would be required to adhere to all applicable federal, state, and local regulations for qualifying hazardous materials, including requirements of the County of San Diego's Hazardous Materials Division, which regulates these types of materials and enforces the proper handling, storage, and disposal of hazardous materials through its Hazardous Materials Business

Plan program. Therefore, potential long-term impacts associated with hazardous emissions or the handling of hazardous materials or waste within 0.25 mile of a school would be less than significant.

d. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less-than-Significant Impact. The project site is not included on a list of hazardous material sites compiled pursuant to Section 65962.5 of the California Government Code (DTSC 2022). Therefore, the proposed project would not create a significant hazard to the public or the environment due to its location on a site that was included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5. Impacts associated with this issue would be less than significant.

e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The project site is not within 2 miles of a public airport or a public use airport. The proposed project site is currently occupied by a rehabilitation facility, administrative offices, and a small park open space. The proposed project consists of remodeling and additions to the existing single-story rehabilitation center into the Center for Neurosciences; therefore, existing operations would remain the same. As such, the proposed project would not conflict with the Airport Land Use Compatibility Plan or any other applicable rules and regulations as they pertain to airports and airport safety (ALUC 2014). The proposed project would not create residences or other land uses that would be sensitive to aircraft noise. Therefore, the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area; no impact would occur.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

No Impact. Emergency management services are overseen by Heartland Fire & Rescue, which responds to emergencies and provides fire protection, fire prevention services, emergency medical services, and community emergency preparedness. Construction activities associated with the proposed project would occur on the project site but would not restrict access for emergency vehicles traveling to Sharp Grossmont Hospital. After construction of the proposed project, emergency access to the site would remain the same as under existing conditions. Therefore, implementation of the proposed project would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan, and there would be no impact.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less-than-Significant Impact. The City of La Mesa is subject to both wildland and urban fires because of its climate, topography, and native vegetation (City of La Mesa 2012b). Extended drought, characteristic of the region's Mediterranean climate and increasingly severe dry periods associated with global warming, has resulted in large areas of dry native vegetation that provide fuel for wildland fires. State law requires all local jurisdictions to identify any Very High Fire Hazard Severity Zone (VHFHSZ) within their areas of responsibility (California Government Code Sections 51175–51189). Inclusion within these zones is based on vegetation density, slope severity, and other relevant factors that contribute to fire severity.

The project site is not within an area that has been identified as a wildland fire hazard area (Ready San Diego 2020). The proposed project would not increase the existing risk of wildland fires, because these improvements would all occur within the existing developed site and would not include the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, or other utilities) that may exacerbate a fire risk. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury, or death from wildfires, and the impact would be less than significant.

Mitigation Measures

Project implementation would not result in significant impacts related to hazards and hazardous materials. Therefore, no mitigation is required.

X. Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:				
• Result in substantial erosion or siltation on or off site;	☐	☐	☒	☐
• Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site;	☐	☐	☒	☐
• Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
• Impede or redirect flood flows?	☐	☐	☐	☒
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less-than-Significant Impact. The project is not expected to use any form of wastewater or generate any wastewater or hazardous waste during construction. However, equipment used during construction would contain hazardous materials such as hydraulic oil, diesel fuel, and other products typically contained within construction vehicles and equipment.

As required by the Clean Water Act and other federal regulations, any construction project that disturbs 1.0 acre or more must obtain an NPDES Construction General Permit and implement a SWPPP. The purpose of a SWPPP is to identify and implement BMPs to reduce impacts on surface water from contaminated stormwater discharges. Development and implementation of a SWPPP would apply to both the construction and post-construction phases of the project. Compliance with the implemented SWPPP would reduce any impacts on water quality to less-than-significant levels.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less-than-Significant Impact. The project site is within an established urban community serviced by Helix Water District (HWD) and does not propose to use groundwater during construction or operation. Additionally, groundwater was not encountered during subsurface exploration of the site (Appendix C; Leighton Consulting 2021). Therefore, the proposed project would not deplete groundwater supplies or interfere substantially with groundwater recharge, and impacts would be less than significant.

c.1. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would: Result in substantial erosion or siltation on or off site?

Less-than-Significant Impact. The proposed project would result in grading activities but would not substantially increase impervious surfaces or alter the existing drainage patterns in a way that would result in substantial erosion or siltation. To account for potential modifications to flow and increases in offsite erosion and siltation, the project would implement low-impact development (LID) BMPs, such as flow-through planters and bioretention areas. Additionally, storm water treatment devices and storage vaults have been designed in tandem with the development to capture all surface runoff and treat it for pollutants and sediment, and then store it and release over time to mimic existing drainage patterns and flowrate. The project will result in no net increase in storm water discharge from the pre-project condition. Therefore, a less-than-significant impact would occur.

c.2. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would: Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?

Less-than-Significant Impact. Grading and ground disturbance associated with construction of the proposed project would not substantially increase impervious surfaces, and there are no streams or rivers on site. Grading activities would not substantially increase the rate or amount of surface runoff; however, to account for potential modifications to flow and increases in offsite erosion and siltation, the project would include LID measures and BMPs. Additionally, storm water treatment devices and storage vaults have been designed in tandem with the development to capture all surface runoff and treat it for pollutants and sediment, and then store it and release over time to mimic existing drainage patterns and flowrate. The project will result in no net increase in storm water discharge from the pre-project condition. Therefore, impacts would be less than significant.

c.3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a

manner that would: Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less-than-Significant Impact. During project construction, the contractor would be required to comply with the City of La Mesa stormwater pollution controls or SWPPP and the Construction General Permit issued for the proposed project to ensure that any discharges from the site would not violate any water quality standards or waste discharge requirements. The proposed project would not alter the existing drainage pattern of the site and, therefore, would not result in an increase in the rate or amount of stormwater runoff from the site. Any stormwater runoff from the site during operation would continue to be accommodated by the existing stormwater drainage system currently serving the existing facility. As such, the proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, impacts would be less than significant.

c.4. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would: Impede or redirect flood flows?

No Impact. The project site is not within a floodplain. The project site is not downstream of a dam or within a dam inundation area. As such, the proposed project would not impede or redirect flood flows. No impact would occur.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. The project site is approximately 14.5 miles east of the nearest coastline and is outside the tsunami inundation areas along the coast. The nearest enclosed body of water is Lake Murray, which is approximately 2 miles east of the project site. Based upon the California Emergency Management Agency Tsunami Inundation Map, the site is not within a tsunami inundation area. In addition, based on the generally strike-slip character of offshore faulting and proposed elevation of the site with respect to sea level, seiche and/or tsunami would not occur (Appendix C; Leighton Consulting 2021). Due to the distance of all enclosed bodies of water, no seiche-related flooding is anticipated to occur at the project site. Therefore, no impacts related to flood hazard, seiche, or tsunami would occur.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less-than-Significant Impact. The project site is within the San Diego River Watershed Management Area, within the San Diego River Hydrologic Unit (907.00), and is subject to the applicable requirements of the Basin Plan administered by the San Diego Regional Water Quality Control Board in accordance with the Porter-Cologne Water Quality Control Act. The project would include LID measures and BMPs for drainage control that would be consistent with the Basin Plan. Commonly practiced BMPs would be implemented to control construction site runoff and reduce the discharge of pollutants to storm drain systems from stormwater and other nonpoint-source runoff.

As described in Threshold Xb, groundwater was not encountered during subsurface exploration of the project site and no sustainable groundwater management plan applies to the project area. Neither the development nor operational phase of the proposed project would interfere with groundwater recharge or supply, and therefore would not conflict with sustainable groundwater management. As such, impacts would be less than significant.

Mitigation Measures

Project implementation would not result in significant impacts related to hydrology and water quality. Therefore, no mitigation is required.

XI. Land Use and Planning

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Discussion

a. Physically divide an established community?

No Impact. The proposed project would occur entirely within the boundary of the existing Sharp Grossmont Hospital property and would not expand the physical boundaries of the site. Additionally, the project site is within an established, built-out urban community. Therefore, implementation of the proposed project would not divide an established community, and no impact would occur.

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less-than-Significant Impact. The proposed project would comply with the plan designations and applicable provisions of the *2012 Centennial General Plan*. The project site is currently designated "Institutional" by the general plan. Additionally, the proposed project would occur entirely within the boundary of the existing Sharp Grossmont Hospital property and therefore would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Impacts would be less than significant.

Mitigation Measures

Project implementation would not result in significant impacts related to land use and planning. Therefore, no mitigation is required.

XII. Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. The Surface Mining and Reclamation Act of 1975 required the State Geologist to initiate mineral land classification to help identify and protect mineral resources in areas within the state. In accordance with guidelines established by the State Mining and Geology Board, mineral deposits in western San Diego County have been classified into Mineral Resource Zones. San Diego's principal mineral resources include salt, sand, and gravel, all of which have been produced in San Diego for decades. According to the Conservation and Sustainability Element of the *2012 Centennial General Plan*, no significant mineral deposits are present within the project site (City of La Mesa 2012c). Additionally, no mineral extraction or other mining operations occur within the project site or in the immediate vicinity. Therefore, no impact would occur.

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. There are no mineral extraction activities currently at the project site, and the site would not be available for such activities in the future. Therefore, implementation of the proposed project would not result in the loss of availability of a locally important mineral resource recovery site, and no impact would occur.

Mitigation Measures

Project implementation would not result in significant impacts related to mineral resources. Therefore, no mitigation is required.

XIII. Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☒	☐
b. Generate excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c. Be located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The information and analyses described in this section are based on the *Sharp Center for Neurosciences, Noise and Vibration Impact Analysis* (Appendix D; ICF 2022c).

Discussion

a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?

Less-than-Significant Impact. The project site is within the Sharp Grossmont Hospital campus, surrounded by existing hospital buildings in each direction. The nearest noise-sensitive land uses to the project site are single-family residential (houses) and multifamily residential (apartments) to the northwest, and apartments and an assisted living facility to the northeast and east (across SR-125). The primary sources of noise in the area are traffic on SR-125 and I-8, and the Metropolitan Transit System trolley line. Other noise sources include traffic on local roadways, aircraft overflights, and general neighborhood noise. The existing noise environment in the project vicinity varies with proximity to the local noise sources. To document existing noise levels in the study area, short-term (ST) measurements were obtained at the apartments to the northwest, at the apartments and houses beyond Fletcher Parkway to the northwest, and at the assisted living facility to the southeast. An additional measurement from a prior noise study (ICF 2020) was included to supplement measured ambient noise data in the project vicinity; this measurement was obtained at the apartments northeast of the project site. Each ST measurement was conducted over a period of 20 minutes.

The relevant noise standards for the proposed project are provided by the City of La Mesa Municipal Code Chapter 10.80, *Noise Regulation*. Section 10.80.100 of the Municipal Code addresses construction noise. Rather than providing quantitative noise limits, the code regulates the days and times that noise-generating construction equipment may be operated. Section 10.80.100 states that noise-generating construction equipment may not be operated within 500 feet of residential zones between the hours of 7 p.m. and 10 p.m. Monday through Saturday, or at any time on Sundays, unless a special permit authorizing the activity has been duly obtained from the chief building official.

Section 10.80.040 of the Municipal Code establishes standards for exterior noise levels. Noise limits vary depending on the zoning of the receiving land use as summarized in Table 5.

Table 5. City of La Mesa Municipal Code Exterior Noise Limits

Zone	Time	Sound Level Limits, dBA[1,2]
R1 (Urban Residential) and R2 (Medium Low Density Residential)	Daytime 7 a.m. to 7 p.m.	60
	Evening 7 p.m. to 10 p.m.	55
	Nighttime 10 p.m. to 7 a.m.	50
R3 (Multiple Unit Residential) and RB (Residential Business)	Daytime 7 a.m. to 7 p.m.	60
	Evening 7 p.m. to 10 p.m.	60
	Nighttime 10 p.m. to 7 a.m.	55
C (General Commercial), CN (Neighborhood Commercial), CD (Downtown Commercial), and CM (Light Industrial and Commercial Service)	7 a.m. to 10 p.m.	65
	Evening 7 p.m. to 10 p.m.	65
	10 p.m. to 7 a.m.	60
M (Industrial Service and Manufacturing)	Anytime	70

Source: Appendix D (ICF 2022c).

[1] Limits are assumed to be 1-hour average noise levels (1-hour L_{eq}).

[2] If the measured ambient noise level exceeds the specified limit, the ambient noise level becomes the noise limit.

dBA = A-weighted sound level

Section 10.80.090 of the code states that it is unlawful for any person to install or operate any machinery, equipment, pump, fan, air conditioning apparatus, or similar mechanical device that can be or is operated in any manner so as to create noise that will cause the noise level at the property line of any property to exceed the ambient base noise level by more than 5 A-weighted decibels (dBA). The installer of any such mechanical devices is required to furnish to the Department of Building Inspection and Housing a certificate of compliance indicating that the equipment installed as proposed can, without the addition of any baffling or construction, be operated within these sound limits.

Construction

Two types of ST noise impacts could occur during project construction. First, construction vehicles would incrementally increase noise levels on access roads. This would include construction worker vehicles and haul trucks traveling to and from the project site. Although there would be a relatively high single-event noise level, which could cause an intermittent noise nuisance (e.g., passing trucks at 50 feet would generate up to 77 dBA), the effect on longer-term ambient noise levels would be small. Therefore, there would be no impacts related to the ST noise associated with commuting construction workers and transporting equipment and materials to the project site.

The second category of construction noise would be noise generated during onsite project construction. Construction would occur only during the periods permitted by the La Mesa Municipal Code (7 a.m. to 10 p.m., Monday through Saturday). Noise levels at the nearest noise-sensitive receptors (apartments to the north) were estimated. The results of this analysis are summarized below in Table 6. The predicted noise levels are higher than the existing noise levels measured in the project vicinity, indicating construction would be audible at nearby offsite receptors. However, construction noise would be temporary and would cease entirely once the project is complete. Furthermore, no noise would be generated during the most sensitive nighttime hours when residents are trying to sleep. Construction would comply with the applicable noise regulations of the La Mesa Municipal Code, and the impact would be less than significant.

Table 6. Construction Noise Levels from Anticipated Construction Phases

Construction Phase	L_{eq} at Homes on Mellmanor Dr, dBA	L_{eq} at The District Apartments, dBA	L_{eq} at Westmont of La Mesa (Assisted Living Facility), dBA	L_{eq} at Campina Court Apartments, dBA
Demolition	50	53	53	52
Site Preparation	49	51	51	50
Grading	49	52	51	51
Building Construction	47	50	50	49
Paving	49	51	51	50
Architectural Coating	39	42	42	41

Source: Appendix D (ICF 2022c).
L_{eq} = equivalent noise level

Operation

Traffic Noise

The project would generate new vehicle trips. However, the overall change in traffic volumes would be small. Using the existing and projected project traffic volumes provided in the TIA (Appendix E, LLG 2022), the peak hour traffic volumes on each studied roadway segment were calculated for both AM and PM conditions. The relative traffic increase on each segment due to the project could then be calculated. The increase in peak hour traffic volumes on nearby roadways was calculated to range from 0 to 7 percent. Assuming the same relative increase would apply to daily traffic volumes, this would result in maximum traffic noise increases of 0.3 dB, which would be inaudible. As a result, traffic noise impacts would be less than significant.

Operational Noise

The primary exterior noise source associated with the project would be rooftop mechanical (heating, ventilating, and air conditioning) equipment. Based on data provided by the project proponent, this equipment would consist of six air handling units, each with a sound power of approximately 75.6 dBA, and three condenser units, each with a sound power of approximately 64.8 dBA, resulting in a total sound power of approximately 83.6 dBA. The noise levels at the closest sensitive receptors were predicted based on the distance to each and the results are summarized in Table 7. The predicted noise levels all comply with the applicable daytime, evening, and nighttime noise standards and are also within the range of existing ambient noise levels measured in the study area. As a result, operational noise would comply with the La Mesa Municipal Code and would not cause a substantial increase in existing ambient noise. The impact would be less than significant.

Table 7. Construction Noise Levels from Anticipated Construction Phases

	L_{eq} at Homes on Mellmanor Dr, dBA	L_{eq} at The District Apartments, dBA	L_{eq} at Westmont of La Mesa (Assisted Living Facility), dBA	L_{eq} at Campina Court Apartments, dBA
Distance, feet	1,080	845	865	930
Resulting noise level	25	27	27	27
Daytime noise standard	60	60	60	60
Evening noise standard	55	60	60	60
Nighttime noise standard	50	55	55	55
Complies?	Yes	Yes	Yes	Yes

L_{eq} = equivalent noise level

b. Generate excessive groundborne vibration or groundborne noise levels?

Construction

No Impact. Heavy construction equipment would generate groundborne vibration that could affect nearby structures or residents. There are no City standards that regulate groundborne vibration or groundborne noise levels. Therefore, in order to provide quantitative guidelines for assessing potential impacts, groundborne vibration is compared to guidelines developed by the California Department of Transportation (Caltrans) in the widely referenced *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020). The manual defines two different types of potential vibration impact: (1) building damage potential, and (2) annoyance potential. Groundborne vibration annoyance criteria are typically only assessed at occupied sensitive buildings rather than at exterior areas such as yards, parks, or playgrounds because people are typically much less sensitive to groundborne vibration when they are using exterior areas than when they are inside buildings. Each of the potential types of construction impact (building damage and human annoyance) is discussed in further detail below.

Potential Building Damage

Using the source vibration levels and methodology described above, the distances for potential vibration damage impacts at various receiver building categories were calculated for the range of anticipated construction equipment. The analyses are provided in Appendix D (ICF 2022c), and the results are summarized in Table 8. The closest offsite buildings are offices to the northwest, more than 600 feet from the construction zone. These are modern commercial structures with a corresponding vibration damage threshold of 0.5 inch per second (in/s) peak particle velocity (PPV). These buildings are well outside the potential impact distance of 12 feet shown in Table 8. Therefore, project construction would not generate any impacts related to potential building damage.

Potential Human Annoyance

Using the methodology described above, the distances at which various levels of human vibration perception are expected were calculated for the range of anticipated construction equipment. The analyses are provided in Appendix D (ICF 2022c), and the results are summarized in Table 9. While exact vibration sensitivity varies by individual, the “distinctly perceptible” criterion of 0.04 in/s PPV is selected as the threshold of impact. The closest sensitive offsite buildings are the apartments to the northwest, more than 800 feet from the construction zone. This is well outside the predicted worst-case impact distance of 113 feet. Therefore, project construction would not generate any impacts related to potential human annoyance from groundborne vibration.

Table 8. Impact Distances for Potential Vibration Damage from Project Construction

	Building Category[1]:	Extremely fragile historic buildings, ruins, ancient monuments	Fragile buildings	Historic and some old buildings	Older residential structures	New residential structures	Modern industrial/ commercial buildings
Equipment Item	Vibration Damage Impact Criteria, PPV, in/s[2]:	0.08	0.1	0.25	0.3	0.5	0.5
Vibratory roller	Distance to Impact Criteria (feet)	61	50	22	19	12	12
Large bulldozer[3]		28	23	10	9	6	6
Small bulldozer[4]		2	2	1	1	1	1

Source: Appendix D (ICF 2022c).

[1] All building types shown for reference. Not all building types are present in the project vicinity.

[2] All criteria are based on the values for continuous/frequent intermittent sources (all of the anticipated sources fall into this category).

[3] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

[4] Considered representative of other smaller earthmoving equipment such as a Bobcat® or skid steer.

Table 9. Impact Distances for Potential Human Annoyance from Project Construction

	Human Perceptibility[1]:	Barely perceptible	Distinctly perceptible (Threshold of Impact)	Strongly perceptible	Severe
Equipment Item	Vibration Damage Impact Criteria, PPV, in/s[2]:	0.01	0.04	0.1	0.4
Vibratory roller	Distance to Impact Criteria (feet)	399	**113**	50	14
Large bulldozer[3]		183	**52**	23	7
Small bulldozer[4]		9	**3**	2	1

Source: Appendix D (ICF 2022c).

[1] Various perceptibility levels shown for reference. "Distinctly Perceptible" is used as the threshold for assessing impacts.

[2] All criteria are based on the values for continuous/frequent intermittent sources (all of the anticipated sources fall into this category).

[3] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

[4] Considered representative of other smaller earthmoving equipment such as a Bobcat® or skid steer.

Operation

No Impact. There are no operational elements of the project that would generate noticeable levels of groundborne vibration. Therefore, there would be no vibration impacts as a result of project operation.

c. Be located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?

No Impact. There are no airports or private airstrips in the vicinity (i.e., within 2 miles) of the proposed project site. The closest airport is Gillespie Field, which is more than 3 miles to the northeast. At this distance, the project site is not exposed to substantial noise levels from aircraft operations. In addition, the project would not change the operations at any airport or airstrip, and would not alter the aircraft noise exposure at any existing sensitive land uses. As such, project implementation would not expose people residing or working in the project area to excessive aircraft noise levels. Therefore, there would be no impact.

Mitigation Measures

Project implementation would not result in significant impacts related to noise. Therefore, no mitigation is required.

XIV. Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

No Impact. The project site is within an existing hospital property in a built-out, urbanized community. Construction of the proposed project would result in the generation of temporary construction jobs; however, the additional jobs would be temporary and are expected to be filled by the existing local labor force in the San Diego region. The proposed project would not directly or indirectly induce population growth, as it does not propose new homes or include the extension of roadways or other infrastructure and would operate as a population-serving facility. Therefore, the proposed project would not directly or indirectly induce substantial population growth through the creation of new homes or businesses in the San Diego region. No impacts would occur.

b. Displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The project site is within an existing hospital property, in a built-out, urbanized community. The proposed project does not propose any housing, nor does it propose any substantial extension of roads or infrastructure. As such, because no existing housing units or people would be removed or displaced, the proposed project would not require the construction of replacement housing elsewhere. Therefore, no impacts would occur.

Mitigation Measures

Project implementation would not result in significant impacts related to population or housing. Therefore, no mitigation is required.

XV. Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Discussion

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

Fire protection?

Less-than-Significant Impact. The proposed project is in a built-out, urbanized area that is currently served by Heartland Fire & Rescue. The nearest fire stations are La Mesa Fire Department Station 12, approximately 0.55 mile north of the project site, and La Mesa Fire Department Station 13, approximately 0.6 mile south. The proposed project would not include new homes or businesses that would require additional services or extended response times for fire protection services.

Construction activities, including staging areas for construction equipment and parking for construction workers, would be within the project site. As construction activities would occur within the project site, they are not anticipated to disrupt existing fire protection services or affect response times. It is assumed that the presence of construction workers on the project site would not result in substantially increased demand for fire protection services and that existing fire protection operations would be able to accommodate the construction activities of the proposed project. Construction impacts would be less than significant.

The proposed project would be constructed in accordance with current building and fire/life/safety ordinances and codes, including all applicable County of San Diego and City of La Mesa code requirements related to construction, access, water mains, fire flows, and hydrants. Additionally, proposed development would be generally consistent with current uses. It is not expected that operation of the proposed project would require new or physically altered government facilities in order to maintain acceptable service ratios for fire protection services, the construction of which could cause significant environmental impacts. Impacts during operations would be less than significant.

Police protection?

Less-than-Significant Impact. The proposed project is in a built-out, urbanized area that is currently served by the La Mesa Police Department. The nearest La Mesa Police Department station is approximately 1.5 miles southwest of the project site. The proposed project would not increase residential populations at the project site or in nearby communities, and thus would not change the officer-to-population ratio for the area.

Construction activities, including staging areas for construction equipment and parking for construction workers, would be within the project site. As construction activities would occur within the project site, they are not anticipated to disrupt existing police protection services or affect response times. It is assumed that the presence of construction workers on the project site would not result in substantially increased demand for police protection services and that existing police protection operations would be able to accommodate the construction activities of the proposed project. Construction impacts would be less than significant.

The proposed project would be constructed in accordance with current building and safety ordinances and codes, including all applicable County of San Diego and City of La Mesa code requirements related to construction and access. Additionally, proposed development would be generally consistent with current uses. It is not expected that operation of the proposed project would require new or physically altered government facilities in order to maintain acceptable service ratios for police protection services, the construction of which could cause significant environmental impacts. Impacts during operations would be less than significant.

Schools?

No Impact. The project would not include the development of housing units, nor would it induce population growth. As such, no impact on capacities, service levels, or performance objectives for schools would be generated by the project. Therefore, no impact would occur.

Parks?

No Impact. The project would not include the development of housing units, nor would it induce population growth. As such, no impact on capacities, service levels, or performance objectives for parks would be generated by the project. Therefore, no impact would occur.

Other public facilities?

No Impact. The project would not include the development of housing units, nor would it induce population growth. As such, no impact on capacities, service levels, or performance objectives for other public facilities would be generated by the project. Therefore, no impact would occur.

Mitigation Measures

Project implementation would not result in significant impacts related to public services. Therefore, no mitigation is required.

XVI. Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The project site and surrounding areas are not used for recreational purposes. The project site is within an urbanized area characterized predominantly by hospital facilities. The proposed project would not directly or indirectly result in housing development or population growth on the project site or in the surrounding communities. With no new households or residents, the project would not increase the demand or use of local parks or regional recreational facilities. Therefore, the proposed project would have no impact on existing parks or create a need for new neighborhood or regional parks.

b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

No Impact. See the discussion under Threshold XVIa. The proposed project would not create a need for new neighborhood or regional parks. There would be no impacts.

Mitigation Measures

Project implementation would not result in significant impacts related to recreation. Therefore, no mitigation is required.

XVII. Transportation

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☒	☐
b.	Conflict or be inconsistent with State CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c.	Substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d.	Result in inadequate emergency access?	☐	☐	☒	☐

Discussion

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less-than-Significant Impact. Applicable plans, ordinances, and policies for the proposed project include *San Diego Forward: The Regional Plan* (SANDAG 2015), *County of San Diego Traffic Guidelines* (County of San Diego 2015), the City of La Mesa *Bicycle Facilities and Alternative Transportation Plan* (City of La Mesa 2012d), and the *2012 Centennial General Plan* (City of La Mesa 2012e). These plans lay out goals and policies for the development of the transportation system and outline guidelines for the design of public right-of-way.

During construction of the proposed project, workers' vehicles and construction vehicles would access the site by driveway entry via Vista Hill Avenue and Health Center Circle. Roadway users could experience temporary delays from material deliveries, but these delays would be both brief and infrequent. Therefore, they would not affect overall traffic circulation in the project vicinity. In addition, construction activities would not impede non-motorized travel or public transportation in the project vicinity because all construction would occur within the project site boundaries. Any temporary traffic control during construction would meet the requirements of the *California Manual on Uniform Traffic Control Devices* (Caltrans 2014).

A TIA was prepared for the proposed project by Linscott, Law & Greenspan, Engineers (Appendix E; LLG 2022). All intersections were calculated to operate at Level of Service D or better. Based on the established significance criteria, project effects on the study intersections would not justify the need for roadway improvements (Appendix E; LLG 2022).

Continuous sidewalks are provided along both sides of Grossmont Center Drive, Center Drive, and Murray Drive in the study area. Class II bike lanes are provided on Murray Drive within the study area and on Center Drive, west of Grossmont Center Drive. There are no other bicycle facilities provided along the street segments within the study area. As described in the TIA (Appendix E; LLG

2022), several active transportation improvements, including pedestrian crosswalks, additional striping, bicycle signage, and bicycle parking, have been recommended. These features would be consistent with the objectives of the Regional Plan (SANDAG 2015), *Bicycle Facilities and Alternative Transportation Plan* (City of La Mesa 2012d), and *2012 Centennial General Plan* (City of La Mesa 2012e). The project site is within 0.5 mile of the Route 852 Bus Route and the Grossmont Transit Center, which has the Green and Orange light rail in the San Diego Trolley system. The proposed project would not affect these transit facilities. Therefore, the proposed project would not conflict with an applicable program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be less than significant.

b. Conflict or be inconsistent with State CEQA Guidelines section 15064.3, subdivision (b)?

Less-than-Significant Impact. In compliance with SB 743 and the Institute of Transportation Engineers (ITE) Guidelines for Transportation Impact Studies in the San Diego Region (May 2019) as utilized by the City of La Mesa, a project is required to evaluate transportation impacts under CEQA using a vehicle miles traveled (VMT) metric, pursuant to guidance from the Governor's Office of Planning and Research (OPR) in December 2018 (*Technical Advisory on Evaluation Transportation Impacts in CEQA*). VMT refers to the distance a vehicle travels from each origin to destination.

The recommended methodology for conducting a VMT analysis is based on guidance prepared by OPR as provided in the *Technical Advisory on Evaluation Transportation Impacts in CEQA*. The guidance recommended by OPR has been modified to be better suited to local conditions in the San Diego region. The basic process is to compare a project's estimated VMT per capita or VMT per employee to average value on a regional, citywide, or community basis. The target is to achieve a project VMT per capita or VMT per employee that is 85 percent or less of the appropriate average based on the ITE guidelines. Certain project types may be presumed to have less-than-significant VMT impacts, including:

- Minimum Project Size: It is recommended that lead agencies determine a minimum project size, below which VMT impacts are presumed to be less than significant. Based on statewide guidance from OPR, the minimum project size is based on a categorical exemption in CEQA that allows expansion of existing structures under certain circumstances, including that the project is in an area where public infrastructure is available to allow for the planned development and the project is not in an environmentally sensitive area. OPR uses a general office building of up to 10,000 square feet as the representative project type for determination of the minimum project size. Typical ITE rates yield a minimum project size based on 110 daily trips. Within the San Diego region, SANDAG trip generation rates would yield a minimum project size based on 200 daily trips.
- Projects Located Near Transit Stations: OPR's technical advisory contains guidance that lead agencies should generally presume that certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within 0.5 mile of an existing major transit stop or an existing stop along a high-quality transit corridor will have a less-than-significant impact on VMT. A *major transit stop* is defined as "a site containing an existing rail transit station, a ferry terminal served by either bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak period."

The proposed project is within 0.5 mile walking distance of the Grossmont Transit Center, which is a major transit stop per OPR guidance. Based on the project's characteristics and location, it is presumed to have a less-than-significant VMT impact consistent with ITE guidelines and OPR guidance.

c. Substantially increase hazards because of a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less-than-Significant Impact. The proposed project would not result in any changes to the existing circulation system that would result in a geometric design feature or incompatible use. Construction of the proposed project would require the use of typical on-road construction vehicles, which could temporarily block roadway access. As the use construction vehicles would be temporary, it would not result in a significant increased hazard due to an incompatible use. Additionally, staging of equipment and vehicles would primarily be within the project site. Operations of the proposed project would be consistent with the current operations at the site and, therefore, there would be no hazards due to incompatible uses. Impacts would be less than significant.

d. Result in inadequate emergency access?

Less-than-Significant Impact. Construction activities associated with the proposed project would occur on the project site but would not restrict access for emergency vehicles traveling to Sharp Grossmont Hospital. After construction of the proposed project, emergency access to the site would remain the same as under existing conditions. The project is calculated to generate approximately 400 average daily trips with 22 inbound/10 outbound trips during the AM peak hour and 16 inbound/24 outbound trips during the PM peak hour. As such, traffic generated by the proposed project would not be substantial and would not affect emergency access in the area.

Mitigation Measures

Project implementation would not result in significant impacts related to transportation. Therefore, no mitigation is required.

XVIII. Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Discussion

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

Less-than-Significant Impact. The City of La Mesa sent letters to the Barona, Mesa Grande, and Torres Martinez Tribes on May 5, 2022 and did not receive any comments.

b. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?

Less-than-Significant Impact. The City of La Mesa sent letters to the Barona, Mesa Grande, and Torres Martinez Tribes on May 5, 2022 and did not receive any comments.

Mitigation Measures

Project implementation would not result in significant impacts related to tribal cultural resources. Therefore, no mitigation is required.

XIX. Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less than Significant Impact. The project is not expected to generate wastewater during construction. The project would not substantially increase domestic wastewater during operations because the proposed building is of similar use to the existing structure, and the project would not affect the City's ability to provide wastewater services; however, the proposed Project would include underground storage tanks for emergency storage. The project would be required to comply with the applicable federal, state, and local laws and regulations (e.g., Regional Water Quality Control Board's applicable standards) to ensure that the tanks are adequately designed, located, sized, spaced, constructed and maintained. Accordingly, storm water treatment devices and storage vaults have been designed in tandem with the development to capture all surface runoff and treat it for pollutants and sediment, and then store it and release over time to mimic existing drainage patterns and flowrate. The project will result in no net increase in storm water discharge from the pre-project condition. Therefore, impacts would be less than significant.

The project would not require new or expanded natural gas or propane; however, it would use minor amounts of electricity for construction and ongoing maintenance operations during the life of the project. This would require the relocation of electrical power facilities within the project site. For construction activities, electrical power is expected to be obtained from an onsite generator. Operation of the project would require electricity for ongoing maintenance operations, lighting, security systems, and other various operational needs. As discussed in the *Air Quality and Greenhouse Gas Impact Analysis* (Appendix A; ICF 2022a), it is assumed that any future electricity use would be similar in nature to that under current conditions at the project site. As the relocation of electrical facilities would be limited to the project site and no additional electrical facilities would need to be constructed to serve the proposed project, there would be no impact.

The project would not require or result in the relocation or construction of new or expanded telecommunications facilities; therefore, there would be no impact.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Less-than-Significant Impact. The project site is within an established urban community serviced by HWD. Domestic water would be used for the new water-efficient landscaping. Based on the 2020 Urban Water Management Plan prepared by HWD, the water district can meet the water use demand during normal conditions; however, there could be a shortfall in supply during drought conditions (HWD 2020). HWD identifies several methods available to address potential shortages and has a Water Shortage Contingency Plan with actions that can be taken in the event of a shortage. The Urban Water Management Plan identifies strategies the San Diego County Water Authority may take as well, including carryover supplies, dry-year transfers, and extraordinary conservation savings.

The proposed project would not substantially increase water usage at the project site. Construction at the project site would require temporary use of water for dust suppression or other construction activities. This water may be accessed through existing onsite utilities or brought to the site by water trucks. This use of water would be temporary and would not represent a significant water use demand. Operation of the proposed project would be consistent with existing uses of the site, and water use demand would not increase significantly due to implementation of the project. Therefore, impacts would be less than significant.

c. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less-than-Significant Impact. There would be no substantial additional generation of wastewater, as the proposed project is similar in use to the existing building, though the proposed Project would include underground storage tanks for emergency wastewater storage. Accordingly, storm water treatment devices and storage vaults have been designed in tandem with the development to capture all surface runoff and treat it for pollutants and sediment, and then store it and release over time to mimic existing drainage patterns and flowrate. The project will result in no net increase in storm water discharge from the pre-project condition. Therefore, impacts on wastewater system capacity would be less than significant.

d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less-than-Significant Impact. Solid waste generated during demolition and construction activities would be disposed of at Miramar Landfill, which has sufficient capacity to accommodate the proposed project's disposal needs, or at another licensed recycling facility for recycling or reuse. During project operations, the project site would generate minor amounts of solid waste, which would be consistent with current waste generation at the existing site. Any incremental increase in solid waste due to the expansion would not result in any solid waste-related impacts. The impact would be less than significant.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. As described above, the proposed project would be served by a permitted landfill. In addition, the facility would continue to comply with federal, state, and local regulations related to solid waste. Therefore, no impacts would occur.

Mitigation Measures

Project implementation would not result in significant impacts related to utilities and service systems. Therefore, no mitigation is required.

XX. Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment?	☐	☐	☒	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Discussion

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact. The proposed project is not in or near a State Responsibility Area, which is an area where the California Department of Forestry and Fire Protection is the primary emergency response agency responsible for fire suppression and prevention (California Department of Forestry and Fire Protection 2022). The project site is within a Local Responsibility Area, which represents an area where emergency fire response is under the responsibility of local agencies. In the City of La Mesa, the local fire agency is Heartland Fire & Rescue, a joint organization among the cities of El Cajon, La Mesa, and Lemon Grove for the management of fire protection, fire prevention services, emergency medical services, and community emergency preparedness (Heartland Fire & Rescue 2022). The proposed project is not in an area classified as a VHFHSZ.

The County of San Diego’s Emergency Operations Plan is the emergency response plan used by key partner agencies within the county to respond to major emergencies and disasters. Annex B of the plan discusses Fire Rescue Mutual Aid Operations. The proposed project is within the San Diego County Operational Area (County of San Diego 2018).

Construction activities associated with the proposed project would occur on the project site but would not restrict access for emergency vehicles traveling to Sharp Grossmont Hospital. After construction of the proposed project, emergency access to the site would remain the same as under existing conditions. The redistribution of traffic from the proposed project would not result in substantial impacts on nearby intersections such that roadway improvements would be required to maintain adequate intersection operations (Appendix E; LLG 2022). Therefore, the proposed project would not impair an adopted emergency response plan or evacuation plan, and the impact would be less than significant.

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks of, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. The proposed project would not be in or near a State Responsibility Area, nor would it be within a VHFHSZ. The project site does not contain native fuels that would exacerbate fire risk or steep slopes that would be prone to landslide or erosion. Operation of the proposed project would not introduce any new use that would exacerbate existing wildfire risks. New development associated with the proposed project would be constructed in accordance with current building and fire/life/safety ordinances and codes, including all applicable City of La Mesa requirements related to access, water mains, fire flows, and hydrants. Therefore, there are no factors that would exacerbate wildfire risk and result in the exposure of people to pollutants from a wildfire or uncontrolled spread of a wildfire, and there would be no impact.

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment?

Less-than-Significant Impact. The proposed project would require the installation of water sources and other underground utilities. Installation of the project site's utilities would not exacerbate wildfire risk on site, because the project site is not in a VHFHSZ, and would not change any uses or conditions on site that would increase wildfire risk. The potential temporary environmental impacts that could result from installation of utilities on site have been analyzed throughout this IS Checklist. No permanent environmental impacts related to infrastructure or utilities have been identified because of the proposed project. Therefore, the proposed project would not involve infrastructure that would exacerbate fire risk or result in temporary or permanent impacts on the environment, and impacts would be less than significant.

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The proposed project is not within an area identified as a VHFHSZ and would not include activities that would exacerbate wildfire risks. Additionally, the project site does not contain steep slopes that would be prone to landslide or erosion. Therefore, the proposed project would not expose people or structures to significant risks associated with post-fire hazards. There would be no impacts.

Mitigation Measures

Project implementation would not result in significant impacts related to wildfire. Therefore, no mitigation is required.

XXI. Mandatory Findings of Significance

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b.	Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐
c.	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less-than-Significant with Mitigation. As discussed above under Sections IV and V, potential impacts on biological and cultural resources would be less than significant. Regarding biological resources, the proposed project would occur within an existing developed area and would not affect undisturbed natural areas. The project site is currently occupied by a rehabilitation facility, administrative offices, and a small park open space and all areas are either paved or graded. The project site and surrounding area do not contain any streams or waterbodies that may be inhabited by any native resident or migratory fish species. In addition, no migratory wildlife corridors are within or adjacent to the project site. As such, the proposed project would not interfere with the movement of fish or wildlife and would not affect wildlife corridors. The proposed project would result in direct permanent impacts on ornamental trees within the project area that have the potential to house nesting birds. However, implementation of **MM-BIO-1** would result in a less-than-significant impact on nesting birds protected under the MBTA. Project construction would not involve noise-generating activities that could affect potential nesting birds. Additionally, no federally protected wetlands are present at the project site, and the proposed project would not interfere with the movement of wildlife and/or wildlife corridors.

Regarding cultural resources, no historical resources have been identified within the project site as defined in Section 15064.5 of the State CEQA Guidelines. The project site has been significantly disturbed by the development of the Sharp Grossmont Hospital campus. If significant archaeological resources were within the project site, they would have likely been disturbed or unearthed during past grading activities. Therefore, it is unlikely that the proposed project would encounter and affect archaeological resources. However, in the event unexpected archaeological resources are uncovered during ground-disturbing activities associated with the proposed project, work must stop in the immediate area until it is evaluated by a qualified archaeologist to ensure satisfactory compliance with applicable regulations (State CEQA Guidelines Section 15064.5(f)).

Additionally, as discussed in Section VII, the project site is underlain by the Mission Valley Formation and the proposed project would include excavation up to 5 feet, which would potentially destroy a unique paleontological resource or site or unique geologic feature if it were to extend through the undocumented fill and into the formation. Implementation of **MM-GEO-1** would require a qualified paleontologist to develop and execute a PRMMP and supervise a paleontological monitor, who would monitor all ground-disturbing activities. Therefore, impacts on paleontological resources would be reduced to a less-than-significant level.

As such, the proposed project would not result in impacts on biological resources that would have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of a rare or endangered plant or animal, nor would the proposed project eliminate important examples of the major periods of California history or prehistory. Therefore, impacts would be less than significant with implementation of mitigation.

b. Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less-than-Significant Impact. As detailed throughout this IS Checklist, the proposed project would not result in any significant impacts related to agriculture and forestry resources, mineral resources, population and housing, recreation, or tribal cultural resources, and therefore would not have any potential to contribute to a cumulatively considerable significant impact on any of these resource areas. Less-than-significant project-level impacts on aesthetics; air quality; biological resources; cultural resources; energy; geology, soils, and paleontological resources; GHG emissions; hazards and hazardous materials; hydrology and water quality; land use and planning; noise; public services; transportation; utilities and service systems; and wildfire were identified. A cumulative analysis for these resources is presented below.

Cumulative impacts, as opposed to project-level impacts, are impacts on the physical environment that result from the incremental effects of the proposed project when added to other past, present, and reasonably foreseeable future projects. A review of available information on the City of La Mesa's website identified one project near the project site, an acute care facility at 5601 Grossmont Center Drive (City of La Mesa 2022).

The proposed project and the cumulative project would be consistent with applicable federal, state, and local regulations and plans associated with aesthetics, biological resources, hydrology/water quality, utilities and service systems, and tribal cultural resources, including the *2012 Centennial General Plan*. Impacts related to geology/soils and hazards and hazardous materials are generally site-specific and not additive across a landscape. In addition, the less-than-significant impacts on these resources would not add appreciably to impacts of any cumulative projects that could result in a significant cumulative impact due to the minor nature of identified impacts and the low intensity of known cumulative projects. Therefore, cumulatively considerable impacts related to these resource areas would not occur as a result of the proposed project.

Because the project site is already developed and emissions from construction would be temporary and localized, construction emissions for the proposed project would be minimal and would not cause a cumulatively considerable air quality impact. In addition, there would not be a substantial number of other concurrent projects or intensity of construction or operation in the immediate vicinity of the proposed project such that construction of the proposed project would contribute to a temporary cumulative impact related to noise and vibration or transportation and traffic. Once operational, neither project would contribute to noise levels and air quality or GHG impacts.

In addition, no elements of the proposed project during operations would contribute to cumulative impacts when combined with the cumulative project identified above. Incremental impacts, if any, would be negligible and undetectable. Therefore, the proposed project when combined with cumulative projects would not result in impacts that are individually limited, but cumulatively considerable. Consequently, impacts would be less than significant.

c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

Less-than-Significant Impact. As demonstrated in the analysis in this IS Checklist, the proposed project would not have any substantial adverse effects on the environment, including human beings, either directly or indirectly. Specific environmental impacts that could have a substantial adverse effect on human beings include potential construction-related health risks due to the proximity of sensitive receptors to the project site. However, construction would be short in duration. Based on the size and nature of the proposed project, sensitive receptor health risks and exposure would be intermittent and infrequent. Furthermore, there would be no cumulative impacts associated with the proposed project. As such, the effects on human beings as a result of the proposed project would be less than significant.

Chapter 4
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Chapter 2, Project Description

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V. Cultural

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VI. Energy

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XV. Public Services

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Appendix A

Sharp Grossmont Hospital Center for Neurosciences Air Quality and Greenhouse Gas Impact Analysis

Memorandum

To:	Sheri Kwok, Project Manager, Sharp Healthcare
From:	Keith Lay, Managing Director, Air Quality and Climate Change, ICF
Date:	July 15, 2022
Re:	**Sharp Grossmont Hospital Center for Neurosciences Air Quality and Greenhouse Gas Impact Analysis**

1. Introduction

The purpose of this memorandum is to support Sharp Grossmont in the environmental review process and provide information regarding potential air quality and greenhouse gas (GHG) effects associated with the proposed Sharp Grossmont Hospital Center for Neurosciences Project. The analysis provided in this memorandum evaluates the potential for short- and long-term air quality and GHG impacts associated with construction and operation of the project. The analysis includes a description of the environmental setting for the project, including existing air quality and GHG conditions, as well as applicable laws and regulations. It also documents the assumptions, methodologies, and findings used to evaluate the impacts associated with the project. Modeling output sheets are provided in Attachment 1.

2. Project Description

The proposed project consists of remodeling and additions to the existing single-story rehabilitation center into the Center for Neurosciences. Specifically, the project would consist of partial demolition and an addition to the southwest corner of the building, an addition to the north side of the building, a tunnel, and creation of shear walls with new footings inside the building at locations still to be determined. The proposed project would add 20,182 square feet (including the 792 square-foot tunnel) to the total building area for a total of 51,672square feet post-project. The project would add 16 intensive care unit beds and 16 medical surgical beds and remove 12 existing medical surgical beds (resulting in a net increase of 20 beds). Additionally, 18 beds in the existing in-patient rehabilitation center would receive a cosmetic refresh.

The exterior design of the building would mimic other existing buildings on campus, namely the West Tower completed around 2010, to create a more uniform look across the public-facing campus.

The interior design would be Planetree, meaning the intent is to create an inviting space for patients and families with finishes and furnishings that would traditionally be found within the hospitality realm.

3. Pollutants of Concern

The analysis focuses on the following pollutants that are of greatest concern for the proposed project:

- **Criteria pollutants**—Pollutants for which the federal and state governments have set ambient air quality standards or that are chemical precursors to compounds for which ambient standards have been set. The criteria pollutants associated with the project are ozone (O_3) and the precursors thereof (volatile organic compounds [VOC] and nitrogen oxides [NO_X]), particulate matter (PM) (PM_{10} is PM smaller than or equal to 10 microns in diameter and $PM_{2.5}$ is PM smaller than or equal than 2.5 microns in diameter), carbon monoxide (CO), and sulfur dioxide (SO_2).
- **Toxic Air Contaminants**—The U.S. Environmental Protection Agency (EPA) has identified nine air toxic contaminants (TACs) associated with mobile sources as the considerable contributors to background air quality concerns. The primary TAC of concern associated with construction and operation of the proposed project is diesel particulate matter (DPM).
- **Greenhouse Gases**—According to state California Environmental Quality Act (CEQA) Guidelines (§ 15364.5), GHGs include the following gases: carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), perfluorinated carbons, sulfur hexafluoride, and hydrofluorocarbons. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. The primary GHGs of concern associated with the project include CO_2, CH_4, and N_2O, given that the others listed above are primarily generated by industrial and manufacturing processes, which are not anticipated as part of the proposed project. GHGs are defined using the high global warming potential (GWP) on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalent (CO_2e), which compares the gas in question to that of the same mass of CO_2 (which has a GWP of 1 by definition). GHGs are presented in metric tons of CO_2e ($MTCO_2e$).

4. Existing Air Quality and GHG Environment

The proposed project is located in the San Diego Air Basin (SDAB), which covers the entirety of San Diego County (County). The San Diego County Air Pollution Control District (SDAPCD) is the local agency responsible for the administration and enforcement of air quality regulations in the County.

The following discussion describes relevant characteristics of the SDAB, summarizes existing ambient pollutant concentrations, and identifies sensitive receptors. This section also provides a discussion of GHG emissions as they relate to the GHG study area, which is much broader than the study area for the air quality analysis to include potential regional and global GHG effects of the project.

Topography and Climate

Regional

The climate of San Diego is classified as Mediterranean but is incredibly diverse because of the topography. The climate is dominated by the Pacific high-pressure system that results in mild, dry summers and mild, wet winters. San Diego experiences an average of 201 days above 70 degrees Fahrenheit (°F) and 9–13 inches of rainfall annually (mostly November–March). El Niño and La Niña patterns have large effects on the annual rainfall received in San Diego (SDAPCD 2016a).

An El Niño is a warming of the surface waters of the eastern Pacific Ocean. It is a climate pattern that occurs across the tropical Pacific Ocean that is associated with drastic weather occurrences, including enhanced rainfall in Southern California. La Niña is a term for cooler than normal sea surface temperatures across the Eastern Pacific Ocean. San Diego receives less than normal rainfall during La Niña years (SDAPCD 2016a).

The Pacific High drives the prevailing winds in the SDAB. The winds tend to blow onshore in the daytime and offshore at night. In the summer, an inversion layer is created over the coastal areas and increases the O_3 levels. In the winter, San Diego often experiences a shallow inversion layer that tends to increase CO and PM2.5 concentration levels due to the increased use of residential wood burning (SDAPCD 2016a).

In the fall months, the SDAB often experiences Santa Ana winds, which result from a high-pressure system over the Nevada-Utah region that overcomes the westerly wind pattern and forces hot, dry winds from the east to the Pacific Ocean. These winds are powerful and incessant. They blow the air basin's pollutants out to sea. However, a weak Santa Ana can transport air pollution from the SCAB and greatly increase the San Diego O_3 concentrations. A strong Santa Ana wind also primes the region's vegetation for firestorm conditions (SDAPCD 2016a).

Local

The project site is in the vicinity of the climate monitoring station in La Mesa (Station 044735). According to climate data recorded from 1899 to 2006, the average annual maximum temperature in the area is 75.0°F, average annual minimum temperature is 52.3°F, and mean annual temperate is 63.6°F. The average precipitation in the area is approximately 12.50 inches annually (Western Regional Climate Center 2012a, Western Regional Climate Center 2012b). The project site is in the vicinity of the wind monitoring station in Mission Trails Regional Park, which is approximately 2 miles northeast of the project site. Wind patterns at the Mission Trails station indicate a prominence of west-southwesterly winds that average 7 miles per hour (Windfinder 2022).

Existing Air Quality Conditions

Air Pollutant Concentrations

The federal and state governments have established air quality standards for six criteria pollutants: ozone, lead, CO, nitrogen dioxide (NO_2), SO_2, PM_{10}, and $PM_{2.5}$. Ozone and NO_2 are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, SO_2, and lead are considered local pollutants that tend to accumulate in the air locally. PM_{10} and

$PM_{2.5}$ are both regional and local pollutants. The primary pollutants of concern in the project study area are ozone (including NO_X and VOC), CO, and PM.

The California Air Resources Board (CARB) collects ambient air quality data from a network of air monitoring stations throughout the state. The purpose of the monitoring stations is to measure ambient concentrations of pollutants and determine whether the ambient air quality meets the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The NAAQS and CAAQS are discussed in further detail below.

Attainment Status

Local monitoring data regarding criteria pollutants are used to designate areas as nonattainment, maintenance, attainment, or unclassified areas for the NAAQS and CAAQS. The four designations are defined as:

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—assigned to areas where data are inadequate with respect to determining whether a pollutant is violating the standard in question.

Table 1 summarizes the attainment status for San Diego County with respect to the NAAQS and CAAQS. As shown, the region's status is classified as nonattainment for ozone under the NAAQS as well as ozone, PM_{10}, and $PM_{2.5}$ under the CAAQS.

Table 1. Federal and State Attainment Status for San Diego County

Criteria Pollutant	Federal Designation	State Designation
Ozone	Severe Nonattainment	Nonattainment
CO	Attainment	Attainment
PM_{10}	Unclassifiable/Attainment	Nonattainment
$PM_{2.5}$	Attainment	Nonattainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen Sulfide	(No federal standard)	Unclassified
Visibility	(No federal standard)	Unclassified

Sources: SDAPCD 2022; EPA 2022.
Note: At the time of designation, if the available data do not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

Sensitive Receptors

Sensitive receptors are defined as locations where pollutant-sensitive members of the population may reside or where the presence of air pollutant emissions could adversely affect use of the land. Sensitive members of the population include those who may be more negatively affected by poor air quality than other members of the population, such as children, the elderly, or the infirm. In general, residential areas, hospitals, daycare facilities, elder-care facilities, elementary schools, and parks typically contain a high concentration of these sensitive population groups (CARB 2005).

The project is located entirely within the existing Sharp Grossmont hospital property. Additionally, various sensitive receptor locations, including Brier Patch Elementary School, Briercrest Park, and numerous residential units are located across State Route 125, as close as approximately 700 feet from the eastern boundary of the project site. The project is surrounded by hospital and commercial uses to the north, south, and west, and State Route 125 to the east.

Existing Greenhouse Gas Conditions

GHGs trap some of the long-wave infrared radiation emitted from the Earth's surface that would otherwise escape to space. The phenomenon known as the *greenhouse effect* keeps the atmosphere near the Earth's surface warm enough for the successful habitation of humans and other life forms. Increases in fossil fuel combustion and deforestation have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution, leading to warming of the Earth's lower atmosphere and noticeable beginning stage changes in the Earth's climate.

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most commonly accepted method to compare GHG emissions is the GWP methodology defined in the Intergovernmental Panel on Climate Change (IPCC) reference documents. IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2e, which compares the gas in question to that of the same mass of CO_2 (which has a GWP of 1 by definition). The GWP values used in this report are based on the IPCC Fourth Assessment Report (AR4) and United Nations Framework Convention on Climate Change reporting guidelines (IPCC 2014). The AR4 GWP values are used in CARB's California GHG inventory and CARB's 2017 Scoping Plan Update as well as in the City of La Mesa's (City's) Climate Action Plan (CAP).

5. Regulatory Setting

The agencies of direct importance to the project for air quality are the EPA, CARB, and SDAPCD. The EPA has established federal air quality standards for which CARB and SDAPCD have primary implementation responsibility. CARB and SDAPCD are also responsible for ensuring that state air quality standards are met, as well as for developing policies and plans to reduce state and local GHG emissions.

Air Quality

Responsibility for attaining and maintaining air quality in California is divided between CARB and regional air quality districts. Areas of control for the regional districts are set by CARB, which divides the state into air basins.

Federal

The federal Clean Air Act (CAA), as amended, is the primary federal law that governs air quality nationwide. The FCAA was first enacted in 1963 and has been amended numerous times in subsequent years (1967, 1970, 1977, and 1990). The FCAA establishes the NAAQS and specifies future dates for achieving compliance. The CAA also mandates that each state submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. The plans must include pollution control measures that demonstrate how the standards will be met. Because the project site is within the SDAB, it is in an area designated as nonattainment for certain pollutants that are regulated under the CAA.

State

The California Clean Air Act (CCAA) established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the federal CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, and vinyl chloride, and visibility-reducing particles. CARB has adopted a series of rules, regulations, and standards to regulate the reduction of emissions from various sources.

Local

The SDAPCD is responsible for overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, and reviewing air quality–related sections of environmental documents required by the CEQA. SDAPCD is also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws and ensuring that the NAAQS and CAAQS are met. Table 2 shows the NAAQS and CAAQS.

Table 2. National and State Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards[a]	
			Primary	Secondary
Ozone	1 hour	0.09 ppm	None[b]	None[b]
	8 hours	0.070 ppm	0.070 ppm	0.070 ppm
Particulate Matter (PM_{10})	24 hours	50 μg/m^3	150 μg/m^3	150 μg/m^3
	Annual mean	20 μg/m^3	None	None
Fine Particulate Matter ($PM_{2.5}$)	24 hours	None	35 μg/m^3	35 μg/m^3
	Annual mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
Carbon Monoxide	8 hours	9.0 ppm	9 ppm	None
	1 hour	20 ppm	35 ppm	None
Nitrogen Dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1 hour	0.18 ppm	0.100 ppm	None
Sulfur Dioxide[c]	Annual mean	None	0.030 ppm	None
	24 hours	0.04 ppm	0.14 ppm	None
	3 hours	None	None	0.5 ppm
	1 hour	0.25 ppm	0.075 ppm	None
Lead	30-day average	1.5 μg/m^3	None	None
	Calendar quarter	None	1.5 μg/m^3	1.5 μg/m^3
	3-month average	None	0.15 μg/m^3	0.15 μg/m^3
Sulfates	24 hours	25 μg/m^3	None	None
Visibility-Reducing Particles	8 hours	—[d]	None	None
Hydrogen Sulfide	1 hour	0.03 ppm	None	None
Vinyl Chloride	24 hours	0.01 ppm	None	None

Source: California Air Resources Board 2016.

Notes:

μg/m^3 = micrograms per cubic meter; ppm = parts per million

[a] National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

[b] The national 1-hour standard of 12 parts per hundred million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and considered a benchmark for state implementation plans.

[c] The annual and 24-hour NAAQS for sulfur dioxide apply only for 1 year after designation of the new 1-hour standard in those areas that were previously nonattainment areas for the 24-hour and annual NAAQS.

[d] The CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer (visibility of 10 miles or more due to particles when relative humidity is less than 70 percent).

SDAPCD has adopted air quality plans to improve air quality, protect public health, and protect the climate. The San Diego Regional Air Quality Strategy (RAQS) outlines SDAPCD's plans and control measures designed to attain and maintain the state standards, while San Diego's portions of the SIP are designed to attain and maintain federal standards. The RAQS was initially adopted in 1991 and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, 2004, 2009, and most recently in December 2016 (SDAPCD 2016a). The RAQS does not currently address the state air quality standards for PM_{10} or $PM_{2.5}$. SDAPCD has also developed the air basin's input to the SIP, which is required under the federal CAA for areas that are out of attainment of air quality standards. Both the RAQS and SIP demonstrate the effectiveness of CARB measures (mainly for mobile sources) and SDAPCD's plans and control measures (mainly for stationary and area-wide sources) for attaining the ozone NAAQS.

The most recent federal plan (2020 SIP) is the 2020 Plan for Attaining the National Ozone Standards (SDAPCD 2020), while the previous plan (2016 SIP) was the 2016 Plan for Attaining the National Ozone Standards (SDAPCD 2016b). Both the RAQS and SIPs demonstrate the effectiveness of CARB measures (mainly for mobile sources) and SDAPCD's plans and control measures (mainly for stationary and area-wide sources) for attaining the O_3 NAAQS (SDAPCD 2020). For the 8-hour O_3 standard, the 2016 SIP outlines SDAPCD's portion of the SIP, and also outlines plans and control measures designed to attain and maintain the 8-hour O_3 NAAQS (2008 standard). The 2020 SIP outlines plans and control measures designed to attain and maintain the 8-hour O_3 NAAQS (2008 and 2015 standards). As of March 2022, the 2020 SIP is awaiting EPA approval and remains in draft form.

The project may be subject to the following district rules. This list may not be all-encompassing as additional SDAPCD rules may apply to the project as specific components are identified.

- **Regulation 2, Rule 20.2—New Source Review Non-Major Stationary Sources:** establishes Air Quality Impact Analysis (AQIA) Trigger Levels, which set emission limits for non-major new or modified stationary sources.
- **Rule 50—Visible Emissions:** establishes limits to the opacity of emissions within the SDAPCD. The proposed facility is subject to Rule 50(d)(1) and (6) and should not exceed the visible emission limitation.
- **Rule 51—Nuisance:** prohibits emissions that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health, or safety of any such persons or the public; or which cause injury or damage to business or property.
- **Rule 52—Particulate Matter:** establishes limits to the discharge of any particulate matter from non-stationary sources.
- **Rule 54—Dust and Fumes:** establishes limits to the amount of dust or fume discharged into the atmosphere in any 1 hour.
- **Rule 55—Fugitive Dust Control:** sets restrictions on visible fugitive dust from construction and demolition projects.

SDAPCD has not developed advisory emission thresholds or guidance to assist lead agencies in determining the level of significance of a project's emissions in CEQA documents. However, the County has developed guidance that includes recommended screening level thresholds (SLTs) to assist lead agencies in determining the level of significance of a project's emissions in CEQA documents. These SLTs are provided in Table 3. Furthermore, County Code Section 87.428, Dust Control Measures, also requires all clearing and grading to be carried out with dust control measures adequate to prevent creation of a nuisance to persons or public or private property. Clearing, grading, or improvement plans must require that measures such as the following be undertaken to achieve this result: watering, application of surfactants, shrouding, control of vehicle speeds, paving of access areas, or other operational or technological measures to reduce dispersion of dust. These project design measures are to be incorporated into all earth-disturbing activities to minimize the amount of PM emissions from construction.

Table 3. County of San Diego Air Quality Screening Level Thresholds

	Emission Rate		
Air Contaminant	**(pounds per hour)**	**(pounds per day)[1]**	**(tons per year)**
Respirable Particulate Matter (PM_{10})	--	100	15
Fine Particulate Matter ($PM_{2.5}$) [2]	--	55	10
Nitrogen Oxides (NO_X)	25	250	40
Sulfur Oxides (SO_X)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead (Pb) [3]	--	3.2	0.6
Volatile Organic Compounds (VOC) [4]	--	75	13.7 [5]

Source: County of San Diego 2007.

[1] According to the County, the daily thresholds are most appropriate when assessing impacts from standard construction and operational emissions. Therefore, daily thresholds are used to evaluate project significance, while hourly and annual thresholds are provided for informational purposes only.

[2] Based on EPA's "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005, and also SCAQMD's Air Quality Significance Thresholds (SCAQMD 2015). Rule 20.2 was amended in 2018 to include $PM_{2.5}$ AQIA of 67 pounds per day. However, as 55 pounds per day is lower (and more restrictive), 55 pounds per day as recommended by the County is used here.

[3] Lead and lead compounds.

[4] County SLTs for VOCs were originally based on the threshold of significance for VOCs from SCAQMD for the Coachella Valley. The terms VOC and ROG are used interchangeably, although VOC is used in this document because the City and County use the term VOC.

[5] 13.7 tons per year threshold is based on 75 pounds per day multiplied by 365 days per year and divided by 2,000 pounds per ton.

Greenhouse Gases

Federal

There is currently no federal overarching law specifically related to the reduction of GHG emissions. Under the Obama Administration, the EPA had been developing regulations under the CAA pursuant to EPA's authority under the CAA[1]. There have also been settlement agreements between EPA, several states, and nongovernmental organizations to address GHG emissions from electric generating units and refineries, as well as the EPA's issuance of an "Endangerment Finding" and a "Cause or Contribute Finding." EPA has also adopted a Mandatory Reporting Rule and Clean Power Plan. Under the Clean Power Plan, EPA issued regulations to control CO_2 emissions from new and existing coal-fired power plants. However, on February 9, 2016, the Supreme Court issued a stay regarding these regulations, pending litigation. Former EPA Administrator Scott Pruitt signed a measure to repeal the Clean Power Plan.

The National Highway Traffic Safety Administration's (NHTSA's) Corporate Average Fuel Economy (CAFE) standards require substantial improvements in fuel economy and reductions in GHG emissions generated by passenger cars and light-duty trucks sold in the United States.

In 2018, NHTSA and EPA proposed amendments to roll back the previous fuel efficiency standards for passenger cars and light-duty trucks under the Safer Affordable Fuel-Efficient (SAFE) Vehicles

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[1] In *Coalition for Responsible Regulation, Inc., et al. v. EPA*, the United States Court of Appeals upheld EPA's authority to regulate GHG emissions under the CAA.

Rule. On December 21, 2021, NHTSA published its CAFE Preemption Rule, which repealed 2019's SAFE Vehicles Rule, Part One: One National Program. That rule had codified preemption of state and local laws related to fuel economy standards. NHTSA's 2021 rule thus reopens pathways for state and local fuel economy laws.

State

California has adopted statewide legislation addressing various aspects of climate change and GHG mitigation. Much of this establishes a broad framework for the state's long-term GHG reduction and climate change adaptation program. The former and current governors of California have also issued several executive orders (EOs) related to the state's evolving climate change policy. Brief summaries of key policies, EOs, regulations, and legislation at the state level that are relevant to the project are listed below:

1. **Executive Order S-3-05 (2005)** was designed to reduce California's GHG emissions to (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80 percent below 1990 levels by 2050.
2. **Assembly Bill 1493—Pavley Rules (2002, Amendments 2009, 2012 Rule-Making)** requires CARB to adopt vehicle standards that will lower GHG emissions from new light duty autos to the maximum extent feasible.
3. **Assembly Bill 32—California Global Warming Solutions Act (2006)** codified the state's GHG emissions target by requiring that the state's global warming emissions be reduced to 1990 levels by 2020. The AB 32 Scoping Plan describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020.
4. **Executive Order S-01-07—Low Carbon Fuel Standard (2007)** mandated (1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020, and (2) that a low carbon fuel standard (LCFS) for transportation fuels be established in California.
5. **Senate Bill 375—Sustainable Communities Strategy (2008)** provides a new planning process that coordinates land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32. SB 375 requires regional transportation plans (RTPs) developed by metropolitan planning organizations to incorporate a "sustainable communities strategy" (SCS). The goal of the SCS is to reduce regional VMT through land use planning and the consequent transportation patterns.
6. **California Green Building Standards Code and Title 24 (2010)** apply to the planning, design, operation, construction, use, and occupancy of newly constructed buildings and requires the installation of energy- and water-efficient indoor infrastructure for all new projects. The standards went into effect January 1, 2011, and are updated every 3 years. The most recent standards (2019), which took effect on January 1, 2020, take the final step toward achieving zero net energy for newly constructed residential buildings throughout California. For non-residential buildings, the California Energy Commission estimates that the current 2019 standards will result in approximately 30 percent less energy than those designed in compliance with the 2016 standards (California Energy Commission 2019). The 2022 standards go into effect January 1, 2023, and build off the 2019 standards by encouraging efficient electric heat pumps, establishing electric-ready requirements for new homes, expanding solar photovoltaic

(PV) and battery storage standards, strengthening ventilation standards, and more (California Energy Commission 2021).

7. **Senate Bills X 1-2 and 350, Renewable Portfolio Standard (2011, 2015)** require all California electricity providers to obtain at least 33 percent of their energy from renewable resources by 2020, and 50 percent renewable sourced energy by 2030.
8. **Senate Bill 32—California Global Warming Solutions Act (2016)** codified the state's GHG emissions target by requiring that the state's global warming emissions be reduced to 40 percent below 1990 levels by 2030. The updated Scoping Plan describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 40 percent below 1990 levels by 2030.
9. **Senate Bill 100 (2018)—**increases the Renewables Portfolio Standard in 2030 from 50 to 60 percent and establishes a goal of 100 percent net-zero carbon by 2045.

Local

The La Mesa City Council adopted the City's CAP in March 2018. The CAP is a comprehensive plan outlining the specific activities that the City will undertake to reduce GHG emissions. The CAP will help the City support state-mandated GHG reduction targets established by 2020 (AB 32), 2030 (SB 32 and EO B-30-15), and 2050 (S-3-05). The CAP includes two community-wide GHG reduction goals: 15 percent reduction from 2010 emissions by 2020 and a 53 percent reduction from 2010 emissions by 2035. Additionally, the CAP includes per capita efficiency metrics for 2035 (3.46 $MTCO_2e$ per capita) and 2050 (2.0 $MTCO_2e$ per capita).

The CAP proposes 23 strategies that would be implemented to reduce GHG emissions to the specified targets. Measures relevant to the proposed project include the following strategies and measures (City of La Mesa 2018):

- **Strategy T-3: Transportation Demand Management Program.** Use SANDAG's iCommute program to reduce single-occupancy vehicle trips community-wide.
- **Strategy W-2: Water Sensitive Landscape Design and Irrigation.** Conserve water through efficient landscaping design and irrigation.
- **Strategy SW-2: Construction and Demolition Waste Diversion Program.** Continue to enforce the City's construction and demolition waste diversion ordinance.
- **Strategy SW-3: 75% Waste Diversion Goal.** Maximize waste diversion efforts community-wide with particular focus on organic and recyclable waste.

As noted above, the CAP includes numerical community-wide reduction targets and per capita targets for 2035 and 2050. Per capita targets are only applicable to projects that add capita (i.e., residents). Other threshold types, such as efficiency metrics based on service population (the sum of residents and jobs), are applicable to projects that add either residents or jobs. However, the proposed project would not add any jobs and residents to the project area. Therefore, the above-mentioned efficiency metric approaches are not applicable to the proposed project. Moreover, there are no available numerical thresholds for hospitals or medical or hospital beds.

State CEQA Guideline Section 15183.5 (a) provides that a lead agency may analyze and mitigate significant effects of GHG emissions at a programmatic level, such as in a plan targeted to reduce

GHG emissions, and later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review. The City's CAP was adopted consistent with the requirements of State CEQA Guideline Section 15183.5 (a), and the EIR was certified on March 13, 2018. According to the City's CAP, if a project is consistent with the existing General Plan's growth projections and land use designations of the proposed project site, and would implement all applicable measures of the CAP, then the project would be found to have a less than cumulatively considerable contribution to climate change impacts (City of La Mesa 2018). Consistency with the CAP is used to determine whether significant GHG emissions impacts would result from project implementation.

6. Methodology

Air quality and GHG impacts associated with construction of the proposed project were assessed and quantified using industry standard and accepted software tools, techniques, and emission factors.

The project would include construction changes to the existing rehabilitation center. Once constructed, the project is expected to increase visitation due to the increase in hospital beds. Air quality and GHG effects of construction and operation of the project were evaluated quantitatively. A summary of the methodology is provided below.

Construction

Construction of the proposed project would result in the short-term generation of criteria pollutant and GHG emissions from mobile and stationary construction equipment exhaust, employee and haul truck vehicle exhaust, land clearing and material movement, paving, and the application of architectural coatings. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously over a given time period.

Emissions from construction equipment were estimated based on the California Emissions Estimator Model (CalEEMod), version 2020.4.0, assuming construction of 20,182 square feet of additional hospital space and an overall increase of 20 beds. Modeling is based on a combination of project-specific information provided by the project applicant, where available, and modeling defaults. Modeling inputs used to estimate emissions are described below.

- **Off-Road Equipment**: Off-road equipment would include typical heavy-duty equipment (e.g., loaders, cranes, forklifts) to demolish existing structures, grade and prepare the site, and construct new building areas. Emissions associated with construction equipment were estimated based on default equipment fleet mix, emission factors, and load factors for diesel-powered off-road construction equipment from the CalEEMod (version 2020.4.0) (CAPCOA2021).
- **Grading and Material Import:** It was assumed that entire project area would be graded, which is approximately 2.19 acres. However, due to multiple passes of the grading equipment during the grading phase and site preparation phase; a total of 7.5 acres would be graded during the site preparation phase and 19 acres would be graded during the grading phase. Per the applicant, a total of 1,050 cubic yards of cut would occur, with approximately 800 cubic yards

being balanced on site and the remaining 250 cubic yards being exported.. Truck trips required for import of this material were estimated assuming the CalEEMod default of 16-cubic-yard-capacity trucks and a 20-mile haul trip length. A total of 31 one-way truck trips would be required for earthwork activities.

- **Demolition:** Based on information provided by the project applicant, it was assumed that 8,800 square feet would require demolition. Truck trips required for removal of demolished materials were estimated using the CalEEMod default of 20-ton capacity trucks and a 20-mile haul trip length. A total of 40 one-way truck trips would be required for removal of demolished material.
- **On-road Vehicles**: In addition to the trucks required for demolition and material movement, on-road vehicles (e.g., pickup trucks, flatbed trucks, passenger vehicles) would be required for employee commuting and vendor (material delivery) trips. Emissions associated with these trips were estimated using CalEEMod default trip lengths for vendor trips and worker trips based on the assumed project square footage. Worker trips assume 30 workers per day for each phase and two one-way trips per worker, for a total of 60 worker trips per day throughout the construction period.

Construction is assumed to begin in August 2022 and continue over a 20-month period, ending in May 2024. Construction activities are expected to occur Monday through Friday between 7 a.m. and 10 p.m., with the average hour of equipment operation depending on phase and equipment necessary.

Criteria pollutant emissions are summed at the daily time scale and compared to the SLTs shown in Table 3. For purposes of presenting a conservative analysis, it was assumed that all construction activities would overlap and occur concurrently on a given day. Construction GHG emissions are summed and amortized over the expected life of the project (assumed to be 30 years), consistent with industry standards and the life of the project. A summary of land use inputs for CalEEMod and modeling outputs are presented in Attachment 1.

Operation

The proposed project would result in a net increase of 20 hospital beds and 20,182 square feet of building area over existing conditions, which would result in an increase in visitation to the project site. Emissions associated with operation of the proposed project were estimated in CalEEMod, version 2020.4.0, assuming operation of the additional 20 beds and 20,182 square feet of hospital space. Modeling is based on a combination of project-specific information provided by the project applicant, where available, and modeling defaults. Motor vehicle trips were based on the 400 new daily vehicle trips provided by the traffic consultant (Linscott Law & Greenspan 2022) and default trip lengths. Emissions associated with area (consumer products [cleaning supplies, kitchen aerosols, cosmetics, and toiletries] and the re-application of architectural coatings), energy (combustion of natural gas for space and water heating and electricity consumption), water consumption, wastewater generation, and solid waste generation were calculated using CalEEMod default values assuming operation of the additional 20,182 square feet of hospital space.

Criteria pollutant emissions are summed at the daily time scale and compared to the SLTs shown in Table 3. For purposes of analysis, the proposed project is anticipated to be operational by 2024. CalEEMod modeling outputs are presented in Attachment 1.

7. Impact Analysis

Consistency with Air Quality Plans

The SDAPCD is required, pursuant to the federal and state CAAs, to reduce emissions of criteria pollutants for which the County is in nonattainment (i.e., O_3, PM_{10}, and $PM_{2.5}$). The most recent SDAPCD air quality attainment plans are the 2016 RAQS, the 2020 SIP, and the 2016 SIP (see Section 5. *Regulatory Setting*, above). The simplest test to assess project consistency is to determine if the project proposes development that is consistent with the growth anticipated by the relevant land use plans that were used in the formulation of the air quality attainment plans; if so, then the project would be consistent with the attainment plans.

The City of La Mesa General Plan is the governing land use document for physical development within the City. Projects that propose development consistent with growth anticipated by the General Plan are considered consistent with the air quality attainment plans. If a project would propose development that is less dense or intense than anticipated within the current General Plan, the project would likewise be consistent with the attainment plans because emissions would be less than estimated within the current General Plan. If a project proposes development that is greater than that anticipated in the General Plan and SANDAG's growth projections, the project could be in conflict with the attainment plans and might have a potentially significant impact on air quality because emissions could exceed those estimated for the existing land use plan (i.e., General Plan).

The project site is within an existing Sharp Grossmont Hospital property in a built-out, urbanized community. Construction of the proposed project would result in the generation of temporary construction jobs; however, the additional jobs are temporary and are expected to be filled by the existing local labor force in the San Diego region. The proposed project would not directly or indirectly induce population growth, as it does not propose new homes or include the extension of roadways or other infrastructure and would operate as a population-serving facility.

Furthermore, the proposed project would comply with the plan designations and applicable provisions of the *2012 Centennial General Plan*. The project site is currently designated "Institutional" by the general plan. Additionally, the proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. While the proposed project would result in an increase of 400 average daily trips (ADT), these trips and subsequent mobiles emissions would not exceed the SDAPCD daily operational thresholds; and the 400 ADTs would not represent a substantial increase of motor vehicle trips in the project area. Additionally, the proposed Project is located within ½ mile walking distance of the Grossmont Transit Center, which is a major transit stop based on Office of Planning and Research (OPR) guidance. Based on the proposed Project's characteristics and location it is presumed to have a less than significant VMT impact consistent with guidance from the Institute of Transportation Engineers (ITE) and OPR (Linscott Law & Greenspan, 2022). In total, the projects unmitigated construction and operational emission would be below the established SCAQMD thresholds; refer to Table 4 and 5. A project that has construction and operational emissions below the adopted SCAQMD thresholds is not expected to cause an exceedance of the NAAQS and thus would be consistent with the goals of the 2016 RAQS, 2020 SIP, 2016 SIP.

Therefore, because the proposed project includes development that is consistent with the uses allowed by the General Plan, would be screened out of a VMT analysis, and would not exceed the adopted threshold levels for construction and operational emissions, the proposed would not conflict or obstruct implementation of the air quality plans. Impacts related to implementation of the RAQS or the SIP would be less than significant, and no mitigation measures are required.

Air Quality Mass Emissions

Construction Emissions

Table 4 summarizes the modeled peak daily emissions of criteria pollutants associated with construction of the project. Construction of the proposed project is expected to be staggered over the course of the 20-month construction period. However, for purposes of presenting a conservative analysis, it was assumed that the maximum day from each construction phase would overlap on a single day. As shown, the maximum level of daily construction emissions generated by the project would not exceed the County's SLTs for any criteria pollutants on this peak concurrent day. As such, these construction emissions levels would not be expected to contribute a significant level of air pollution such that regional air quality within the SDAB would be degraded. Therefore, impacts related to construction-phase emissions would be less than significant, and no mitigation measures are required.

Table 4. Summary of Construction Criteria Pollutant Emission Estimates (pounds per day)

Construction Phase	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Demolition	2	17	15	<1	2	1
Site Preparation	2	16	12	<1	3	1
Grading	2	17	11	<1	8	4
Building Construction	2	15	16	<1	1	1
Paving	1	9	13	<1	1	1
Architectural Coating	2	1	3	<1	1	<1
Excavation	1	4	7	<1	1	<1
Maximum Daily Emissions	**11**	**79**	**77**	**<1**	**16**	**8**
County SLTs	75	250	550	250	100	55
Exceed SLT?	No	No	No	No	No	No

Source: Modeling outputs provided in Attachment 1.
Totals may not sum perfectly due to rounding.

Operational Emissions

Table 5 summarizes the modeled daily emissions of criteria pollutants associated with operation of the project. As shown, the daily operational emissions generated by the project would not exceed the County's SLTs for any criteria pollutants. As such, these operational emissions levels would not be expected to contribute a significant level of air pollution such that regional air quality within the SDAB would be degraded. Therefore, impacts related to operations-phase emissions would be less than significant, and no mitigation measures are required.

Table 5. Summary of Operational Criteria Pollutant Emission Estimates (pounds per day)

Operational Element	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	1	<1	<1	<1	<1	<1
Energy	<1	<1	<1	<1	<1	<1
Mobile	1	1	10	<1	2	1
Daily Operational Emissions	**2**	**1**	**10**	**<1**	**2**	**1**
County SLTs	75	250	550	250	100	55
Exceed SLT?	No	No	No	No	No	No

Source: Modeling outputs provided in Attachment 1.
Totals may not sum perfectly due to rounding.

Substantial Pollutant Concentrations

The discussion of pollutant concentrations associated with DPM, CO hotspots, and criteria pollutants, during both the construction and operation of the proposed project, is provided below.

Diesel Particulate Matter

DPM, which is classified as a carcinogenic TAC by CARB, is the primary exhaust pollutant of concern with regard to health risks to sensitive receptors. Diesel-powered vehicles, equipment, and vessels that operate throughout the proposed project area would emit DPM that could potentially expose nearby sensitive receptors to pollutant concentrations. Prolonged exposure to DPM can increase the risk of cardiovascular, cardiopulmonary, and respiratory disease, and lung cancer.

Construction

Health risks related to DPM are assessed qualitatively based on anticipated project emissions and proximity to sensitive receptors. Nearby sensitive receptors include hospital users throughout the hospital property, along with various sensitive receptor locations off site, including Brier Patch Elementary School, Briercrest Park, and numerous residential units located across State Route 125. The closest nearby uses are the hospital users throughout the hospital property, as well as the school, park, and residences assumed to be 700 feet from the eastern boundary of the project site.

According to the project schedule, construction is expected to last 20 months, which is much shorter than the assumed 70-year exposure period used to estimate lifetime cancer risks. DPM emitted by these sources can remain airborne for several days, but they dissipate as a function of distance from the emissions source. Receptors at the school, park, and residences across State Route 125 would have limited exposure to diesel exhaust, with exposure limited to visitation that coincides with weekday construction activities. In addition, hospital receptors would have limited exposure to diesel exhaust, with exposure limited to outdoor activities that coincides with weekday construction activities. Moreover, pollutant concentrations inside the existing hospital would be greatly decreased from outdoor concentrations. Construction activities would be sporadic, transitory, and short-term in nature, and would result in minimal DPM emissions. Once construction activities have ceased, so too will the source emissions. Diesel activity occurring on site would be short-term and occur at distances not expected to expose sensitive receptor locations to substantial pollutant concentrations.

Operations

As discussed previously, once operational, the project is expected to result in 400 new daily vehicle trips to the project site. Similar to existing conditions, vehicle emissions would be mostly generated by gasoline-powered passenger vehicles and pickups, which do not emit DPM. No new stationary sources or major sources of emissions are expected to be associated with the proposed uses. Therefore, operation of the project would not result in an increase in DPM emissions.

In addition, SDAPCD Rule 1200 establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit operational TACs, including DPM.[2] Under Rule 1200, permits to operate may not be issued when emissions of TACs result in an incremental cancer risk greater than 1 in 1 million without application of best available control technology or a health hazard index (chronic and acute) greater than one.

Given the brief construction schedule, nature of project operations, distance to sensitive receptors, and required compliance with SDAPCD Rule 1200, implementation of the proposed project is not anticipated to expose sensitive receptors to substantial DPM concentrations. Impacts related to sensitive receptor exposure to substantial DPM concentrations would be less than significant, and no mitigation measures are required.

Carbon Monoxide Hot Spots

A CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour ambient air standards for the pollutant. Projects that do not generate CO concentrations in excess of the health-based CAAQS would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded. The potential for the project to result in localized CO impacts at intersections resulting from addition of its traffic volumes is assessed based on the County's suggested criteria, which indicate that a hotspot analysis for CO must be conducted for any project that would result in either of the following:

- Place receptors within 500 feet of a signalized intersection with peak-hour trips exceeding 3,000 trips and operating at or below level of service (LOS) E (County of San Diego 2007)
- Cause roadway segments with peak-hour trips exceeding 3,000 trips to operate at or below LOS E.

According to the Traffic Impact Analysis report prepared for the proposed project, implementation of the project would not place receptors within 500 feet of a signalized intersection with more than 3,000 peak-hour trips that operates at or below LOS E (Linscott Law & Greenspan 2022). Likewise, the project would not cause intersections with more than 3,000 intersection peak-hour trips to operate at or below a LOS E. The project therefore satisfies the County's CO hotspot screening criteria, and the impact related to sensitive receptor exposure to substantial CO concentrations is considered less than significant.

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[2] Specifically, Rule 1200 applies to any new, relocated, or modified emission unit that may increase emissions of one or more TAC and for which an Authority to Construct or Permit to Operate is required pursuant to Rule 10, or for which a Notice of Intention or Application for Certification has been accepted by the California Energy Commission.

Regional Criteria Pollutants

All criteria pollutants that would be generated by the proposed project are associated with some form of health risk (e.g., asthma, lower respiratory problems). However, the SDAPCD's trigger levels and the County's SLTs presented in Table 3 consider existing air quality concentrations and attainment or nonattainment designations under the NAAQS and CAAQS. The NAAQS and CAAQS are informed by a wide range of scientific evidence that demonstrates there are known safe concentrations of criteria pollutants. SDAPCD considers projects that generate criteria pollutant and ozone precursor emissions below their SLTs to be minor in nature and would not adversely affect air quality such that the health-protective NAAQS or CAAQS would be exceeded. As shown in Table 4, construction of the proposed project would not exceed significance thresholds for any criteria pollutant. As shown in Table 5, operation of the proposed project would not exceed significance thresholds for any criteria pollutant. As such, impacts related to sensitive receptor exposure to regional criteria pollutants during construction and operation would be less than significant.

Substantial Other Emissions and Odors

During construction of the proposed project, exhaust from equipment and activities associated with the application of architectural coatings may produce discernible odors typical of most construction sites. Such odors would be a temporary source of nuisance to adjacent uses but would not affect a substantial number of people.

Potential odor emitters during operations would include exhaust from vehicles visiting the project site. However, odor impacts would be limited to the circulation routes, parking areas, and areas immediately adjacent to the project site, and would not exceed existing odor conditions. Although such brief exhaust odors may be considered unpleasant, they would not affect a substantial number of people, and any odor-related impacts would be less than significant.

Greenhouse Gas Emissions

Construction Emissions

Table 6 summarizes GHG emission estimates by construction phase and in total. As shown, total emissions were estimated to be 709 total $MTCO_2e$, which equates to 24 $MTCO_2e$ per year over a 30-year project life. While these emissions are relatively low, additional analysis is required to determine significance, including evaluation of the project's consistency with plans, policies, and regulatory programs adopted for the purpose of reducing the emissions of GHGs, which is included below.

Table 6. Summary of Construction Greenhouse Gas Emission Estimates (metric tons per year)

Construction Phase	CO_2e
Demolition	37
Site Preparation	6
Grading	22
Building Construction	564

Paving	8
Architectural Coating	44
Excavation	28
Total Construction Emissions	**709**
Amortized Construction (averaged over a 30-year period)	24

Source: Modeling outputs provided in Attachment 1.
Totals may not sum perfectly due to rounding.

Operational Emissions

Table 7 summarizes GHG emission estimates by operational element and in total. As shown, annual emissions were estimated to be 506 total $MTCO_2e$ in opening year 2024. The majority of emissions would be due to motor vehicles and energy consumption.

As noted above, there are no relevant numerical thresholds for analyzing GHG emissions from the proposed project. Emissions are presented for disclosure purposes only. As noted above, additional analysis is required to determine significance—including evaluation of the project's consistency with plans, policies, and regulatory programs adopted for the purpose of reducing the emissions of GHGs— and is included below.

Table 7. Summary of Operational Greenhouse Gas Emission Estimates (metric tons per year)

Operational Element	CO_2e
Area	<1
Energy	136
Mobile	333
Solid Waste	7
Water	7
Amortized Construction	24
Total Operational Emissions	**506**

Source: Modeling outputs provided in Attachment 1.
Totals may not sum perfectly due to rounding.

Consistency with Relevant GHG Reduction Plans

As discussed above, the proposed project is the expansion of the Center for Neurosciences on the existing Sharp Grossmont Hospital campus. Construction would involve demolition, grading, structure construction, paving, and application of architectural coatings. GHG emissions during construction would result from use of off-road equipment use, employee and haul truck vehicle exhaust, and land clearing and material movement. Operation would result in a minor increase in visitation and associated emissions to power and support the new building square footage. In addition, the project is not expected to result in population, employment, or development growth that is currently unplanned.

The most relevant plan, policy, and regulatory program adopted for the purpose of reducing the emissions of GHGs is the City's CAP. If the proposed project implements all applicable measures of the CAP, then the project would be found to have a less than cumulatively considerable contribution to climate change impacts.

The proposed project's consistency with relevant CAP strategies is provided in Table 8. As shown, the project would be consistent with all of the applicable CAP strategies designed to reduce GHG emissions within the City, including measures to reduce GHG emission from transportation, water use, and solid waste generation during construction. Therefore, because the proposed project is consistent with the City's General Plan growth projects and land use designations, and would implement all applicable measures of the City's CAP, impacts related to GHG emissions would have a less than cumulatively considerable contribution to climate change.

Table 8. Project Consistency with Applicable CAP Strategies

Strategy	Strategy Summary	Consistency
T-3: Transportation Demand Management Program	Use SANDAG's iCommute program to reduce single-occupancy vehicle trips community-wide.	**Consistent**. The project area includes various active transportation features to reduce vehicle trips, including continuous sidewalks along most of the roadways in the area, bike friendly roads within the project area, Class II bike lanes proposed by the City along major roadways, and transit (both bus and light rail) within 0.5 mile of the project.
W-2: Water Sensitive Landscape Design and Irrigation	Conserve water through efficient landscaping design and irrigation.	**Consistent.** Implementation of the proposed project would ensure use of water-efficient landscaping.
SW-2: Construction and Demolition Waste Diversion Program	Continue to enforce the City's construction and demolition waste diversion ordinance.	**Consistent.** The proposed project applicant and future contractors would ensure that at least 75% of waste generated during construction would be diverted from the landfill.
SW-3: 75% Waste Diversion Goal	Maximize waste diversion efforts community-wide with particular focus on organic and recyclable waste.	**Consistent.** The proposed project applicant and future contractors would ensure that at least 75% of waste generated during construction would be diverted from the landfill.

Source: City of La Mesa 2018, 2021.
Notes: E= Energy, T= Transportation and Land Use, W= Water, SW= Solid Waste

8. Summary and Conclusions

Air quality and GHG emissions analyses were conducted for the Sharp Grossmont Hospital Center for Neurosciences Project. The analyses address potential affects from both project construction and operation. All evaluated effects were determined to have less-than-significant impacts. No mitigation measures are required.

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Attachment 1

CalEEMod Output Sheets

Construction Criteria Pollutants (lbs/day)

Construction Phase	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Demoliton	2	17	15	0	2	1
Site Preparation	2	16	12	0	3	1
Grading	2	17	11	0	8	4
Building Construction	2	15	16	0	1	1
Paving	1	9	13	0	1	1
Architectural Coating	2	1	3	0	1	0
Excavation	1	4	7	0	1	0
Max Daily	11	79	77	0	16	8
County SLTs	75	250	550	250	100	55
Exceed SLT?	No	No	No	No	No	No

Operational Element	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	1	0	0	0	0	0
Energy	0	0	0	0	0	0
Mobile	1	1	10	0	2	1
Max Daily	2	1	10	0	2	1
County SLTs	75	250	550	250	100	55
Exceed SLT?	No	No	No	No	No	No

Construction GHGs

Construction Phase	CO_2e
Demoliton	37
Site Preparation	6
Grading	22
Building Construction	564
Paving	8
Architectural Coating	44
Excavation	28
Total Construction Emissions	709
Amortized Construction (averaged over a 30-year period)	24

Operational GHGs

Operational Eleme	CO2e
Area	0
Energy	136
Mobile	332
Waste	7
Water	7
Construction	24
Total	506

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

Sharp Grossmont Hosptial - Brain & Spine

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	20.00	Bed	2.19	20,182.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	497	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Linear interpolation of 497 lb/MWh for CO2 for 2024 based on 2016 and 2025 EFs in Appendix X of the SANDAG Regional Plan

Land Use - 20 beds; 20,182 sf; and 2.19 acres per Applicant

Construction Phase - Per Project schedule.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Per Applicant

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Conservatively assume 30 workers per day = 60 one-way worker trips per day; hauling and vendor trips CalEEMod defaults

Demolition - 8,800 building sf exported per Applicant

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

Grading - 250 CY export per Applicant

Architectural Coating - Per SDAPCD Rule 67.0, 150 g/L arch coatings VOC content

Vehicle Trips - 20 trips/day per new bed

Area Coating - Per SDAPCD Rule 67.0, 150 g/L arch coatings VOC content

Construction Off-road Equipment Mitigation - SDAPCD Rule 55

Area Mitigation -

Water Mitigation - 2019 CalGreen Code

Waste Mitigation - Per AB 341

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblConstructionPhase	NumDays	10.00	137.00
tblConstructionPhase	NumDays	220.00	445.00
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	6.00	19.00
tblConstructionPhase	NumDays	10.00	8.00
tblConstructionPhase	NumDays	3.00	5.00
tblGrading	MaterialExported	0.00	250.00
tblLandUse	LandUseSquareFeet	14,315.15	20,182.00
tblLandUse	LotAcreage	0.33	2.19
tblProjectCharacteristics	CO2IntensityFactor	539.98	497
tblTripsAndVMT	WorkerTripNumber	6.00	60.00
tblTripsAndVMT	WorkerTripNumber	8.00	60.00
tblTripsAndVMT	WorkerTripNumber	13.00	60.00
tblTripsAndVMT	WorkerTripNumber	10.00	60.00
tblTripsAndVMT	WorkerTripNumber	5.00	60.00

tblTripsAndVMT	WorkerTripNumber	1.00	60.00
tblTripsAndVMT	WorkerTripNumber	15.00	60.00
tblVehicleTrips	ST_TR	13.76	20.00
tblVehicleTrips	SU_TR	12.88	20.00
tblVehicleTrips	WD_TR	22.32	20.00

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	0.1586	1.2543	1.2922	2.5000e-003	0.1251	0.0591	0.1843	0.0468	0.0559	0.1027	0.0000	215.3689	215.3689	0.0416	1.9300e-003	216.9835
2023	0.3914	1.9221	2.2731	4.3800e-003	0.0957	0.0863	0.1820	0.0255	0.0828	0.1083	0.0000	372.9073	372.9073	0.0564	3.1900e-003	375.2667
2024	0.0986	0.5864	0.7064	1.3700e-003	0.0264	0.0244	0.0508	7.0300e-003	0.0234	0.0304	0.0000	115.8127	115.8127	0.0178	9.0000e-004	116.5263
Maximum	**0.3914**	**1.9221**	**2.2731**	**4.3800e-003**	**0.1251**	**0.0863**	**0.1843**	**0.0468**	**0.0828**	**0.1083**	**0.0000**	**372.9073**	**372.9073**	**0.0564**	**3.1900e-003**	**375.2667**

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	0.1586	1.2543	1.2922	2.5000e-003	0.0835	0.0591	0.1426	0.0283	0.0559	0.0842	0.0000	215.3687	215.3687	0.0416	1.9300e-003	216.9833
2023	0.3914	1.9221	2.2731	4.3800e-003	0.0957	0.0863	0.1820	0.0255	0.0828	0.1083	0.0000	372.9070	372.9070	0.0564	3.1900e-003	375.2664
2024	0.0986	0.5864	0.7064	1.3700e-003	0.0264	0.0244	0.0508	7.0300e-003	0.0234	0.0304	0.0000	115.8126	115.8126	0.0178	9.0000e-004	116.5261
Maximum	**0.3914**	**1.9221**	**2.2731**	**4.3800e-003**	**0.0957**	**0.0863**	**0.1820**	**0.0283**	**0.0828**	**0.1083**	**0.0000**	**372.9070**	**372.9070**	**0.0564**	**3.1900e-003**	**375.2664**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**16.83**	**0.00**	**9.98**	**23.32**	**0.00**	**7.67**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**8-16-2022**	**11-15-2022**	1.0823	1.0823
2	**11-16-2022**	**2-15-2023**	0.5833	0.5833
3	**2-16-2023**	**5-15-2023**	0.5007	0.5007
4	**5-16-2023**	**8-15-2023**	0.5565	0.5565
5	**8-16-2023**	**11-15-2023**	0.6641	0.6641
6	**11-16-2023**	**2-15-2024**	0.6185	0.6185
7	**2-16-2024**	**5-15-2024**	0.4021	0.4021
		Highest	1.0823	1.0823

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	0.0929	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004
Energy	6.2500e-003	0.0569	0.0478	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003	0.0000	135.0435	135.0435	6.0400e-003	1.7200e-003	135.7082
Mobile	0.1890	0.2066	1.7139	3.5400e-003	0.3768	2.7900e-003	0.3796	0.1006	2.6000e-003	0.1032	0.0000	327.3273	327.3273	0.0243	0.0153	332.4965
Waste						0.0000	0.0000		0.0000	0.0000	11.8547	0.0000	11.8547	0.7006	0.0000	29.3695
Water						0.0000	0.0000		0.0000	0.0000	0.5699	6.1297	6.6996	0.0589	1.4300e-003	8.5996
Total	**0.2881**	**0.2635**	**1.7619**	**3.8800e-003**	**0.3768**	**7.1100e-003**	**0.3839**	**0.1006**	**6.9200e-003**	**0.1075**	**12.4245**	**468.5009**	**480.9254**	**0.7899**	**0.0185**	**506.1741**

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	0.0929	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004
Energy	6.2500e-003	0.0569	0.0478	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003	0.0000	135.0435	135.0435	6.0400e-003	1.7200e-003	135.7082
Mobile	0.1890	0.2066	1.7139	3.5400e-003	0.3768	2.7900e-003	0.3796	0.1006	2.6000e-003	0.1032	0.0000	327.3273	327.3273	0.0243	0.0153	332.4965
Waste						0.0000	0.0000		0.0000	0.0000	2.9637	0.0000	2.9637	0.1752	0.0000	7.3424
Water						0.0000	0.0000		0.0000	0.0000	0.4559	5.0229	5.4788	0.0472	1.1500e-003	6.9993
Total	**0.2881**	**0.2635**	**1.7619**	**3.8800e-003**	**0.3768**	**7.1100e-003**	**0.3839**	**0.1006**	**6.9200e-003**	**0.1075**	**3.4196**	**467.3941**	**470.8136**	**0.2526**	**0.0182**	**482.5467**

	ROG	**NOx**	**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**	**72.48**	**0.24**	**2.10**	**68.01**	**1.52**	**4.67**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	8/18/2022	5/1/2024	5	445	
2	Site Preparation	Site Preparation	8/19/2022	8/25/2022	5	5	
3	Demolition	Demolition	8/23/2022	9/29/2022	5	28	

4	Grading	Grading	9/30/2022	10/26/2022	5	19	
5	Excavation	Trenching	10/10/2022	12/16/2022	5	50	
6	Architectural Coating	Architectural Coating	7/18/2023	1/24/2024	5	137	
7	Paving	Paving	11/10/2023	11/21/2023	5	8	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 19

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 30,273; Non-Residential Outdoor: 10,091; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	8	60.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	60.00	0.00	40.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	60.00	0.00	31.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	2	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 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	0.0900	0.7083	0.6961	1.2100e-003		0.0341	0.0341		0.0327	0.0327	0.0000	100.7249	100.7249	0.0194	0.0000	101.2107
Total	**0.0900**	**0.7083**	**0.6961**	**1.2100e-003**		**0.0341**	**0.0341**		**0.0327**	**0.0327**	**0.0000**	**100.7249**	**100.7249**	**0.0194**	**0.0000**	**101.2107**

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	3.2000e-004	8.0100e-003	2.6200e-003	3.0000e-005	9.7000e-004	8.0000e-005	1.0500e-003	2.8000e-004	8.0000e-005	3.6000e-004	0.0000	3.0343	3.0343	9.0000e-005	4.4000e-004	3.1679
Worker	8.4000e-003	6.1000e-003	0.0714	2.1000e-004	0.0233	1.4000e-004	0.0235	6.2000e-003	1.2000e-004	6.3300e-003	0.0000	19.0682	19.0682	6.0000e-004	5.5000e-004	19.2484
Total	**8.7200e-003**	**0.0141**	**0.0741**	**2.4000e-004**	**0.0243**	**2.2000e-004**	**0.0245**	**6.4800e-003**	**2.0000e-004**	**6.6900e-003**	**0.0000**	**22.1025**	**22.1025**	**6.9000e-004**	**9.9000e-004**	**22.4163**

3.2 Building Construction - 2022

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	0.0900	0.7083	0.6961	1.2100e-003		0.0341	0.0341		0.0327	0.0327	0.0000	100.7247	100.7247	0.0194	0.0000	101.2106
Total	**0.0900**	**0.7083**	**0.6961**	**1.2100e-003**		**0.0341**	**0.0341**		**0.0327**	**0.0327**	**0.0000**	**100.7247**	**100.7247**	**0.0194**	**0.0000**	**101.2106**

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	3.2000e-004	8.0100e-003	2.6200e-003	3.0000e-005	9.7000e-004	8.0000e-005	1.0500e-003	2.8000e-004	8.0000e-005	3.6000e-004	0.0000	3.0343	3.0343	9.0000e-005	4.4000e-004	3.1679
Worker	8.4000e-003	6.1000e-003	0.0714	2.1000e-004	0.0233	1.4000e-004	0.0235	6.2000e-003	1.2000e-004	6.3300e-003	0.0000	19.0682	19.0682	6.0000e-004	5.5000e-004	19.2484
Total	**8.7200e-003**	**0.0141**	**0.0741**	**2.4000e-004**	**0.0243**	**2.2000e-004**	**0.0245**	**6.4800e-003**	**2.0000e-004**	**6.6900e-003**	**0.0000**	**22.1025**	**22.1025**	**6.9000e-004**	**9.9000e-004**	**22.4163**

3.2 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	0.2228	1.7711	1.8479	3.2500e-003		0.0798	0.0798		0.0764	0.0764	0.0000	270.0127	270.0127	0.0511	0.0000	271.2893
Total	**0.2228**	**1.7711**	**1.8479**	**3.2500e-003**		**0.0798**	**0.0798**		**0.0764**	**0.0764**	**0.0000**	**270.0127**	**270.0127**	**0.0511**	**0.0000**	**271.2893**

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	4.6000e-004	0.0173	6.1100e-003	8.0000e-005	2.5900e-003	1.0000e-004	2.6900e-003	7.5000e-004	1.0000e-004	8.5000e-004	0.0000	7.8254	7.8254	2.4000e-004	1.1300e-003	8.1692
Worker	0.0211	0.0146	0.1778	5.4000e-004	0.0626	3.4000e-004	0.0629	0.0166	3.2000e-004	0.0169	0.0000	49.4956	49.4956	1.4700e-003	1.3800e-003	49.9438
Total	**0.0216**	**0.0319**	**0.1839**	**6.2000e-004**	**0.0651**	**4.4000e-004**	**0.0656**	**0.0174**	**4.2000e-004**	**0.0178**	**0.0000**	**57.3210**	**57.3210**	**1.7100e-003**	**2.5100e-003**	**58.1130**

3.2 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2228	1.7711	1.8479	3.2500e-003		0.0798	0.0798		0.0764	0.0764	0.0000	270.0124	270.0124	0.0511	0.0000	271.2889
Total	**0.2228**	**1.7711**	**1.8479**	**3.2500e-003**		**0.0798**	**0.0798**		**0.0764**	**0.0764**	**0.0000**	**270.0124**	**270.0124**	**0.0511**	**0.0000**	**271.2889**

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	4.6000e-004	0.0173	6.1100e-003	8.0000e-005	2.5900e-003	1.0000e-004	2.6900e-003	7.5000e-004	1.0000e-004	8.5000e-004	0.0000	7.8254	7.8254	2.4000e-004	1.1300e-003	8.1692
Worker	0.0211	0.0146	0.1778	5.4000e-004	0.0626	3.4000e-004	0.0629	0.0166	3.2000e-004	0.0169	0.0000	49.4956	49.4956	1.4700e-003	1.3800e-003	49.9438
Total	**0.0216**	**0.0319**	**0.1839**	**6.2000e-004**	**0.0651**	**4.4000e-004**	**0.0656**	**0.0174**	**4.2000e-004**	**0.0178**	**0.0000**	**57.3210**	**57.3210**	**1.7100e-003**	**2.5100e-003**	**58.1130**

3.2 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	0.0703	0.5642	0.6204	1.1000e-003		0.0237	0.0237		0.0227	0.0227	0.0000	91.3941	91.3941	0.0170	0.0000	91.8197
Total	**0.0703**	**0.5642**	**0.6204**	**1.1000e-003**		**0.0237**	**0.0237**		**0.0227**	**0.0227**	**0.0000**	**91.3941**	**91.3941**	**0.0170**	**0.0000**	**91.8197**

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	1.5000e-004	5.8200e-003	2.0200e-003	3.0000e-005	8.8000e-004	3.0000e-005	9.1000e-004	2.5000e-004	3.0000e-005	2.9000e-004	0.0000	2.6025	2.6025	8.0000e-005	3.8000e-004	2.7169
Worker	6.7100e-003	4.4400e-003	0.0562	1.8000e-004	0.0212	1.1000e-004	0.0213	5.6300e-003	1.0000e-004	5.7300e-003	0.0000	16.2038	16.2038	4.5000e-004	4.4000e-004	16.3452
Total	**6.8600e-003**	**0.0103**	**0.0582**	**2.1000e-004**	**0.0221**	**1.4000e-004**	**0.0222**	**5.8800e-003**	**1.3000e-004**	**6.0200e-003**	**0.0000**	**18.8062**	**18.8062**	**5.3000e-004**	**8.2000e-004**	**19.0621**

3.2 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0703	0.5642	0.6204	1.1000e-003		0.0237	0.0237		0.0227	0.0227	0.0000	91.3940	91.3940	0.0170	0.0000	91.8196
Total	**0.0703**	**0.5642**	**0.6204**	**1.1000e-003**		**0.0237**	**0.0237**		**0.0227**	**0.0227**	**0.0000**	**91.3940**	**91.3940**	**0.0170**	**0.0000**	**91.8196**

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	1.5000e-004	5.8200e-003	2.0200e-003	3.0000e-005	8.8000e-004	3.0000e-005	9.1000e-004	2.5000e-004	3.0000e-005	2.9000e-004	0.0000	2.6025	2.6025	8.0000e-005	3.8000e-004	2.7169
Worker	6.7100e-003	4.4400e-003	0.0562	1.8000e-004	0.0212	1.1000e-004	0.0213	5.6300e-003	1.0000e-004	5.7300e-003	0.0000	16.2038	16.2038	4.5000e-004	4.4000e-004	16.3452
Total	**6.8600e-003**	**0.0103**	**0.0582**	**2.1000e-004**	**0.0221**	**1.4000e-004**	**0.0222**	**5.8800e-003**	**1.3000e-004**	**6.0200e-003**	**0.0000**	**18.8062**	**18.8062**	**5.3000e-004**	**8.2000e-004**	**19.0621**

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					3.9800e-003	0.0000	3.9800e-003	4.3000e-004	0.0000	4.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4500e-003	0.0392	0.0251	6.0000e-005		1.4900e-003	1.4900e-003		1.3700e-003	1.3700e-003	0.0000	5.3868	5.3868	1.7400e-003	0.0000	5.4303
Total	**3.4500e-003**	**0.0392**	**0.0251**	**6.0000e-005**	**3.9800e-003**	**1.4900e-003**	**5.4700e-003**	**4.3000e-004**	**1.3700e-003**	**1.8000e-003**	**0.0000**	**5.3868**	**5.3868**	**1.7400e-003**	**0.0000**	**5.4303**

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	4.3000e-004	3.1000e-004	3.6800e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9829	0.9829	3.0000e-005	3.0000e-005	0.9922
Total	**4.3000e-004**	**3.1000e-004**	**3.6800e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9829**	**0.9829**	**3.0000e-005**	**3.0000e-005**	**0.9922**

3.3 Site Preparation - 2022

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					1.7900e-003	0.0000	1.7900e-003	1.9000e-004	0.0000	1.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4500e-003	0.0392	0.0251	6.0000e-005		1.4900e-003	1.4900e-003		1.3700e-003	1.3700e-003	0.0000	5.3868	5.3868	1.7400e-003	0.0000	5.4303
Total	**3.4500e-003**	**0.0392**	**0.0251**	**6.0000e-005**	**1.7900e-003**	**1.4900e-003**	**3.2800e-003**	**1.9000e-004**	**1.3700e-003**	**1.5600e-003**	**0.0000**	**5.3868**	**5.3868**	**1.7400e-003**	**0.0000**	**5.4303**

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	4.3000e-004	3.1000e-004	3.6800e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9829	0.9829	3.0000e-005	3.0000e-005	0.9922
Total	**4.3000e-004**	**3.1000e-004**	**3.6800e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9829**	**0.9829**	**3.0000e-005**	**3.0000e-005**	**0.9922**

3.4 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					4.3900e-003	0.0000	4.3900e-003	6.6000e-004	0.0000	6.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.2327	0.1955	3.4000e-004		0.0117	0.0117		0.0110	0.0110	0.0000	29.5088	29.5088	7.5200e-003	0.0000	29.6968
Total	**0.0237**	**0.2327**	**0.1955**	**3.4000e-004**	**4.3900e-003**	**0.0117**	**0.0161**	**6.6000e-004**	**0.0110**	**0.0116**	**0.0000**	**29.5088**	**29.5088**	**7.5200e-003**	**0.0000**	**29.6968**

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	9.0000e-005	3.3700e-003	7.9000e-004	1.0000e-005	3.4000e-004	3.0000e-005	3.7000e-004	9.0000e-005	3.0000e-005	1.2000e-004	0.0000	1.2536	1.2536	6.0000e-005	2.0000e-004	1.3145
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	2.4200e-003	1.7600e-003	0.0206	6.0000e-005	6.7400e-003	4.0000e-005	6.7800e-003	1.7900e-003	4.0000e-005	1.8300e-003	0.0000	5.5042	5.5042	1.7000e-004	1.6000e-004	5.5562
Total	**2.5100e-003**	**5.1300e-003**	**0.0214**	**7.0000e-005**	**7.0800e-003**	**7.0000e-005**	**7.1500e-003**	**1.8800e-003**	**7.0000e-005**	**1.9500e-003**	**0.0000**	**6.7579**	**6.7579**	**2.3000e-004**	**3.6000e-004**	**6.8707**

3.4 Demolition - 2022

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					1.9700e-003	0.0000	1.9700e-003	3.0000e-004	0.0000	3.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0237	0.2327	0.1955	3.4000e-004		0.0117	0.0117		0.0110	0.0110	0.0000	29.5087	29.5087	7.5200e-003	0.0000	29.6967
Total	**0.0237**	**0.2327**	**0.1955**	**3.4000e-004**	**1.9700e-003**	**0.0117**	**0.0137**	**3.0000e-004**	**0.0110**	**0.0113**	**0.0000**	**29.5087**	**29.5087**	**7.5200e-003**	**0.0000**	**29.6967**

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	9.0000e-005	3.3700e-003	7.9000e-004	1.0000e-005	3.4000e-004	3.0000e-005	3.7000e-004	9.0000e-005	3.0000e-005	1.2000e-004	0.0000	1.2536	1.2536	6.0000e-005	2.0000e-004	1.3145
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	2.4200e-003	1.7600e-003	0.0206	6.0000e-005	6.7400e-003	4.0000e-005	6.7800e-003	1.7900e-003	4.0000e-005	1.8300e-003	0.0000	5.5042	5.5042	1.7000e-004	1.6000e-004	5.5562
Total	**2.5100e-003**	**5.1300e-003**	**0.0214**	**7.0000e-005**	**7.0800e-003**	**7.0000e-005**	**7.1500e-003**	**1.8800e-003**	**7.0000e-005**	**1.9500e-003**	**0.0000**	**6.7579**	**6.7579**	**2.3000e-004**	**3.6000e-004**	**6.8707**

3.5 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					0.0673	0.0000	0.0673	0.0325	0.0000	0.0325	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0146	0.1613	0.0876	2.0000e-004		7.0500e-003	7.0500e-003		6.4900e-003	6.4900e-003	0.0000	17.1976	17.1976	5.5600e-003	0.0000	17.3366
Total	**0.0146**	**0.1613**	**0.0876**	**2.0000e-004**	**0.0673**	**7.0500e-003**	**0.0744**	**0.0325**	**6.4900e-003**	**0.0390**	**0.0000**	**17.1976**	**17.1976**	**5.5600e-003**	**0.0000**	**17.3366**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.6100e-003	6.2000e-004	1.0000e-005	2.7000e-004	2.0000e-005	2.9000e-004	7.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.9716	0.9716	5.0000e-005	1.5000e-004	1.0187
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	1.6400e-003	1.1900e-003	0.0140	4.0000e-005	4.5700e-003	3.0000e-005	4.6000e-003	1.2100e-003	2.0000e-005	1.2400e-003	0.0000	3.7350	3.7350	1.2000e-004	1.1000e-004	3.7703
Total	**1.7100e-003**	**3.8000e-003**	**0.0146**	**5.0000e-005**	**4.8400e-003**	**5.0000e-005**	**4.8900e-003**	**1.2800e-003**	**4.0000e-005**	**1.3400e-003**	**0.0000**	**4.7066**	**4.7066**	**1.7000e-004**	**2.6000e-004**	**4.7890**

3.5 Grading - 2022

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					0.0303	0.0000	0.0303	0.0146	0.0000	0.0146	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0146	0.1613	0.0876	2.0000e-004		7.0500e-003	7.0500e-003		6.4900e-003	6.4900e-003	0.0000	17.1976	17.1976	5.5600e-003	0.0000	17.3366
Total	**0.0146**	**0.1613**	**0.0876**	**2.0000e-004**	**0.0303**	**7.0500e-003**	**0.0373**	**0.0146**	**6.4900e-003**	**0.0211**	**0.0000**	**17.1976**	**17.1976**	**5.5600e-003**	**0.0000**	**17.3366**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	2.6100e-003	6.2000e-004	1.0000e-005	2.7000e-004	2.0000e-005	2.9000e-004	7.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.9716	0.9716	5.0000e-005	1.5000e-004	1.0187
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	1.6400e-003	1.1900e-003	0.0140	4.0000e-005	4.5700e-003	3.0000e-005	4.6000e-003	1.2100e-003	2.0000e-005	1.2400e-003	0.0000	3.7350	3.7350	1.2000e-004	1.1000e-004	3.7703
Total	**1.7100e-003**	**3.8000e-003**	**0.0146**	**5.0000e-005**	**4.8400e-003**	**5.0000e-005**	**4.8900e-003**	**1.2800e-003**	**4.0000e-005**	**1.3400e-003**	**0.0000**	**4.7066**	**4.7066**	**1.7000e-004**	**2.6000e-004**	**4.7890**

3.6 Excavation - 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	9.1800e-003	0.0863	0.1373	2.1000e-004		4.4000e-003	4.4000e-003		4.0500e-003	4.0500e-003	0.0000	18.1721	18.1721	5.8800e-003	0.0000	18.3191
Total	**9.1800e-003**	**0.0863**	**0.1373**	**2.1000e-004**		**4.4000e-003**	**4.4000e-003**		**4.0500e-003**	**4.0500e-003**	**0.0000**	**18.1721**	**18.1721**	**5.8800e-003**	**0.0000**	**18.3191**

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	4.3300e-003	3.1400e-003	0.0368	1.1000e-004	0.0120	7.0000e-005	0.0121	3.2000e-003	6.0000e-005	3.2600e-003	0.0000	9.8290	9.8290	3.1000e-004	2.9000e-004	9.9218
Total	**4.3300e-003**	**3.1400e-003**	**0.0368**	**1.1000e-004**	**0.0120**	**7.0000e-005**	**0.0121**	**3.2000e-003**	**6.0000e-005**	**3.2600e-003**	**0.0000**	**9.8290**	**9.8290**	**3.1000e-004**	**2.9000e-004**	**9.9218**

3.6 Excavation - 2022

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	9.1800e-003	0.0863	0.1373	2.1000e-004		4.4000e-003	4.4000e-003		4.0500e-003	4.0500e-003	0.0000	18.1721	18.1721	5.8800e-003	0.0000	18.3191
Total	**9.1800e-003**	**0.0863**	**0.1373**	**2.1000e-004**		**4.4000e-003**	**4.4000e-003**		**4.0500e-003**	**4.0500e-003**	**0.0000**	**18.1721**	**18.1721**	**5.8800e-003**	**0.0000**	**18.3191**

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	4.3300e-003	3.1400e-003	0.0368	1.1000e-004	0.0120	7.0000e-005	0.0121	3.2000e-003	6.0000e-005	3.2600e-003	0.0000	9.8290	9.8290	3.1000e-004	2.9000e-004	9.9218
Total	**4.3300e-003**	**3.1400e-003**	**0.0368**	**1.1000e-004**	**0.0120**	**7.0000e-005**	**0.0121**	**3.2000e-003**	**6.0000e-005**	**3.2600e-003**	**0.0000**	**9.8290**	**9.8290**	**3.1000e-004**	**2.9000e-004**	**9.9218**

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	0.1219					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.0775	0.1078	1.8000e-004		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	15.1919	15.1919	9.1000e-004	0.0000	15.2146
Total	**0.1333**	**0.0775**	**0.1078**	**1.8000e-004**		**4.2100e-003**	**4.2100e-003**		**4.2100e-003**	**4.2100e-003**	**0.0000**	**15.1919**	**15.1919**	**9.1000e-004**	**0.0000**	**15.2146**

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	9.6500e-003	6.6800e-003	0.0814	2.5000e-004	0.0286	1.6000e-004	0.0288	7.6100e-003	1.4000e-004	7.7500e-003	0.0000	22.6538	22.6538	6.7000e-004	6.3000e-004	22.8589
Total	**9.6500e-003**	**6.6800e-003**	**0.0814**	**2.5000e-004**	**0.0286**	**1.6000e-004**	**0.0288**	**7.6100e-003**	**1.4000e-004**	**7.7500e-003**	**0.0000**	**22.6538**	**22.6538**	**6.7000e-004**	**6.3000e-004**	**22.8589**

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1219					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.0775	0.1078	1.8000e-004		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	15.1918	15.1918	9.1000e-004	0.0000	15.2146
Total	**0.1333**	**0.0775**	**0.1078**	**1.8000e-004**		**4.2100e-003**	**4.2100e-003**		**4.2100e-003**	**4.2100e-003**	**0.0000**	**15.1918**	**15.1918**	**9.1000e-004**	**0.0000**	**15.2146**

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	9.6500e-003	6.6800e-003	0.0814	2.5000e-004	0.0286	1.6000e-004	0.0288	7.6100e-003	1.4000e-004	7.7500e-003	0.0000	22.6538	22.6538	6.7000e-004	6.3000e-004	22.8589
Total	**9.6500e-003**	**6.6800e-003**	**0.0814**	**2.5000e-004**	**0.0286**	**1.6000e-004**	**0.0288**	**7.6100e-003**	**1.4000e-004**	**7.7500e-003**	**0.0000**	**22.6538**	**22.6538**	**6.7000e-004**	**6.3000e-004**	**22.8589**

3.7 Architectural Coating - 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					
Archit. Coating	0.0184					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**0.0201**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

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	1.3700e-003	9.1000e-004	0.0115	4.0000e-005	4.3300e-003	2.0000e-005	4.3500e-003	1.1500e-003	2.0000e-005	1.1700e-003	0.0000	3.3144	3.3144	9.0000e-005	9.0000e-005	3.3433
Total	**1.3700e-003**	**9.1000e-004**	**0.0115**	**4.0000e-005**	**4.3300e-003**	**2.0000e-005**	**4.3500e-003**	**1.1500e-003**	**2.0000e-005**	**1.1700e-003**	**0.0000**	**3.3144**	**3.3144**	**9.0000e-005**	**9.0000e-005**	**3.3433**

3.7 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0184					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**0.0201**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

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	1.3700e-003	9.1000e-004	0.0115	4.0000e-005	4.3300e-003	2.0000e-005	4.3500e-003	1.1500e-003	2.0000e-005	1.1700e-003	0.0000	3.3144	3.3144	9.0000e-005	9.0000e-005	3.3433
Total	**1.3700e-003**	**9.1000e-004**	**0.0115**	**4.0000e-005**	**4.3300e-003**	**2.0000e-005**	**4.3500e-003**	**1.1500e-003**	**2.0000e-005**	**1.1700e-003**	**0.0000**	**3.3144**	**3.3144**	**9.0000e-005**	**9.0000e-005**	**3.3433**

3.8 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	3.5200e-003	0.0344	0.0467	7.0000e-005		1.7400e-003	1.7400e-003		1.6000e-003	1.6000e-003	0.0000	6.2051	6.2051	1.9700e-003	0.0000	6.2543
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5200e-003**	**0.0344**	**0.0467**	**7.0000e-005**		**1.7400e-003**	**1.7400e-003**		**1.6000e-003**	**1.6000e-003**	**0.0000**	**6.2051**	**6.2051**	**1.9700e-003**	**0.0000**	**6.2543**

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	6.5000e-004	4.5000e-004	5.4700e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5229	1.5229	5.0000e-005	4.0000e-005	1.5367
Total	**6.5000e-004**	**4.5000e-004**	**5.4700e-003**	**2.0000e-005**	**1.9200e-003**	**1.0000e-005**	**1.9400e-003**	**5.1000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.5229**	**1.5229**	**5.0000e-005**	**4.0000e-005**	**1.5367**

3.8 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5200e-003	0.0344	0.0467	7.0000e-005		1.7400e-003	1.7400e-003		1.6000e-003	1.6000e-003	0.0000	6.2051	6.2051	1.9700e-003	0.0000	6.2543
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5200e-003**	**0.0344**	**0.0467**	**7.0000e-005**		**1.7400e-003**	**1.7400e-003**		**1.6000e-003**	**1.6000e-003**	**0.0000**	**6.2051**	**6.2051**	**1.9700e-003**	**0.0000**	**6.2543**

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	6.5000e-004	4.5000e-004	5.4700e-003	2.0000e-005	1.9200e-003	1.0000e-005	1.9400e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5229	1.5229	5.0000e-005	4.0000e-005	1.5367
Total	**6.5000e-004**	**4.5000e-004**	**5.4700e-003**	**2.0000e-005**	**1.9200e-003**	**1.0000e-005**	**1.9400e-003**	**5.1000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.5229**	**1.5229**	**5.0000e-005**	**4.0000e-005**	**1.5367**

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	0.1890	0.2066	1.7139	3.5400e-003	0.3768	2.7900e-003	0.3796	0.1006	2.6000e-003	0.1032	0.0000	327.3273	327.3273	0.0243	0.0153	332.4965
Unmitigated	0.1890	0.2066	1.7139	3.5400e-003	0.3768	2.7900e-003	0.3796	0.1006	2.6000e-003	0.1032	0.0000	327.3273	327.3273	0.0243	0.0153	332.4965

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	400.00	400.00	400.00	1,007,375	1,007,375
Total	400.00	400.00	400.00	1,007,375	1,007,375

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
Hospital	9.50	7.30	7.30	64.90	16.10	19.00	73	25	2

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

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	73.1598	73.1598	4.8600e-003	5.9000e-004	73.4567
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	73.1598	73.1598	4.8600e-003	5.9000e-004	73.4567
NaturalGas Mitigated	6.2500e-003	0.0569	0.0478	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003	0.0000	61.8838	61.8838	1.1900e-003	1.1300e-003	62.2515
NaturalGas Unmitigated	6.2500e-003	0.0569	0.0478	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003	0.0000	61.8838	61.8838	1.1900e-003	1.1300e-003	62.2515

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					
Hospital	1.15966e+006	6.2500e-003	0.0569	0.0478	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003	0.0000	61.8838	61.8838	1.1900e-003	1.1300e-003	62.2515
Total		**6.2500e-003**	**0.0569**	**0.0478**	**3.4000e-004**		**4.3200e-003**	**4.3200e-003**		**4.3200e-003**	**4.3200e-003**	**0.0000**	**61.8838**	**61.8838**	**1.1900e-003**	**1.1300e-003**	**62.2515**

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					
Hospital	1.15966e+006	6.2500e-003	0.0569	0.0478	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003	0.0000	61.8838	61.8838	1.1900e-003	1.1300e-003	62.2515
Total		**6.2500e-003**	**0.0569**	**0.0478**	**3.4000e-004**		**4.3200e-003**	**4.3200e-003**		**4.3200e-003**	**4.3200e-003**	**0.0000**	**61.8838**	**61.8838**	**1.1900e-003**	**1.1300e-003**	**62.2515**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	324527	73.1598	4.8600e-003	5.9000e-004	73.4567
Total		**73.1598**	**4.8600e-003**	**5.9000e-004**	**73.4567**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	324527	73.1598	4.8600e-003	5.9000e-004	73.4567
Total		**73.1598**	**4.8600e-003**	**5.9000e-004**	**73.4567**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive 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	0.0929	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004
Unmitigated	0.0929	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004

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	0.0140					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0788					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004
Total	**0.0929**	**0.0000**	**1.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**0.0000**	**3.8000e-004**

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	0.0140					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0788					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	1.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	3.6000e-004	3.6000e-004	0.0000	0.0000	3.8000e-004
Total	**0.0929**	**0.0000**	**1.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**0.0000**	**3.8000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.4788	0.0472	1.1500e-003	6.9993
Unmitigated	6.6996	0.0589	1.4300e-003	8.5996

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	1.79627 / 0.342147	6.6996	0.0589	1.4300e-003	8.5996
Total		**6.6996**	**0.0589**	**1.4300e-003**	**8.5996**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	1.43702 / 0.321276	5.4788	0.0472	1.1500e-003	6.9993
Total		**5.4788**	**0.0472**	**1.1500e-003**	**6.9993**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.9637	0.1752	0.0000	7.3424
Unmitigated	11.8547	0.7006	0.0000	29.3695

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	58.4	11.8547	0.7006	0.0000	29.3695
Total		**11.8547**	**0.7006**	**0.0000**	**29.3695**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	14.6	2.9637	0.1752	0.0000	7.3424
Total		**2.9637**	**0.1752**	**0.0000**	**7.3424**

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

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

Sharp Grossmont Hosptial - Brain & Spine

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	20.00	Bed	2.19	20,182.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	497	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Linear interpolation of 497 lb/MWh for CO2 for 2024 based on 2016 and 2025 EFs in Appendix X of the SANDAG Regional Plan

Land Use - 20 beds; 20,182 sf; and 2.19 acres per Applicant

Construction Phase - Per Project schedule.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Per Applicant

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Conservatively assume 30 workers per day = 60 one-way worker trips per day; hauling and vendor trips CalEEMod defaults

Demolition - 8,800 building sf exported per Applicant

Grading - 250 CY export per Applicant

Architectural Coating - Per SDAPCD Rule 67.0, 150 g/L arch coatings VOC content

Vehicle Trips - 20 trips/day per new bed

Area Coating - Per SDAPCD Rule 67.0, 150 g/L arch coatings VOC content

Construction Off-road Equipment Mitigation - SDAPCD Rule 55

Area Mitigation -

Water Mitigation - 2019 CalGreen Code

Waste Mitigation - Per AB 341

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblConstructionPhase	NumDays	10.00	137.00
tblConstructionPhase	NumDays	220.00	445.00
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	6.00	19.00
tblConstructionPhase	NumDays	10.00	8.00
tblConstructionPhase	NumDays	3.00	5.00
tblGrading	MaterialExported	0.00	250.00
tblLandUse	LandUseSquareFeet	14,315.15	20,182.00
tblLandUse	LotAcreage	0.33	2.19
tblProjectCharacteristics	CO2IntensityFactor	539.98	497
tblTripsAndVMT	WorkerTripNumber	6.00	60.00
tblTripsAndVMT	WorkerTripNumber	8.00	60.00
tblTripsAndVMT	WorkerTripNumber	13.00	60.00
tblTripsAndVMT	WorkerTripNumber	10.00	60.00
tblTripsAndVMT	WorkerTripNumber	5.00	60.00

tblTripsAndVMT	WorkerTripNumber	1.00	60.00
tblTripsAndVMT	WorkerTripNumber	15.00	60.00
tblVehicleTrips	ST_TR	13.76	20.00
tblVehicleTrips	SU_TR	12.88	20.00
tblVehicleTrips	WD_TR	22.32	20.00

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	5.5039	47.6839	42.9007	0.0880	8.6120	2.1476	10.2451	3.8309	2.0151	5.3607	0.0000	8,444.2719	8,444.2719	1.8506	0.0662	8,509.6065
2023	5.3708	24.0143	31.8622	0.0588	1.4990	1.1270	2.6260	0.3981	1.0672	1.4652	0.0000	5,595.3823	5,595.3823	1.0319	0.0452	5,634.6578
2024	4.1644	14.3813	18.5149	0.0366	1.0061	0.6048	1.6109	0.2673	0.5816	0.8489	0.0000	3,441.1320	3,441.1320	0.4675	0.0316	3,462.2467
Maximum	**5.5039**	**47.6839**	**42.9007**	**0.0880**	**8.6120**	**2.1476**	**10.2451**	**3.8309**	**2.0151**	**5.3607**	**0.0000**	**8,444.2719**	**8,444.2719**	**1.8506**	**0.0662**	**8,509.6065**

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	5.5039	47.6839	42.9007	0.0880	4.7155	2.1476	6.3487	1.9472	2.0151	3.4769	0.0000	8,444.2719	8,444.2719	1.8506	0.0662	8,509.6065
2023	5.3708	24.0143	31.8622	0.0588	1.4990	1.1270	2.6260	0.3981	1.0672	1.4652	0.0000	5,595.3823	5,595.3823	1.0319	0.0452	5,634.6578
2024	4.1644	14.3813	18.5149	0.0366	1.0061	0.6048	1.6109	0.2673	0.5816	0.8489	0.0000	3,441.1320	3,441.1320	0.4675	0.0316	3,462.2467
Maximum	**5.5039**	**47.6839**	**42.9007**	**0.0880**	**4.7155**	**2.1476**	**6.3487**	**1.9472**	**2.0151**	**3.4769**	**0.0000**	**8,444.2719**	**8,444.2719**	**1.8506**	**0.0662**	**8,509.6065**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	35.05	0.00	26.91	41.90	0.00	24.54	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	0.5090	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003
Energy	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029
Mobile	1.0585	1.1489	9.6193	0.0193	2.1206	0.0153	2.1360	0.5649	0.0143	0.5792		1,971.5620	1,971.5620	0.1501	0.0937	2,003.2407
Total	**1.6017**	**1.4604**	**9.8830**	**0.0212**	**2.1206**	**0.0390**	**2.1596**	**0.5649**	**0.0380**	**0.6029**		**2,345.3481**	**2,345.3481**	**0.1572**	**0.1006**	**2,379.2483**

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	0.5090	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003
Energy	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029
Mobile	1.0585	1.1489	9.6193	0.0193	2.1206	0.0153	2.1360	0.5649	0.0143	0.5792		1,971.5620	1,971.5620	0.1501	0.0937	2,003.2407
Total	**1.6017**	**1.4604**	**9.8830**	**0.0212**	**2.1206**	**0.0390**	**2.1596**	**0.5649**	**0.0380**	**0.6029**		**2,345.3481**	**2,345.3481**	**0.1572**	**0.1006**	**2,379.2483**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	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	Building Construction	Building Construction	8/18/2022	5/1/2024	5	445	
2	Site Preparation	Site Preparation	8/19/2022	8/25/2022	5	5	
3	Demolition	Demolition	8/23/2022	9/29/2022	5	28	
4	Grading	Grading	9/30/2022	10/26/2022	5	19	
5	Excavation	Trenching	10/10/2022	12/16/2022	5	50	
6	Architectural Coating	Architectural Coating	7/18/2023	1/24/2024	5	137	
7	Paving	Paving	11/10/2023	11/21/2023	5	8	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 19

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 30,273; Non-Residential Outdoor: 10,091; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37

Building Construction	Welders		3	8.00	46	0.45
Site Preparation	Graders		1	8.00	187	0.41
Site Preparation	Scrapers		1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes		1	7.00	97	0.37
Demolition	Concrete/Industrial Saws		1	8.00	81	0.73
Demolition	Rubber Tired Dozers		1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes		3	8.00	97	0.37
Grading	Graders		1	8.00	187	0.41
Grading	Rubber Tired Dozers		1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes		2	7.00	97	0.37
Excavation	Excavators		1	8.00	158	0.38
Excavation	Tractors/Loaders/Backhoes		1	8.00	97	0.37
Architectural Coating	Air Compressors		1	6.00	78	0.48
Paving	Cement and Mortar Mixers		1	8.00	9	0.56
Paving	Pavers		1	8.00	130	0.42
Paving	Paving Equipment		1	8.00	132	0.36
Paving	Rollers		2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes		1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	8	60.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	60.00	0.00	40.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	60.00	0.00	31.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	2	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Paving	6	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 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	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731		2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**		**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

3.2 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	0.0000
Vendor	6.6200e-003	0.1656	0.0550	6.4000e-004	0.0203	1.7400e-003	0.0221	5.8500e-003	1.6600e-003	7.5100e-003		68.9831	68.9831	2.0900e-003	0.0100	72.0218
Worker	0.1894	0.1282	1.4730	4.2500e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		429.5678	429.5678	0.0140	0.0128	433.7196
Total	**0.1960**	**0.2938**	**1.5280**	**4.8900e-003**	**0.5132**	**4.5300e-003**	**0.5177**	**0.1366**	**4.2300e-003**	**0.1408**		**498.5509**	**498.5509**	**0.0161**	**0.0228**	**505.7414**

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	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731	0.0000	2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**	**0.0000**	**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

3.2 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	0.0000
Vendor	6.6200e-003	0.1656	0.0550	6.4000e-004	0.0203	1.7400e-003	0.0221	5.8500e-003	1.6600e-003	7.5100e-003		68.9831	68.9831	2.0900e-003	0.0100	72.0218
Worker	0.1894	0.1282	1.4730	4.2500e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		429.5678	429.5678	0.0140	0.0128	433.7196
Total	**0.1960**	**0.2938**	**1.5280**	**4.8900e-003**	**0.5132**	**4.5300e-003**	**0.5177**	**0.1366**	**4.2300e-003**	**0.1408**		**498.5509**	**498.5509**	**0.0161**	**0.0228**	**505.7414**

3.2 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	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

3.2 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	0.0000
Vendor	3.4800e-003	0.1340	0.0477	6.2000e-004	0.0203	7.9000e-004	0.0211	5.8500e-003	7.5000e-004	6.6000e-003		66.4084	66.4084	2.0000e-003	9.6200e-003	69.3264
Worker	0.1778	0.1145	1.3683	4.1200e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		416.0034	416.0034	0.0127	0.0119	419.8577
Total	**0.1813**	**0.2485**	**1.4160**	**4.7400e-003**	**0.5132**	**3.4300e-003**	**0.5166**	**0.1366**	**3.1800e-003**	**0.1398**		**482.4117**	**482.4117**	**0.0147**	**0.0215**	**489.1841**

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	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

3.2 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	0.0000
Vendor	3.4800e-003	0.1340	0.0477	6.2000e-004	0.0203	7.9000e-004	0.0211	5.8500e-003	7.5000e-004	6.6000e-003		66.4084	66.4084	2.0000e-003	9.6200e-003	69.3264
Worker	0.1778	0.1145	1.3683	4.1200e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		416.0034	416.0034	0.0127	0.0119	419.8577
Total	**0.1813**	**0.2485**	**1.4160**	**4.7400e-003**	**0.5132**	**3.4300e-003**	**0.5166**	**0.1366**	**3.1800e-003**	**0.1398**		**482.4117**	**482.4117**	**0.0147**	**0.0215**	**489.1841**

3.2 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	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153		2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**		**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

3.2 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	0.0000
Vendor	3.3400e-003	0.1331	0.0467	6.0000e-004	0.0203	7.9000e-004	0.0211	5.8500e-003	7.6000e-004	6.6100e-003		65.2532	65.2532	2.0500e-003	9.4600e-003	68.1222
Worker	0.1674	0.1030	1.2790	3.9800e-003	0.4929	2.5200e-003	0.4954	0.1307	2.3200e-003	0.1331		402.3883	402.3883	0.0116	0.0111	405.9825
Total	**0.1707**	**0.2361**	**1.3256**	**4.5800e-003**	**0.5132**	**3.3100e-003**	**0.5165**	**0.1366**	**3.0800e-003**	**0.1397**		**467.6415**	**467.6415**	**0.0136**	**0.0206**	**474.1046**

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	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153	0.0000	2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**	**0.0000**	**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

3.2 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	0.0000
Vendor	3.3400e-003	0.1331	0.0467	6.0000e-004	0.0203	7.9000e-004	0.0211	5.8500e-003	7.6000e-004	6.6100e-003		65.2532	65.2532	2.0500e-003	9.4600e-003	68.1222
Worker	0.1674	0.1030	1.2790	3.9800e-003	0.4929	2.5200e-003	0.4954	0.1307	2.3200e-003	0.1331		402.3883	402.3883	0.0116	0.0111	405.9825
Total	**0.1707**	**0.2361**	**1.3256**	**4.5800e-003**	**0.5132**	**3.3100e-003**	**0.5165**	**0.1366**	**3.0800e-003**	**0.1397**		**467.6415**	**467.6415**	**0.0136**	**0.0206**	**474.1046**

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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476		2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**1.5908**	**0.5952**	**2.1859**	**0.1718**	**0.5476**	**0.7193**		**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

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	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
Worker	0.1894	0.1282	1.4730	4.2500e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		429.5678	429.5678	0.0140	0.0128	433.7196
Total	**0.1894**	**0.1282**	**1.4730**	**4.2500e-003**	**0.4929**	**2.7900e-003**	**0.4957**	**0.1307**	**2.5700e-003**	**0.1333**		**429.5678**	**429.5678**	**0.0140**	**0.0128**	**433.7196**

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					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476	0.0000	2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**0.7158**	**0.5952**	**1.3110**	**0.0773**	**0.5476**	**0.6249**	**0.0000**	**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

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	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
Worker	0.1894	0.1282	1.4730	4.2500e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		429.5678	429.5678	0.0140	0.0128	433.7196
Total	**0.1894**	**0.1282**	**1.4730**	**4.2500e-003**	**0.4929**	**2.7900e-003**	**0.4957**	**0.1307**	**2.5700e-003**	**0.1333**		**429.5678**	**429.5678**	**0.0140**	**0.0128**	**433.7196**

3.4 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					0.3132	0.0000	0.3132	0.0474	0.0000	0.0474			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829		2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**0.3132**	**0.8379**	**1.1511**	**0.0474**	**0.7829**	**0.8303**		**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

3.4 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	6.2400e-003	0.2407	0.0573	9.0000e-004	0.0250	2.2400e-003	0.0272	6.8500e-003	2.1400e-003	8.9900e-003		98.7303	98.7303	4.7400e-003	0.0157	103.5227
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
Worker	0.1894	0.1282	1.4730	4.2500e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		429.5678	429.5678	0.0140	0.0128	433.7196
Total	**0.1956**	**0.3689**	**1.5302**	**5.1500e-003**	**0.5179**	**5.0300e-003**	**0.5229**	**0.1376**	**4.7100e-003**	**0.1423**		**528.2981**	**528.2981**	**0.0187**	**0.0284**	**537.2422**

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					0.1410	0.0000	0.1410	0.0214	0.0000	0.0214			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829	0.0000	2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**0.1410**	**0.8379**	**0.9789**	**0.0214**	**0.7829**	**0.8042**	**0.0000**	**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

3.4 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	6.2400e-003	0.2407	0.0573	9.0000e-004	0.0250	2.2400e-003	0.0272	6.8500e-003	2.1400e-003	8.9900e-003		98.7303	98.7303	4.7400e-003	0.0157	103.5227
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
Worker	0.1894	0.1282	1.4730	4.2500e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		429.5678	429.5678	0.0140	0.0128	433.7196
Total	**0.1956**	**0.3689**	**1.5302**	**5.1500e-003**	**0.5179**	**5.0300e-003**	**0.5229**	**0.1376**	**4.7100e-003**	**0.1423**		**528.2981**	**528.2981**	**0.0187**	**0.0284**	**537.2422**

3.5 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					7.0844	0.0000	7.0844	3.4250	0.0000	3.4250			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.0844**	**0.7423**	**7.8267**	**3.4250**	**0.6829**	**4.1079**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

3.5 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	7.1200e-003	0.2749	0.0654	1.0200e-003	0.0285	2.5600e-003	0.0311	7.8200e-003	2.4500e-003	0.0103		112.7604	112.7604	5.4100e-003	0.0179	118.2338
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
Worker	0.1894	0.1282	1.4730	4.2500e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		429.5678	429.5678	0.0140	0.0128	433.7196
Total	**0.1965**	**0.4031**	**1.5384**	**5.2700e-003**	**0.5214**	**5.3500e-003**	**0.5268**	**0.1386**	**5.0200e-003**	**0.1436**		**542.3282**	**542.3282**	**0.0194**	**0.0307**	**551.9533**

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					3.1880	0.0000	3.1880	1.5413	0.0000	1.5413			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**3.1880**	**0.7423**	**3.9303**	**1.5413**	**0.6829**	**2.2242**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

3.5 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	7.1200e-003	0.2749	0.0654	1.0200e-003	0.0285	2.5600e-003	0.0311	7.8200e-003	2.4500e-003	0.0103		112.7604	112.7604	5.4100e-003	0.0179	118.2338
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
Worker	0.1894	0.1282	1.4730	4.2500e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		429.5678	429.5678	0.0140	0.0128	433.7196
Total	**0.1965**	**0.4031**	**1.5384**	**5.2700e-003**	**0.5214**	**5.3500e-003**	**0.5268**	**0.1386**	**5.0200e-003**	**0.1436**		**542.3282**	**542.3282**	**0.0194**	**0.0307**	**551.9533**

3.6 Excavation - 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	0.3671	3.4526	5.4931	8.2800e-003		0.1760	0.1760		0.1620	0.1620		801.2542	801.2542	0.2591		807.7328
Total	**0.3671**	**3.4526**	**5.4931**	**8.2800e-003**		**0.1760**	**0.1760**		**0.1620**	**0.1620**		**801.2542**	**801.2542**	**0.2591**		**807.7328**

3.6 Excavation - 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	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
Worker	0.1894	0.1282	1.4730	4.2500e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		429.5678	429.5678	0.0140	0.0128	433.7196
Total	**0.1894**	**0.1282**	**1.4730**	**4.2500e-003**	**0.4929**	**2.7900e-003**	**0.4957**	**0.1307**	**2.5700e-003**	**0.1333**		**429.5678**	**429.5678**	**0.0140**	**0.0128**	**433.7196**

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	0.3671	3.4526	5.4931	8.2800e-003		0.1760	0.1760		0.1620	0.1620	0.0000	801.2542	801.2542	0.2591		807.7328
Total	**0.3671**	**3.4526**	**5.4931**	**8.2800e-003**		**0.1760**	**0.1760**		**0.1620**	**0.1620**	**0.0000**	**801.2542**	**801.2542**	**0.2591**		**807.7328**

3.6 Excavation - 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	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
Worker	0.1894	0.1282	1.4730	4.2500e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		429.5678	429.5678	0.0140	0.0128	433.7196
Total	**0.1894**	**0.1282**	**1.4730**	**4.2500e-003**	**0.4929**	**2.7900e-003**	**0.4957**	**0.1307**	**2.5700e-003**	**0.1333**		**429.5678**	**429.5678**	**0.0140**	**0.0128**	**433.7196**

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	2.0484					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	**2.2401**	**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	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
Worker	0.1778	0.1145	1.3683	4.1200e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		416.0034	416.0034	0.0127	0.0119	419.8577
Total	**0.1778**	**0.1145**	**1.3683**	**4.1200e-003**	**0.4929**	**2.6400e-003**	**0.4955**	**0.1307**	**2.4300e-003**	**0.1332**		**416.0034**	**416.0034**	**0.0127**	**0.0119**	**419.8577**

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	2.0484					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	**2.2401**	**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	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
Worker	0.1778	0.1145	1.3683	4.1200e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		416.0034	416.0034	0.0127	0.0119	419.8577
Total	**0.1778**	**0.1145**	**1.3683**	**4.1200e-003**	**0.4929**	**2.6400e-003**	**0.4955**	**0.1307**	**2.4300e-003**	**0.1332**		**416.0034**	**416.0034**	**0.0127**	**0.0119**	**419.8577**

3.7 Architectural Coating - 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					
Archit. Coating	2.0484					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**2.2292**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 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	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
Worker	0.1674	0.1030	1.2790	3.9800e-003	0.4929	2.5200e-003	0.4954	0.1307	2.3200e-003	0.1331		402.3883	402.3883	0.0116	0.0111	405.9825
Total	**0.1674**	**0.1030**	**1.2790**	**3.9800e-003**	**0.4929**	**2.5200e-003**	**0.4954**	**0.1307**	**2.3200e-003**	**0.1331**		**402.3883**	**402.3883**	**0.0116**	**0.0111**	**405.9825**

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	2.0484					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**2.2292**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 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	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
Worker	0.1674	0.1030	1.2790	3.9800e-003	0.4929	2.5200e-003	0.4954	0.1307	2.3200e-003	0.1331		402.3883	402.3883	0.0116	0.0111	405.9825
Total	**0.1674**	**0.1030**	**1.2790**	**3.9800e-003**	**0.4929**	**2.5200e-003**	**0.4954**	**0.1307**	**2.3200e-003**	**0.1331**		**402.3883**	**402.3883**	**0.0116**	**0.0111**	**405.9825**

3.8 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	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003		1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8802**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**		**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

3.8 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	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
Worker	0.1778	0.1145	1.3683	4.1200e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		416.0034	416.0034	0.0127	0.0119	419.8577
Total	**0.1778**	**0.1145**	**1.3683**	**4.1200e-003**	**0.4929**	**2.6400e-003**	**0.4955**	**0.1307**	**2.4300e-003**	**0.1332**		**416.0034**	**416.0034**	**0.0127**	**0.0119**	**419.8577**

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	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003	0.0000	1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8802**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**	**0.0000**	**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

3.8 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	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
Worker	0.1778	0.1145	1.3683	4.1200e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		416.0034	416.0034	0.0127	0.0119	419.8577
Total	**0.1778**	**0.1145**	**1.3683**	**4.1200e-003**	**0.4929**	**2.6400e-003**	**0.4955**	**0.1307**	**2.4300e-003**	**0.1332**		**416.0034**	**416.0034**	**0.0127**	**0.0119**	**419.8577**

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	1.0585	1.1489	9.6193	0.0193	2.1206	0.0153	2.1360	0.5649	0.0143	0.5792		1,971.5620	1,971.5620	0.1501	0.0937	2,003.2407
Unmitigated	1.0585	1.1489	9.6193	0.0193	2.1206	0.0153	2.1360	0.5649	0.0143	0.5792		1,971.5620	1,971.5620	0.1501	0.0937	2,003.2407

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	400.00	400.00	400.00	1,007,375	1,007,375
Total	400.00	400.00	400.00	1,007,375	1,007,375

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
Hospital	9.50	7.30	7.30	64.90	16.10	19.00	73	25	2

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

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	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029
NaturalGas Unmitigated	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029

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					
Hospital	3177.14	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029
Total		**0.0343**	**0.3115**	**0.2617**	**1.8700e-003**		**0.0237**	**0.0237**		**0.0237**	**0.0237**		**373.7817**	**373.7817**	**7.1600e-003**	**6.8500e-003**	**376.0029**

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					
Hospital	3.17714	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029
Total		**0.0343**	**0.3115**	**0.2617**	**1.8700e-003**		**0.0237**	**0.0237**		**0.0237**	**0.0237**		**373.7817**	**373.7817**	**7.1600e-003**	**6.8500e-003**	**376.0029**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive 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	0.5090	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003
Unmitigated	0.5090	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003

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	0.0769					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003
Total	**0.5090**	**2.0000e-005**	**2.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.3800e-003**	**4.3800e-003**	**1.0000e-005**		**4.6600e-003**

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	0.0769					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003
Total	**0.5090**	**2.0000e-005**	**2.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.3800e-003**	**4.3800e-003**	**1.0000e-005**		**4.6600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

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

Sharp Grossmont Hosptial - Brain & Spine

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	20.00	Bed	2.19	20,182.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	497	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Linear interpolation of 497 lb/MWh for CO2 for 2024 based on 2016 and 2025 EFs in Appendix X of the SANDAG Regional Plan

Land Use - 20 beds; 20,182 sf; and 2.19 acres per Applicant

Construction Phase - Per Project schedule.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Per Applicant

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Conservatively assume 30 workers per day = 60 one-way worker trips per day; hauling and vendor trips CalEEMod defaults

Demolition - 8,800 building sf exported per Applicant

Grading - 250 CY export per Applicant

Architectural Coating - Per SDAPCD Rule 67.0, 150 g/L arch coatings VOC content

Vehicle Trips - 20 trips/day per new bed

Area Coating - Per SDAPCD Rule 67.0, 150 g/L arch coatings VOC content

Construction Off-road Equipment Mitigation - SDAPCD Rule 55

Area Mitigation -

Water Mitigation - 2019 CalGreen Code

Waste Mitigation - Per AB 341

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblConstructionPhase	NumDays	10.00	137.00
tblConstructionPhase	NumDays	220.00	445.00
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	6.00	19.00
tblConstructionPhase	NumDays	10.00	8.00
tblConstructionPhase	NumDays	3.00	5.00
tblGrading	MaterialExported	0.00	250.00
tblLandUse	LandUseSquareFeet	14,315.15	20,182.00
tblLandUse	LotAcreage	0.33	2.19
tblProjectCharacteristics	CO2IntensityFactor	539.98	497
tblTripsAndVMT	WorkerTripNumber	6.00	60.00
tblTripsAndVMT	WorkerTripNumber	8.00	60.00
tblTripsAndVMT	WorkerTripNumber	13.00	60.00
tblTripsAndVMT	WorkerTripNumber	10.00	60.00
tblTripsAndVMT	WorkerTripNumber	5.00	60.00

tblTripsAndVMT	WorkerTripNumber	1.00	60.00
tblTripsAndVMT	WorkerTripNumber	15.00	60.00
tblVehicleTrips	ST_TR	13.76	20.00
tblVehicleTrips	SU_TR	12.88	20.00
tblVehicleTrips	WD_TR	22.32	20.00

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	5.4612	47.6265	43.1400	0.0887	8.6120	2.1476	10.2451	3.8309	2.0150	5.3606	0.0000	8,519.3654	8,519.3654	1.8482	0.0633	8,583.7699
2023	5.3294	23.9708	32.0758	0.0595	1.4990	1.1270	2.6260	0.3981	1.0672	1.4652	0.0000	5,667.8733	5,667.8733	1.0296	0.0425	5,706.2842
2024	4.1377	14.3531	18.6422	0.0370	1.0061	0.6048	1.6109	0.2673	0.5816	0.8489	0.0000	3,487.7305	3,487.7305	0.4661	0.0299	3,508.3055
Maximum	**5.4612**	**47.6265**	**43.1400**	**0.0887**	**8.6120**	**2.1476**	**10.2451**	**3.8309**	**2.0150**	**5.3606**	**0.0000**	**8,519.3654**	**8,519.3654**	**1.8482**	**0.0633**	**8,583.7699**

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	5.4612	47.6265	43.1400	0.0887	4.7155	2.1476	6.3487	1.9472	2.0150	3.4769	0.0000	8,519.3654	8,519.3654	1.8482	0.0633	8,583.7698
2023	5.3294	23.9708	32.0758	0.0595	1.4990	1.1270	2.6260	0.3981	1.0672	1.4652	0.0000	5,667.8733	5,667.8733	1.0296	0.0425	5,706.2842
2024	4.1377	14.3531	18.6422	0.0370	1.0061	0.6048	1.6109	0.2673	0.5816	0.8489	0.0000	3,487.7305	3,487.7305	0.4661	0.0299	3,508.3055
Maximum	**5.4612**	**47.6265**	**43.1400**	**0.0887**	**4.7155**	**2.1476**	**6.3487**	**1.9472**	**2.0150**	**3.4769**	**0.0000**	**8,519.3654**	**8,519.3654**	**1.8482**	**0.0633**	**8,583.7698**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	35.05	0.00	26.91	41.90	0.00	24.54	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	0.5090	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003
Energy	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029
Mobile	1.0859	1.0595	9.3360	0.0202	2.1206	0.0153	2.1360	0.5649	0.0143	0.5792		2,060.5315	2,060.5315	0.1413	0.0889	2,090.5451
Total	**1.6292**	**1.3710**	**9.5997**	**0.0221**	**2.1206**	**0.0390**	**2.1596**	**0.5649**	**0.0380**	**0.6029**		**2,434.3176**	**2,434.3176**	**0.1485**	**0.0957**	**2,466.5527**

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	0.5090	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003
Energy	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029
Mobile	1.0859	1.0595	9.3360	0.0202	2.1206	0.0153	2.1360	0.5649	0.0143	0.5792		2,060.5315	2,060.5315	0.1413	0.0889	2,090.5451
Total	**1.6292**	**1.3710**	**9.5997**	**0.0221**	**2.1206**	**0.0390**	**2.1596**	**0.5649**	**0.0380**	**0.6029**		**2,434.3176**	**2,434.3176**	**0.1485**	**0.0957**	**2,466.5527**

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	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	Building Construction	Building Construction	8/18/2022	5/1/2024	5	445	
2	Site Preparation	Site Preparation	8/19/2022	8/25/2022	5	5	
3	Demolition	Demolition	8/23/2022	9/29/2022	5	28	
4	Grading	Grading	9/30/2022	10/26/2022	5	19	
5	Excavation	Trenching	10/10/2022	12/16/2022	5	50	
6	Architectural Coating	Architectural Coating	7/18/2023	1/24/2024	5	137	
7	Paving	Paving	11/10/2023	11/21/2023	5	8	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 19

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 30,273; Non-Residential Outdoor: 10,091; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37

Building Construction	Welders	3	8.00	46	0.45
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Excavation	Excavators	1	8.00	158	0.38
Excavation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	8	60.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	60.00	0.00	40.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	60.00	0.00	31.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	2	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Paving		6	60.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 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	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731		2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**		**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

3.2 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	0.0000
Vendor	6.6800e-003	0.1595	0.0534	6.4000e-004	0.0203	1.7300e-003	0.0221	5.8500e-003	1.6600e-003	7.5100e-003		68.9477	68.9477	2.1000e-003	0.0100	71.9824
Worker	0.1751	0.1140	1.5536	4.5000e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		454.6247	454.6247	0.0131	0.0118	458.4684
Total	**0.1818**	**0.2735**	**1.6069**	**5.1400e-003**	**0.5132**	**4.5200e-003**	**0.5177**	**0.1366**	**4.2300e-003**	**0.1408**		**523.5724**	**523.5724**	**0.0152**	**0.0218**	**530.4508**

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	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731	0.0000	2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**	**0.0000**	**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

3.2 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	0.0000
Vendor	6.6800e-003	0.1595	0.0534	6.4000e-004	0.0203	1.7300e-003	0.0221	5.8500e-003	1.6600e-003	7.5100e-003		68.9477	68.9477	2.1000e-003	0.0100	71.9824
Worker	0.1751	0.1140	1.5536	4.5000e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		454.6247	454.6247	0.0131	0.0118	458.4684
Total	**0.1818**	**0.2735**	**1.6069**	**5.1400e-003**	**0.5132**	**4.5200e-003**	**0.5177**	**0.1366**	**4.2300e-003**	**0.1408**		**523.5724**	**523.5724**	**0.0152**	**0.0218**	**530.4508**

3.2 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	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

3.2 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	0.0000
Vendor	3.5800e-003	0.1286	0.0463	6.1000e-004	0.0203	7.8000e-004	0.0211	5.8500e-003	7.5000e-004	6.6000e-003		66.3141	66.3141	2.0100e-003	9.6000e-003	69.2257
Worker	0.1640	0.1018	1.4399	4.3500e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		440.1984	440.1984	0.0119	0.0110	443.7668
Total	**0.1676**	**0.2304**	**1.4863**	**4.9600e-003**	**0.5132**	**3.4200e-003**	**0.5166**	**0.1366**	**3.1800e-003**	**0.1398**		**506.5125**	**506.5125**	**0.0139**	**0.0206**	**512.9924**

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	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

3.2 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	0.0000
Vendor	3.5800e-003	0.1286	0.0463	6.1000e-004	0.0203	7.8000e-004	0.0211	5.8500e-003	7.5000e-004	6.6000e-003		66.3141	66.3141	2.0100e-003	9.6000e-003	69.2257
Worker	0.1640	0.1018	1.4399	4.3500e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		440.1984	440.1984	0.0119	0.0110	443.7668
Total	**0.1676**	**0.2304**	**1.4863**	**4.9600e-003**	**0.5132**	**3.4200e-003**	**0.5166**	**0.1366**	**3.1800e-003**	**0.1398**		**506.5125**	**506.5125**	**0.0139**	**0.0206**	**512.9924**

3.2 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	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153		2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**		**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

3.2 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	0.0000
Vendor	3.4500e-003	0.1277	0.0453	6.0000e-004	0.0203	7.9000e-004	0.0211	5.8500e-003	7.5000e-004	6.6000e-003		65.1579	65.1579	2.0600e-003	9.4300e-003	68.0206
Worker	0.1540	0.0916	1.3433	4.2100e-003	0.4929	2.5200e-003	0.4954	0.1307	2.3200e-003	0.1331		425.7352	425.7352	0.0109	0.0103	429.0627
Total	**0.1574**	**0.2193**	**1.3886**	**4.8100e-003**	**0.5132**	**3.3100e-003**	**0.5165**	**0.1366**	**3.0700e-003**	**0.1397**		**490.8931**	**490.8931**	**0.0129**	**0.0197**	**497.0832**

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	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153	0.0000	2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**	**0.0000**	**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

3.2 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	0.0000
Vendor	3.4500e-003	0.1277	0.0453	6.0000e-004	0.0203	7.9000e-004	0.0211	5.8500e-003	7.5000e-004	6.6000e-003		65.1579	65.1579	2.0600e-003	9.4300e-003	68.0206
Worker	0.1540	0.0916	1.3433	4.2100e-003	0.4929	2.5200e-003	0.4954	0.1307	2.3200e-003	0.1331		425.7352	425.7352	0.0109	0.0103	429.0627
Total	**0.1574**	**0.2193**	**1.3886**	**4.8100e-003**	**0.5132**	**3.3100e-003**	**0.5165**	**0.1366**	**3.0700e-003**	**0.1397**		**490.8931**	**490.8931**	**0.0129**	**0.0197**	**497.0832**

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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476		2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**1.5908**	**0.5952**	**2.1859**	**0.1718**	**0.5476**	**0.7193**		**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

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	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
Worker	0.1751	0.1140	1.5536	4.5000e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		454.6247	454.6247	0.0131	0.0118	458.4684
Total	**0.1751**	**0.1140**	**1.5536**	**4.5000e-003**	**0.4929**	**2.7900e-003**	**0.4957**	**0.1307**	**2.5700e-003**	**0.1333**		**454.6247**	**454.6247**	**0.0131**	**0.0118**	**458.4684**

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					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	1.3784	15.6673	10.0558	0.0245		0.5952	0.5952		0.5476	0.5476	0.0000	2,375.1569	2,375.1569	0.7682		2,394.3613
Total	**1.3784**	**15.6673**	**10.0558**	**0.0245**	**0.7158**	**0.5952**	**1.3110**	**0.0773**	**0.5476**	**0.6249**	**0.0000**	**2,375.1569**	**2,375.1569**	**0.7682**		**2,394.3613**

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	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
Worker	0.1751	0.1140	1.5536	4.5000e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		454.6247	454.6247	0.0131	0.0118	458.4684
Total	**0.1751**	**0.1140**	**1.5536**	**4.5000e-003**	**0.4929**	**2.7900e-003**	**0.4957**	**0.1307**	**2.5700e-003**	**0.1333**		**454.6247**	**454.6247**	**0.0131**	**0.0118**	**458.4684**

3.4 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					0.3132	0.0000	0.3132	0.0474	0.0000	0.0474			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829		2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**0.3132**	**0.8379**	**1.1511**	**0.0474**	**0.7829**	**0.8303**		**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

3.4 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	6.4000e-003	0.2320	0.0564	9.0000e-004	0.0250	2.2300e-003	0.0272	6.8500e-003	2.1400e-003	8.9900e-003		98.6885	98.6885	4.7500e-003	0.0157	103.4789
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
Worker	0.1751	0.1140	1.5536	4.5000e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		454.6247	454.6247	0.0131	0.0118	458.4684
Total	**0.1815**	**0.3460**	**1.6100**	**5.4000e-003**	**0.5179**	**5.0200e-003**	**0.5229**	**0.1376**	**4.7100e-003**	**0.1423**		**553.3132**	**553.3132**	**0.0179**	**0.0275**	**561.9473**

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					0.1410	0.0000	0.1410	0.0214	0.0000	0.0214			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829	0.0000	2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**0.1410**	**0.8379**	**0.9789**	**0.0214**	**0.7829**	**0.8042**	**0.0000**	**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

3.4 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	6.4000e-003	0.2320	0.0564	9.0000e-004	0.0250	2.2300e-003	0.0272	6.8500e-003	2.1400e-003	8.9900e-003		98.6885	98.6885	4.7500e-003	0.0157	103.4789
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
Worker	0.1751	0.1140	1.5536	4.5000e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		454.6247	454.6247	0.0131	0.0118	458.4684
Total	**0.1815**	**0.3460**	**1.6100**	**5.4000e-003**	**0.5179**	**5.0200e-003**	**0.5229**	**0.1376**	**4.7100e-003**	**0.1423**		**553.3132**	**553.3132**	**0.0179**	**0.0275**	**561.9473**

3.5 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					7.0844	0.0000	7.0844	3.4250	0.0000	3.4250			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.0844**	**0.7423**	**7.8267**	**3.4250**	**0.6829**	**4.1079**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

3.5 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	7.3100e-003	0.2650	0.0644	1.0200e-003	0.0285	2.5500e-003	0.0311	7.8200e-003	2.4400e-003	0.0103		112.7127	112.7127	5.4200e-003	0.0179	118.1838
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
Worker	0.1751	0.1140	1.5536	4.5000e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		454.6247	454.6247	0.0131	0.0118	458.4684
Total	**0.1824**	**0.3790**	**1.6180**	**5.5200e-003**	**0.5214**	**5.3400e-003**	**0.5268**	**0.1386**	**5.0100e-003**	**0.1436**		**567.3374**	**567.3374**	**0.0186**	**0.0297**	**576.6522**

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					3.1880	0.0000	3.1880	1.5413	0.0000	1.5413			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**3.1880**	**0.7423**	**3.9303**	**1.5413**	**0.6829**	**2.2242**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

3.5 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	7.3100e-003	0.2650	0.0644	1.0200e-003	0.0285	2.5500e-003	0.0311	7.8200e-003	2.4400e-003	0.0103		112.7127	112.7127	5.4200e-003	0.0179	118.1838
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
Worker	0.1751	0.1140	1.5536	4.5000e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		454.6247	454.6247	0.0131	0.0118	458.4684
Total	**0.1824**	**0.3790**	**1.6180**	**5.5200e-003**	**0.5214**	**5.3400e-003**	**0.5268**	**0.1386**	**5.0100e-003**	**0.1436**		**567.3374**	**567.3374**	**0.0186**	**0.0297**	**576.6522**

3.6 Excavation - 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	0.3671	3.4526	5.4931	8.2800e-003		0.1760	0.1760		0.1620	0.1620		801.2542	801.2542	0.2591		807.7328
Total	**0.3671**	**3.4526**	**5.4931**	**8.2800e-003**		**0.1760**	**0.1760**		**0.1620**	**0.1620**		**801.2542**	**801.2542**	**0.2591**		**807.7328**

3.6 Excavation - 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	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
Worker	0.1751	0.1140	1.5536	4.5000e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		454.6247	454.6247	0.0131	0.0118	458.4684
Total	**0.1751**	**0.1140**	**1.5536**	**4.5000e-003**	**0.4929**	**2.7900e-003**	**0.4957**	**0.1307**	**2.5700e-003**	**0.1333**		**454.6247**	**454.6247**	**0.0131**	**0.0118**	**458.4684**

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	0.3671	3.4526	5.4931	8.2800e-003		0.1760	0.1760		0.1620	0.1620	0.0000	801.2542	801.2542	0.2591		807.7328
Total	**0.3671**	**3.4526**	**5.4931**	**8.2800e-003**		**0.1760**	**0.1760**		**0.1620**	**0.1620**	**0.0000**	**801.2542**	**801.2542**	**0.2591**		**807.7328**

3.6 Excavation - 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	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
Worker	0.1751	0.1140	1.5536	4.5000e-003	0.4929	2.7900e-003	0.4957	0.1307	2.5700e-003	0.1333		454.6247	454.6247	0.0131	0.0118	458.4684
Total	**0.1751**	**0.1140**	**1.5536**	**4.5000e-003**	**0.4929**	**2.7900e-003**	**0.4957**	**0.1307**	**2.5700e-003**	**0.1333**		**454.6247**	**454.6247**	**0.0131**	**0.0118**	**458.4684**

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	2.0484					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	**2.2401**	**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	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
Worker	0.1640	0.1018	1.4399	4.3500e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		440.1984	440.1984	0.0119	0.0110	443.7668
Total	**0.1640**	**0.1018**	**1.4399**	**4.3500e-003**	**0.4929**	**2.6400e-003**	**0.4955**	**0.1307**	**2.4300e-003**	**0.1332**		**440.1984**	**440.1984**	**0.0119**	**0.0110**	**443.7668**

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	2.0484					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	**2.2401**	**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	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
Worker	0.1640	0.1018	1.4399	4.3500e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		440.1984	440.1984	0.0119	0.0110	443.7668
Total	**0.1640**	**0.1018**	**1.4399**	**4.3500e-003**	**0.4929**	**2.6400e-003**	**0.4955**	**0.1307**	**2.4300e-003**	**0.1332**		**440.1984**	**440.1984**	**0.0119**	**0.0110**	**443.7668**

3.7 Architectural Coating - 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					
Archit. Coating	2.0484					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**2.2292**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 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	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
Worker	0.1540	0.0916	1.3433	4.2100e-003	0.4929	2.5200e-003	0.4954	0.1307	2.3200e-003	0.1331		425.7352	425.7352	0.0109	0.0103	429.0627
Total	**0.1540**	**0.0916**	**1.3433**	**4.2100e-003**	**0.4929**	**2.5200e-003**	**0.4954**	**0.1307**	**2.3200e-003**	**0.1331**		**425.7352**	**425.7352**	**0.0109**	**0.0103**	**429.0627**

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	2.0484					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**2.2292**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 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	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
Worker	0.1540	0.0916	1.3433	4.2100e-003	0.4929	2.5200e-003	0.4954	0.1307	2.3200e-003	0.1331		425.7352	425.7352	0.0109	0.0103	429.0627
Total	**0.1540**	**0.0916**	**1.3433**	**4.2100e-003**	**0.4929**	**2.5200e-003**	**0.4954**	**0.1307**	**2.3200e-003**	**0.1331**		**425.7352**	**425.7352**	**0.0109**	**0.0103**	**429.0627**

3.8 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	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003		1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8802**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**		**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

3.8 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	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
Worker	0.1640	0.1018	1.4399	4.3500e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		440.1984	440.1984	0.0119	0.0110	443.7668
Total	**0.1640**	**0.1018**	**1.4399**	**4.3500e-003**	**0.4929**	**2.6400e-003**	**0.4955**	**0.1307**	**2.4300e-003**	**0.1332**		**440.1984**	**440.1984**	**0.0119**	**0.0110**	**443.7668**

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	0.8802	8.6098	11.6840	0.0179		0.4338	0.4338		0.4003	0.4003	0.0000	1,709.9926	1,709.9926	0.5420		1,723.5414
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8802**	**8.6098**	**11.6840**	**0.0179**		**0.4338**	**0.4338**		**0.4003**	**0.4003**	**0.0000**	**1,709.9926**	**1,709.9926**	**0.5420**		**1,723.5414**

3.8 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	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
Worker	0.1640	0.1018	1.4399	4.3500e-003	0.4929	2.6400e-003	0.4955	0.1307	2.4300e-003	0.1332		440.1984	440.1984	0.0119	0.0110	443.7668
Total	**0.1640**	**0.1018**	**1.4399**	**4.3500e-003**	**0.4929**	**2.6400e-003**	**0.4955**	**0.1307**	**2.4300e-003**	**0.1332**		**440.1984**	**440.1984**	**0.0119**	**0.0110**	**443.7668**

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	1.0859	1.0595	9.3360	0.0202	2.1206	0.0153	2.1360	0.5649	0.0143	0.5792		2,060.5315	2,060.5315	0.1413	0.0889	2,090.5451
Unmitigated	1.0859	1.0595	9.3360	0.0202	2.1206	0.0153	2.1360	0.5649	0.0143	0.5792		2,060.5315	2,060.5315	0.1413	0.0889	2,090.5451

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	400.00	400.00	400.00	1,007,375	1,007,375
Total	400.00	400.00	400.00	1,007,375	1,007,375

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
Hospital	9.50	7.30	7.30	64.90	16.10	19.00	73	25	2

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

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	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029
NaturalGas Unmitigated	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029

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					
Hospital	3177.14	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029
Total		**0.0343**	**0.3115**	**0.2617**	**1.8700e-003**		**0.0237**	**0.0237**		**0.0237**	**0.0237**		**373.7817**	**373.7817**	**7.1600e-003**	**6.8500e-003**	**376.0029**

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					
Hospital	3.17714	0.0343	0.3115	0.2617	1.8700e-003		0.0237	0.0237		0.0237	0.0237		373.7817	373.7817	7.1600e-003	6.8500e-003	376.0029
Total		**0.0343**	**0.3115**	**0.2617**	**1.8700e-003**		**0.0237**	**0.0237**		**0.0237**	**0.0237**		**373.7817**	**373.7817**	**7.1600e-003**	**6.8500e-003**	**376.0029**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive 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	0.5090	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003
Unmitigated	0.5090	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003

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	0.0769					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003
Total	**0.5090**	**2.0000e-005**	**2.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.3800e-003**	**4.3800e-003**	**1.0000e-005**		**4.6600e-003**

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	0.0769					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.4319					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.9000e-004	2.0000e-005	2.0400e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		4.3800e-003	4.3800e-003	1.0000e-005		4.6600e-003
Total	**0.5090**	**2.0000e-005**	**2.0400e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**4.3800e-003**	**4.3800e-003**	**1.0000e-005**		**4.6600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

Appendix B

Sharp Grossmont Hospital Center for Neurosciences Biological Resources Report

SHARP GROSSMONT HOSPITAL CENTER FOR NEUROSCIENCES BIOLOGICAL RESOURCES REPORT

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Contents

Acronyms and Abbreviations

BSA	Biological Survey Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Ranking
CWA	Clean Water Act
FESA	Federal Endangered Species Act
HCP	Habitat Conservation Plan
MBTA	Migratory Bird Treaty Act
MSCP	Multiple Species Conservation Program
NCCP	Natural Community Conservation Plan
Porter-Cologne	Porter-Cologne Water Quality Control Act
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

Chapter 1
Introduction

1.1 Purpose of Report

Sharp Grossmont Hospital is proposing to construct a Center for Neurosciences on the existing Sharp Grossmont Hospital property in La Mesa, California. This biological resources report documents the biological resources present and potentially present in and around the project area and provides a complete analysis that can be used to support the California Environmental Quality Act (CEQA) document. Furthermore, the environmental conditions described herein have been used to demonstrate compliance with other federal, state, and local regulations, such as the federal Clean Water Act (CWA) and the state Lake and Streambed Alteration Program.

1.2 Project Description

The proposed Project will consist of remodeling and additions to the existing single-story rehabilitation center to create a two-story Hospital for Brain and Spine. Landscaping will include planter boxes and seating areas. Parking for the proposed Project will be provided primarily in the existing adjacent parking structure and will be accessible through new walkway connections.

1.3 Project Location and Setting

The proposed project would occur entirely within the existing Sharp Grossmont Hospital property, which is currently occupied by a rehabilitation facility, administrative offices, and a small park open space. The proposed project site is in the City of La Mesa, San Diego County, California (Figure 1 in Appendix B) at 5555 Grossmont Center Drive. The project site occurs within Section 17, Township 16 South, Range 1 West of the La Mesa, California U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figure 2 in Appendix B). It is bounded to the west by State Route 125 and by institutional and residential development to the north, south, and east.

1.4 Regional Context

The City of La Mesa adopted a Subarea Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP) in February 1998 (City of La Mesa 1998). The plan discusses biological resources that can be found within the city limits and how those resources will be managed in congruency with the San Diego County Multiple Species Conservation Plan (MSCP)(County of San Diego 1997).

The City of La Mesa consists of 6,200 acres and is almost entirely developed. This urbanized landscape leaves little room for habitat that might house species that are not otherwise found in urban environments. Patches of disturbed natural communities can be found within the city limits, usually on steep hillsides adjacent to development. Although the city lacks habitat that is included in the County's MSCP Multi-Habitat Planning Area or Core Biological Resources Areas and Linkages, it has set aside 55 acres of coastal sage scrub to be preserved as open space.

Chapter 2
Survey Methodology

The biological survey area (BSA) includes the approximately 2.5-acre project site and a radius of 200 feet beyond the project limits on the campus of the Sharp Grossmont Hospital in La Mesa, California (Figure 3 in Appendix B).

2.1 Pre-Survey Investigation

Prior to field surveys, an analysis of aerial images was conducted to identify any biological resources that might be present on the site. A literature and records search was also conducted to establish the existence or potential occurrence of sensitive or special-status biological resources (i.e., plant or animal species) on or within the vicinity of the BSA.

The following databases/resources were reviewed:

- California Natural Diversity Database (CNDDB), which is administered by the California Department of Fish and Wildlife (CDFW) Biogeographic Data Division, covers sensitive animal and plant species, as well as sensitive natural communities that occur within California (CDFW 2019). A search of the database was conducted within a 1-mile radius of the project site centered on the La Mesa, California USGS 7.5-minute quadrangle.
- The California Native Plant Society's (CNPS) Online Inventory of Rare and Endangered Plants, 8th Edition (CNPS 2022), identifies four specific designations (California Rare Plant Rankings [CRPR]) of sensitive plant species and summarizes regulations that provide for the conservation of sensitive plants. A search of the inventory was conducted within a 1-mile radius of the project area centered on the La Mesa, California USGS 7.5-minute quadrangle.

2.2 Biological Field Survey

An ICF biologist conducted a general biological resources survey within the BSA on February 16, 2022. Vegetation communities were assessed and mapped; animal species observed directly or detected from calls, tracks, scat, nests, or other sign were documented; and all plant species observed on site were also documented. Vegetation mapping within the BSA was conducted by walking meandering transects and making observations from selected vantage points that allowed an expansive view of the BSA. Vegetation communities were classified based on the dominant and characteristic plant species, in accordance with the Holland classification system (1986), as modified by Oberbauer et al. (2008).

2.3 Jurisdictional Waters and Wetlands

In the context of this assessment, jurisdictional waters and wetlands include waters of the U.S., including wetlands, regulated by the U.S. Army Corps of Engineers (USACE) (USACE 2008), pursuant to CWA Section 404; waters of the State regulated by the Regional Water Quality Control Board

(RWQCB), pursuant to Section 401 of the CWA and the State Porter-Cologne Water Quality Control Act; and streambed and riparian habitat regulated by CDFW, pursuant to Sections 1600 et seq. of the California Fish and Game Code. ICF reviewed the site to determine if any potentially jurisdictional drainage or wetland features were present in the BSA during the field reconnaissance on February 16, 2022. A complete jurisdictional delineation was not performed.

2.4 Applicable Regulations

2.4.1 Federal Environmental Regulations

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) was enacted in 1973 to provide protection to threatened and endangered species and their associated ecosystems. Take of a listed species is prohibited except when authorization has been granted through a permit under FESA Section 4(d), 7, or 10(a). *Take* is defined as to harass, harm, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of these activities without a permit.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was enacted in 1918 for the purpose of prohibiting the kill or transport of native migratory birds or any part, nest, or egg of any such bird, unless allowed by another regulation adopted in accordance with the MBTA.

Clean Water Act

In 1948, Congress first passed the Federal Water Pollution Control Act. This act was amended in 1972 and became the CWA. The CWA regulates the discharge of pollutants into the waters of the U.S. Under Section 404, permits must be obtained from the USACE for discharge of dredge or fill material into waters of the U.S. Under Section 401 of the CWA, water quality certification from the RWQCB needs to be obtained if there are to be any to impacts on waters of the U.S.

2.4.2 State Environmental Regulations

California Environmental Quality Act

CEQA requires that biological resources be considered when assessing the environmental impacts resulting from proposed actions. CEQA does not specifically define what constitutes an adverse effect on a biological resource. Instead, lead agencies are charged with determining what specifically should be considered an impact.

California Fish and Game Code

California Endangered Species Act

The California Endangered Species Act (CESA) prohibits the take of any species that the California Fish and Game Commission determines to be a threatened or endangered species and is administered by the CDFW. Incidental take of these listed species can be approved by the CDFW.

"Take" is defined as to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill. Habitat assessments for potential sensitive species were conducted for this project.

Lake and Streambed Alteration Program

The Lake and Streambed Alteration Program is administered by the CDFW and is found in Section 1600 et seq. of the California Fish and Game Code. The CDFW is to be notified if the project will affect lake or streambed resources. The project has been designed to avoid streams and other waterways.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne) is the California equivalent of the federal CWA. It provides for statewide coordination of water quality regulations through the establishment of the California State Water Resources Control Board and nine separate RWQCBs that oversee water quality on a day-to-day basis at the regional/local level. The project has been designed to avoid streams and other waterways.

Natural Community Conservation Planning Act of 1991

The Natural Community Conservation Planning Act is designed to conserve natural communities at the ecosystem scale, while accommodating compatible land use. The CDFW is the principal state agency implementing the NCCP program. NCCP plans developed in accordance with this act provide for comprehensive management and conservation of multiple wildlife species and identify and provide for the regional or area-wide protection and perpetuation of natural wildlife diversity while allowing compatible and appropriate development and growth. The BSA is within the La Mesa Subarea Plan.

2.4.3 Local Environmental Regulations

Multiple Species Conservation Program

The MSCP is a long-term regional conservation plan designed to establish connected preserve systems to ensure the long-term survival of sensitive plant and animal species and to protect the native vegetation found throughout San Diego County. The MSCP addresses the potential impacts of urban growth, natural habitat loss, and species endangerment and creates a plan to mitigate for the potential loss of sensitive species and their habitats. The MSCP covers 582,243 acres over 12 jurisdictions. Each jurisdiction has its own subarea plan, which describes specific implementing mechanisms for the MSCP.

Chapter 3
Results

3.1 Vegetation Mapping

3.1.1 Habitat Types/Vegetation Communities

Two vegetation communities/land cover types were mapped within the BSA during the survey: Urban/Developed and Non-Native Woodland (Figure 3 in Appendix B). A brief description of each is described below.

Urban/Developed (12000)

Urban/Developed land applies to areas that have been constructed upon or otherwise physically altered to an extent that native vegetation is no longer supported. Urban/Developed land is characterized by permanent or semi-permanent structures, pavement, or hardscape, and landscaped areas that often require irrigation. Areas where no natural land is evident due to a large amount of debris or other materials being placed upon it may also be considered Urban/Developed (Oberbauer et al. 2008). The existing buildings and sidewalks are classified as Urban/Developed land.

Non-Native Woodland (79000)

Non-Native Woodland consists of ornamental tree species that have been planted as part of the landscaping at Sharp Grossmont Hospital. Tree species observed include pine (*Pinus* sp.), eucalyptus (*Eucalyptus* sp.), pepper (*Schinus molle*), liquid amber (*Liquidambar* sp.), fiscus (*Ficus* sp.), and acacia (*Acacia* sp.). Shrub species observed include pride-of-Madera (*Echium candicans*), bird of paradise (*Strelitzia* sp.), and raphiolepsis (*Raphiolepis* sp.). English ivy (*Hedera helix*) is also common beneath trees and shrubs.

3.2 Special-Status Plants

No state- or federally listed endangered and threatened plant species were observed within the BSA. No other sensitive or special-status species were observed. Thirty-eight sensitive plant species identified from the CNDDB search and CNPS search within the La Mesa, California USGS 7.5-minute quadrangle were evaluated for their potential to occur within the BSA and are discussed in Appendix A. No evaluated species are expected to occur within the BSA. Due to the developed and disturbed nature of site, the BSA has low potential to support other sensitive species. There are several contributing factors—such as disturbance and development—that preclude these species from being present.

3.3 Special-Status Wildlife Species

The BSA and the surrounding areas are largely developed, likely precluding any special-status wildlife species from occurring in the vicinity. Appendix A discusses the potential to occur for species that were included in the CNDDB search. No special-status wildlife species were determined to have a potential to occur, and no special-status wildlife species were observed during the biological survey. Disturbance factors such as little native vegetation; high anthropogenic activity; development, such as freeways and buildings; and lack of habitat connectivity contribute to the low potential for any special-status species to occur.

The BSA and immediate vicinity contain trees, shrubs, and human-made structures (e.g., buildings) that provide suitable nesting habitat for common (non-sensitive) birds, including common raptors, protected under the MBTA and California Fish and Game Code.

3.4 Jurisdictional Waters and Wetlands

No jurisdictional waters or wetlands are within the BSA.

Chapter 4
Project Impacts

4.1 Impact Definitions

Biological resource impacts can be considered direct, indirect, or cumulative. They can also be either permanent or temporary in nature.

- **Direct**: Direct impacts occur when biological resources are altered, disturbed, or destroyed during project implementation. Examples include clearing vegetation, encroaching into wetland buffers, diverting surface water flows, and disturbing or destroying individual species and/or their habitats.
- **Indirect**: Indirect impacts occur when project-related activities affect biological resources in a manner that is not direct. Examples include elevated noise and dust levels, increased human activity, decreased water quality, and the introduction of invasive wildlife (domestic cats and dogs) and plants.
- **Cumulative**: Cumulative impacts occur when either direct or indirect impacts on biological resources occur to a minor extent as a result of a specific project, but the project-related impacts are part of a larger pattern of similar minor impacts. The overall result of these multiple minor impacts from separate projects is considered a cumulative impact on biological resources.
- **Temporary**: Temporary impacts can be direct or indirect and are considered reversible. Examples include the removal of vegetation from areas that will be revegetated, elevated noise levels, and increased levels of dust.
- **Permanent**: Permanent impacts can be direct or indirect and are not considered reversible. Examples include removing vegetation from areas that will have permanent structures placed on them or landscaping an area with nonnative plant species.

4.2 Project Impacts

The limits of grading are expected to occur within the existing developed or ornamental areas; as such, no direct impacts on any special-status species, jurisdictional features, or sensitive natural communities are expected to occur. In addition, the BSA is within a highly urbanized city and is surrounded by development on all sides and as such, no indirect impacts are anticipated on any biological resources. The project would not result in impacts on any designated core wildlife areas or wildlife corridors.

The San Diego County MSCP is the regulating document that outlines and sets protections for biological resources in San Diego County, and the La Mesa NCCP is the sub-area plan that implements the MSCP within the city of La Mesa. The project would not result in direct or indirect impacts on any biological resources mentioned in either of these regulations and therefore would not conflict with these plans. No cumulative impacts on biological resources are anticipated.

Implementation of the project would result in direct permanent impacts to ornamental trees within the BSA that have the potential to house nesting birds. Grading, vegetation clearing, and/or noise generating activities could result in nest failures if they are conducted during the nesting season (generally February 15–August 31). Such impacts could result in removal of active nests or disruption in breeding success due to disturbance of breeding behaviors. Such impacts would be considered significant.

It is recommended that if construction was to occur within the nesting season that nesting bird surveys would be conducted prior to construction and a biological monitor present while vegetation was removed. Such measures would result in a less than significant impact to nesting birds protected under the MBTA.

Chapter 5
References

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Appendix A
Plant and Wildlife Species Evaluated for Potential to Occur

Table A-1. Special-Status Species Evaluated for Occurrence

Species Common/ Scientific Name	Status[a] Fed/State/ CNPS/SD County/MSCP	Habitat Requirements	Potential To Occur
Special-Status Plants			
Ashy spike-moss (*Selaginella cinerascens*)	-/-/4.1/SDC List D	Perennial rhizomatous herb. Chaparral and coastal sage scrub; 20–640 m (65–2,100 ft).	**Not expected.** No suitable habitat is present within the BSA.
California adolphia (*Adolphia californica*)	-/-/2B.1/SDC List B	Deciduous shrub. Clay soils in chaparral, coastal scrub, and valley and foothill grassland; 45–740 m (147–2,428 ft). Blooming period: December–May.	**Not expected.** No suitable habitat is present within the BSA.
Chaparral ragwort (*Senecio aphanactis*)	-/-/2B.2/SDC List B	Annual herb. Chaparral, cismontane woodland, coastal scrub, and alkaline flats; 15–800 m (49–2,624 ft). Blooming period: January–April.	**Not expected.** No suitable habitat is present within the BSA.
Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*)	-/-/1B.2/SDC List A	Perennial shrub. Chaparral and in sandy coastal scrub, often in sandy disturbed areas; 10–135 m (33–443 ft). Blooming period: April–November.	**Not expected.** No suitable habitat is present within the BSA.
Del Mar manzanita (*Arctostaphylus glandulosa* ssp. *crassifolia*)	-/-/1B.1, SDC List A/ MSCP	Evergreen shrub. Maritime chaparral with sandy soils; 0–365 m (0–1,197 ft). Blooming period: December–June.	**Not expected.** No suitable habitat is present within the BSA.
Delicate clarkia (*Clarkia delicata*)	-/-/1B.2/SDC List A	Annual herb. Oak woodlands and chaparral, often on gabbroic soils; 235–1000 m (770–3,280 ft). Blooming period: April–June.	**Not expected.** No suitable habitat is present within the BSA.
Golden-Rayed pentachaeta (*Pentachaeta aurea* ssp. *aurea*)	-/-/4.2/SDC List D	Annual herb. Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, and valley and foothill grassland; 80–1850 m (262–6,068 ft). Blooming period: March–July.	**Not expected.** No suitable habitat is present within the BSA.
Little mousetail (*Myosurus minimus* ssp. *apus*)	-/-/3.1/SDC List C	Annual herb. Valley and foothill grassland, and alkaline vernal pools; 20–640 m (65–2,100 ft). Blooming period: March–June.	**Not expected.** No suitable habitat is present within the BSA.

Species Common/ Scientific Name	Status^a Fed/State/ CNPS/SD County/MSCP	Habitat Requirements	Potential To Occur
Long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*)	-/-/1B.2/SDC List A	Annual herb. Clay lenses, largely devoid of shrubs in chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pools; 30–1530 m (98–5,018 ft). Blooming period: April–July.	**Not expected.** No suitable habitat is present within the BSA.
Munz's sage (*Salvia munzii*)	-/-/2B.2/SDC List B	Evergreen shrub. Chaparral and coastal sage scrub; 120–1065 m (393–3,493 ft). Blooming period: February–April.	**Not expected.** No suitable habitat is present within the BSA.
Nuttall's scrub oak (*Quercus dumosa*)	-/-/1B.1/SDC List	Perennial evergreen shrub. Sandy or clay loam in closed-cone coniferous forest, chaparral, and coastal scrub; 15–400 m (49–1,312 ft.). Blooming period: February–August.	**Not expected.** No suitable habitat is present within the BSA.
Orcutt's brodiaea (*Brodiaea orcuttii*)	-/-/1B.1/SDC List A/ MSCP	Bulbiferous herb. Found on mesic, clay, sometimes serpentinite soils in closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools; 30–1,692 m (98–5,550 ft). Blooming period: May–July.	**Not expected.** No suitable habitat is present within the BSA.
Otay Mesa mint (*Pogogyne nudiuscula*)	FE/CE/1B.1/SDC List A/ MSCP	Annual herb. Vernal pools; 90–250 (295–820 ft). Blooming period: May–July.	**Not expected.** No suitable habitat is present within the BSA.
Palmer's goldenbush (*Ericameria palmeri* var. *palmeri*)	-/-/1B.1/SDC List B/ MSCP	Evergreen shrub. Coastal drainages, in mesic chaparral sites, or rarely in coastal sage scrub; below 600 m (1,969 ft). Blooming period: August–October (uncommon in July).	**Not expected.** No suitable habitat is present within the BSA.
Palmer's grapplinghook (*Harpagonella palmeri*)	-/-/4.2/SDC List D/ MSCP	Annual herb. Clay soils in chaparral, grasslands, coastal sage scrub; 20–955 m (65 to 3,132 ft). Blooming period: March–May.	**Not expected.** No suitable habitat is present within the BSA.
Purple stemodia (*Stemodia durantifolia*)	-/-/2B.1/SDC List B	Perennial herb. Along minor creeks and seasonal drainages, often in mesic, sandy soils in Sonoran desert scrub; 180–300 m (590–984 ft). Blooming period: January–December.	**Not expected.** No suitable habitat is present within the BSA.

Species Common/ Scientific Name	Status^a Fed/State/ CNPS/SD County/MSCP	Habitat Requirements	Potential To Occur
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	-/-/4.3/SDC List A	Annual herb. Openings in chaparral and sage scrub; below 885 m (2,900 ft). Blooming Period: January–July.	**Not expected.** No suitable habitat is present within the BSA.
San Diego ambrosia (*Ambrosia pumila*)	FE/-/1B.1/SDC List A/ MSCP	Rhizomatous herb. Sandy loam or clay soils in chaparral, coastal sage scrub, valley and foothill grassland, vernal pools; often in disturbed areas or sometimes alkaline areas. Can occur in creek beds, seasonally dry drainages, and floodplains; 20–415 m (66–1,362 ft). Blooming period: April–October.	**Not expected.** No suitable habitat is present within the BSA.
San Diego barrel cactus (*Ferocactus viridescens*)	-/-/2B.1/SDC List B/ MSCP	Stem succulent. Sandy to rocky areas; chaparral, coastal scrub, valley and foothill grassland, vernal pools; 3–450 m (9–1,476 ft). Blooming period: May–June.	**Not expected.** No suitable habitat is present within the BSA.
San Diego button-celery (*Eryngium aristulatum* var. *parishii*)	FE/SE/1B.1/-/MSCP	Annual/perennial herb. Mesic soils in coastal scrub, valley and foothill grassland, and vernal pools; 20–620 m (65–2,034 ft). Blooming period: April–June.	**Not expected.** No suitable habitat is present within the BSA.
San Diego County viguiera (*Bahiopsis laciniate*)	-/-/4.2/SDC List D	Perennial shrub. Chaparral and coastal scrub; 10–750 m (33–2,461 ft). Blooming period: February–August.	**Not expected.** No suitable habitat is present within the BSA.
San Diego goldenstar (*Bloomeria clevelandii*)	-/-/1B.1/SDC List A	Perennial bulbiferous herb. Clay soils in chaparral, coastal sage scrub, valley grasslands, particularly near mima mound topography or the vicinity of vernal pools; 50–465 m (164–1,526 ft). Blooming period: April–May.	**Not expected.** No suitable habitat is present within the BSA.
San Diego gumplant (*Grindelia hallii*)	-/-/1B.2/SDC List A	Perennial herb. Meadows, chaparral, lower montane coniferous forest, and valley and foothill grassland; 185–1,745 m (606–5723 ft). Blooming period: May–October.	**Not expected.** No suitable habitat is present within the BSA.
San Diego marsh-elder (*Iva hayesiana*)	-/-/2B.2/SDC List B	Perennial herb. Marshes and swamps, wetland areas, and playas; 10–500 m (32–1,640 ft). Blooming period: April–October.	**Not expected.** No suitable habitat is present within the BSA.

Species Common/ Scientific Name	Status[a] Fed/State/ CNPS/SD County/MSCP	Habitat Requirements	Potential To Occur
San Diego mesa mint (*Pogogyne abramsii*)	FE/CE/1B.1/SDC List A/ MSCP	Annual herb. Vernal pools; 90–200 m (295–656 ft). Blooming period: March–July.	**Not expected.** No suitable habitat is present within the BSA.
San Diego sagewort (*Artemisia palmeri*)	-/-/4.2/SDC List D	Deciduous shrub. Sandy soils in mesic areas in chaparral, coastal scrub, riparian forest, riparian scrub, riparian woodland; 15–915 m (49–3,002 ft). Blooming period: February–September.	**Not expected.** No suitable habitat is present within the BSA.
San Diego thorn-mint (*Acanthomintha ilicifolia*)	FT/SE/1B.1/SDC NE/ MSCP	Annual herb. Prefers friable or broken clay soils in grassy openings in chaparral and coastal sage scrub, valley and foothill grassland, and vernal pools; 10–960 m (33–3,150 ft). Blooming period: April–June.	**Not expected.** No suitable habitat is present within the BSA.
Singlewhorl burrobrush (*Ambrosia monogyra*)	-/-/2B.2/-	Perennial shrub. Sandy soils in chaparral, coastal sage scrub, Sonoran desert scrub, and washes; 10–500 m (328–1,640 ft). Blooming period: August–November.	**Not expected.** No suitable habitat is present within the BSA.
Small-flowered morning glory (*Convolvulus simulans*)	-/-/4.2/SDC List D	Annual herb. Friable clay soils or serpentine seeps in chaparral openings, coastal scrub, and valley and foothill grassland; 30–700 m (98–2297 ft). Blooming period: March–July.	**Not expected.** No suitable habitat is present within the BSA.
Southwestern Spiny Rush (*Juncus acutus* ssp. *leopoldii*)	-/-/4.2/SDC List D	Perennial rhizomatous herb. Mesic soils in coastal dunes, alkaline seeps in meadows and seeps, and coastal salt marshes and swamps; 3–900 m (9–2,953 ft). Blooming period: May–June.	**Not expected.** No suitable habitat is present within the BSA.
Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)	-/-/1B.2/SDC List A	Evergreen shrub. Chaparral and cismontane woodland; 30–790 m (98–2,591 ft). Blooming period: April–June.	**Not expected.** No suitable habitat is present within the BSA.
Variegated dudleya (*Dudleya variegata*)	-/-/1B.2/SDC NE/MSCP	Perennial herb. Clay soils in chaparral, cismontane woodland, coastal scrub, valley and foothill grassland, and vernal pools; 3–580 m (9–1,903 ft). Blooming period: April–June.	**Not expected.** No suitable habitat is present within the BSA.

Species Common/ Scientific Name	Status[a] Fed/State/ CNPS/SD County/MSCP	Habitat Requirements	Potential To Occur
Vernal barley (*Hordeum intercedens*)	-/-/3.2/SDC List C	Annual herb. Coastal dunes, coastal scrub, saline flats and depressions in valley and foothill grassland, and vernal pools; 5–1,000 m (16–3,280 ft). Blooming period: March–June.	**Not expected.** No suitable habitat is present within the BSA.
Wart stemmed ceanothus (*Ceanothus verrucosus*)	-/-/2B.2/SDC List B	Evergreen shrub. Chaparral; 1–380 m (3–1,247 ft). Blooming period: December–May.	**Not expected.** No suitable habitat is present within the BSA.
Western dichondra (*Dichondra occidentalis*)	-/-/4.2/SDCS List D	Perennial rhizomatous herb. Chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland; 50–500 m (164–1,640 ft). Blooming period: January–July.	**Not expected.** No suitable habitat is present within the BSA.
Western spleenwort (*Asplenium vespertinum*)	-/-/4.2/SDC List D	Perennial rhizomatous herb. Rocky areas in chaparral, cismontane woodland, and coastal scrub; 180–1,000 m (590–3,281 ft). Blooming period: February–June.	**Not expected.** No suitable habitat is present within the BSA.
Willowy monardella (*Monardella viminea*)	FE/SE/1B.1/SDC List A/ MSCP	Perennial herb. Alluvial ephemeral washes in chaparral, coastal scrub, riparian forest, riparian scrub, and riparian woodland; 50–225 m (164–738 ft). Blooming period: June–August.	**Not expected.** No suitable habitat is present within the BSA.
Special-Status Wildlife Species			
Invertebrates			
Crotch bumble bee (*Bombus crotchii*)	-/CSC/-/-/-	This species can be found in the southwestern U.S., best known from cismontane California. It occurs at relatively warm and dry sites, including the Coast Range of California and even the margins of the Mojave Desert. Its main food sources are plant species typically found in scrub communities	**Low potential.** It is unlikely that the ornamental habitat found within the BSA would support this species.

Species Common/ Scientific Name	Status[a] Fed/State/ CNPS/SD County/MSCP	Habitat Requirements	Potential To Occur
Reptiles and Amphibians			
Coast horned lizard (*Phrynosoma blainvillii*)	-/CSC /-/-/MSCP	Found in arid and semi-arid climate conditions in chaparral, coastal sage scrub, primarily below 2,000 feet in elevation. Critical factors are the presence of loose soils with a high sand fraction; an abundance of native ants or other insects, especially harvester ants (*Pogonomyrmex* spp.); and the availability of both sunny basking spots and dense cover for refuge.	**None**. No suitable habitat is present on the project site.
Orange-throated whiptail (*Aspidoscelis hyperythra*)	-/CSC/-/SDC Group III/ MSCP	Occurs in semi-arid brushy areas with loose soil and rocks. Can be found in washes, streamsides, rocky hillsides, and chaparral. Found at elevations of 0–2,000 ft.	**Low potential.** The species is not likely to occur within the project footprint, but it could occur in the outside edge of a portion of the 200-foot buffer where it intersects with undeveloped areas that support a mix of native and non-native vegetation.
Southern California legless lizard (*Anniella stebbinsi*)	-/CSC/-	Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas often indicates suitable habitat.	**None**. No suitable habitat is present on the project site.
Western spadefoot (*Spea hammondii)*	-/CSC/-/SDC Group II	Temporary pools with water temperatures 9–30°C that last at least 3 weeks within areas of open vegetation.	**None**. No suitable habitat is present on the project site.

Species Common/ Scientific Name	Status[a] Fed/State/ CNPS/SD County/MSCP	Habitat Requirements	Potential To Occur
Birds			
Least Bell's vireo (*Vireo bellii pusillus*)	FE/SE/-/SDC NE/MSCP	Found as a summer resident of southern California, where it inhabits low riparian growth in the vicinity of water or in dry river bottoms below 2,000 feet. Species selects dense vegetation low in riparian zones for nesting; most frequently located in riparian stands 5–10 years old; when mature riparian woodland is selected, vireos nest in areas with a substantial robust understory of willows as well as other plant species (Goldwasser 1981).	**None.** No suitable riparian habitat is present on the project site.
Prairie falcon (*Falco mexicanus*)	-/CSC/-/SDC Group I	Nest on cliffs or bluffs and forage in open desert or grasslands. In San Diego County, nest at least 23 miles from the coast (Unitt 2004).	**None.** No suitable habitat is present on the project site.
Mammals			
Big free-tailed bat (*Nyctinomops macrotis*)	-/CSC/-/SDC Group II	Inhabits arid, rocky areas; roosts in crevices in cliffs. Has been recorded in urban locations in San Diego County (CDFG 2005). Species is rare in California (CDFG 2005).	**None**. No suitable habitat is present on the project site.
Western yellow bat (*Lasiurus xanthinus*)	-/CSC/-/SDC Group II	Recorded in valley foothill riparian, desert wash, desert riparian, and palm oasis habitats. Range includes San Diego, Riverside, and Imperial Counties in California. In California, this species appears to roost exclusively in the skirts of palm trees and seems to be limited in its distribution by the availability of palm habitat (Pierson and Rainey 1998).	**None.** Palm trees were not observed during the survey.

Species Common/ Scientific Name	Status[a] Fed/State/ CNPS/SD County/MSCP	Habitat Requirements	Potential To Occur

[a] Status Codes

Federal

FE – listed as endangered under the Federal Endangered Species Act
FT – listed as threatened under the Federal Endangered Species Act
FP – listed as fully protected
F Delisted – Delisted

State

SE – listed as endangered under the California Endangered Species Act
ST – listed as threatened under the California Endangered Species Act
CT – candidate threatened
S Delisted – Delisted
CDFW FP – fully protected species in California
CSC – species of special concern in California
WL – Watch List

San Diego County Group (SDC Group)

I – includes animal species that have a very high level of sensitivity, either because they are listed as threatened or endangered or because they have very specific natural history requirements that must be met
II – includes animal species that are becoming less common, but are not yet so rare that extirpation or extinction is imminent without immediate action; these species tend to be prolific within their suitable habitat types
NE – Narrow Endemic Species

County MSCP – Covered Species under the MSCP South County Subarea Plan

CA Rare Plant Rank (CRPR) – Formerly known as CNPS List

1A. Presumed extirpated in California, and either rare or extinct elsewhere
1B. Rare, threatened, or endangered in California and elsewhere
2A. Presumed extirpated in California, more common elsewhere
2B. Rare, threatened, or endangered in California, more common elsewhere
3. Plants for which more information is needed - Review list
4. Plants of limited distribution - Watch list

Threat Ranks

.1 - Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

San Diego County List

A – Rare, threatened, or endangered in California and elsewhere
B – Rare, threatened, or endangered in California but more common elsewhere
C – May be quite rare, but more information is needed to determine their status
D – Limited distribution and are uncommon but not presently rare or endangered

Appendix B
Figures

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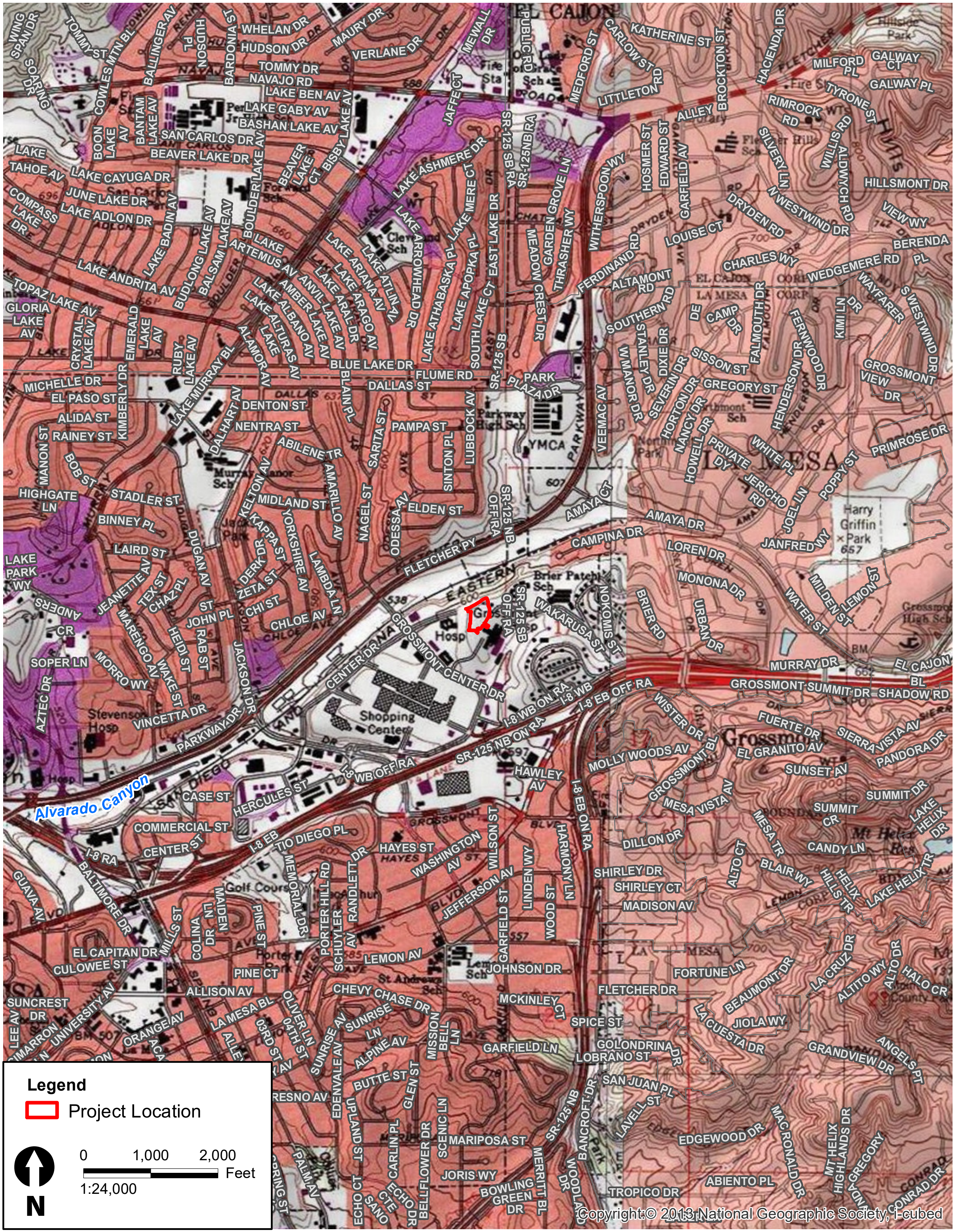
Figure 1
Regional Vicinity



Sources: ICF; La Mesa and El Cajon USGS 7.5' Quads 2022

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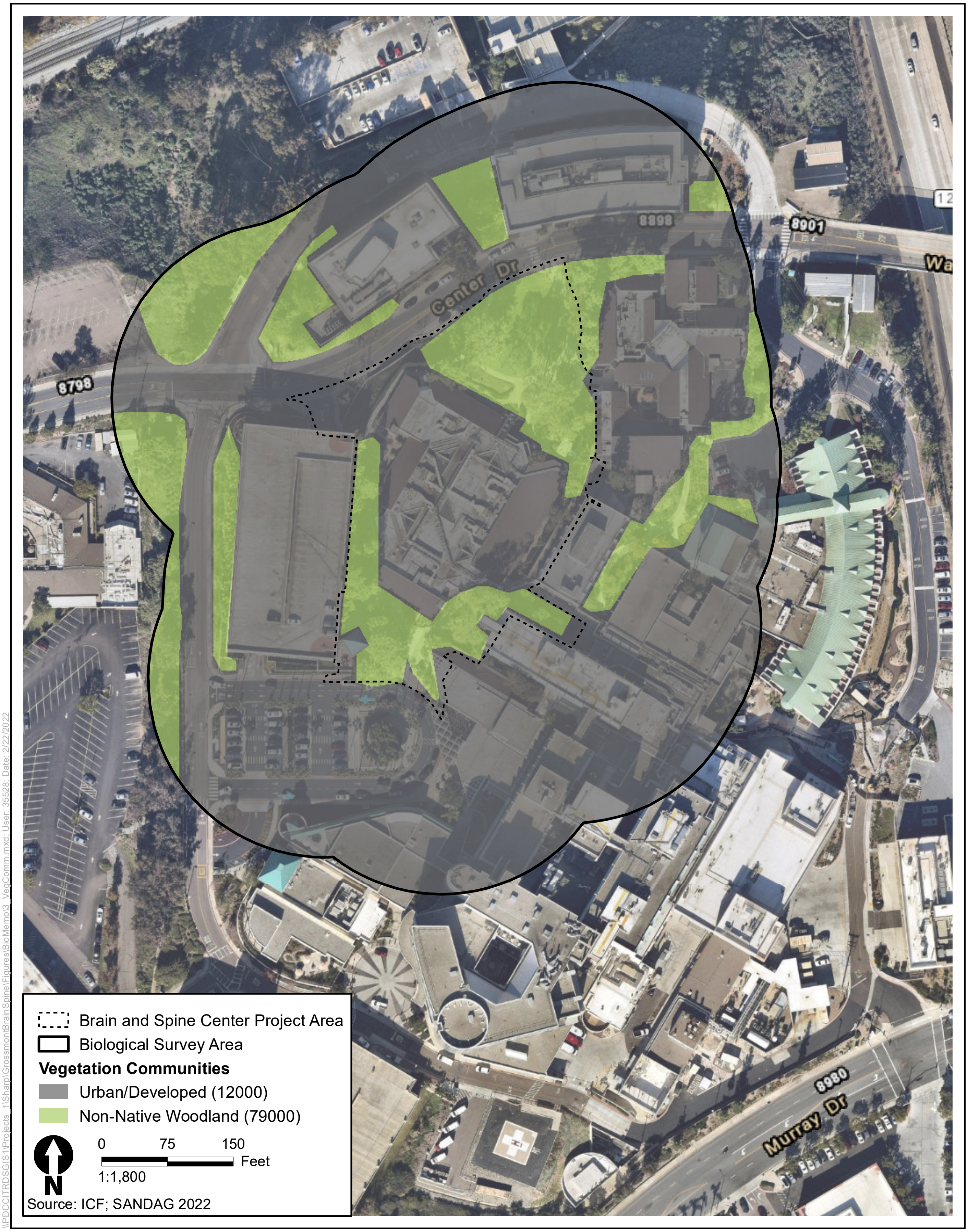
Figure 2
Local Vicinity



Source: ICF; SANDAG 2022

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Figure 3
Vegetation Communities

Appendix C

Geotechnical Investigation Sharp Grossmont Hospital for Brain and Spine Addition Project

GEOTECHNICAL INVESTIGATION
SHARP GROSSMONT HOSPITAL FOR BRAIN AND SPINE ADDITION PROJECT
5555 GROSSMONT CENTER DRIVE
LA MESA, CALIFORNIA

Prepared for:

Sharp Healthcare
9001 Wakarusa Street
La Mesa, California 91942

Project No. 13126.001

July 12, 2021

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

July 12, 2021

Project No. 13126.001

Sharp Healthcare
9001 Wakarusa Street
La Mesa, California 91942

Attention: Mr. Joel Christoffersen

Subject: Geotechnical Investigation

Sharp Grossmont Hospital for Brain and Spine Addition
5555 Grossmont Center Drive
La Mesa, California

In accordance with your request and authorization, Leighton Consulting, Inc. (Leighton) has conducted a design level geotechnical investigation for the proposed additions to the existing Sharp Grossmont Hospital for Brain and Spine located at 5555 Grossmont Center Drive in La Mesa, California. Our geotechnical study of the site was performed in general accordance with the Office of Statewide Health Planning & Development (OSHPD) and requirements within the 2019 California Building Code.

Based on the results of our study, it is our professional opinion that the proposed remodel project is feasible provided the recommendations provided herein are incorporated into the design and construction of the proposed improvements. The accompanying geotechnical report presents a summary of our current investigation and provides geotechnical conclusions and recommendations relative to the proposed site development.

3934 Murphy Canyon Road, Suite B205 ▪ San Diego, CA 92123-4425
858.569.6914 ▪ Fax 858.292.0771 ▪ www.leightonconsulting.com

If you have any questions regarding our report, please do not hesitate to contact this office. We appreciate this opportunity to be of service.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

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TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLES

FIGURES

APPENDICES

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:
- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:
- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept* *responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

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1.0 INTRODUCTION

We recommend that all individuals utilizing this report read the preceding information sheet prepared by the Geoprofessional Business Association (GBA) and the Limitations, Section 7.0, located at the end of this report.

1.1 Purpose and Scope

This report presents the results of our design level geotechnical investigation for the proposed additions to the existing Sharp Grossmont Hospital for Brain and Spine located at 5555 Grossmont Center Drive in La Mesa, California (Figure 1). The purpose of our investigation was to identify and evaluate the geologic hazards and significant geotechnical conditions present at the site in order to provide geotechnical recommendations for the proposed remodel project. Our scope of services for this project included:

- Review of pertinent documents regarding the geotechnical conditions at the site.
- Markout of the exploration locations, notification and coordination of underground utility locators, and coordination with site personnel.
- Excavation of four (4) hollow-stem auger borings and one (1) Dynamic Cone Pentrometer (DCP) test.
- Review of site development plans, topographic and geologic maps, aerial photographs, and geotechnical literature relevant to the area.
- Laboratory testing on selected soil samples. Laboratory testing consisted of moisture content, expansion index, direct shear, maximum dry density and optimum moisture, and corrosivity tests including - minimum electrical resistivity, pH, and water-soluble sulfate and chloride content tests.
- Preparation of this report presenting our findings, conclusions, and geotechnical recommendations with respect to the proposed geotechnical design, site grading and general construction considerations.

1.2 Site Location and Description

The site is currently occupied by a rehabilitation facility with a footprint of approximately 25,000 square feet. Access to the site is provided to the south by driveway entry via Vista Hill Avenue. Also, a delivery driveway, accessed via Health Center Circle to the south of the facility. In general, the site area is bounded by a parking structure to the west, a patio and a driveway to the south, the Sharp Grossmont Auditorium to the east, and Center Drive to the north. Site topography within the limits of the proposed project is generally flat lying with surface elevations of approximately 650 feet above mean sea level.

The latitude and longitude coordinates for the project are:

Latitude:	32.7815º N
Longitude:	117.0072º W

1.3 Proposed Development

The proposed project will consist of remodeling and additions to the existing single-story rehabilitation center into the Hospital for Brain and Spine. Specifically, the project would consist of partial demolition and 8,800 square foot addition to the southwest corner of the building, an addition to the north side of the building, and creating shear walls with new footings inside the building at locations still to be determined. The structures will be slab-on-grade with typical lightly loaded conventional foundations. We anticipate minor grading of the site will be needed to complete construction of the project. The approximate limits of the proposed new construction areas are depicted on the Geotechnical Map (Figure 2).

2.0 SUBSURFACE EXPLORATION AND LABORATORY TESTING

2.1 Site Investigation

Our subsurface exploration was performed on April 28 and May 7, 2021, which consisted of the excavation, logging, and sampling of four (4) hollow-stem auger borings and one (1) Dynamic Cone Penetrometer (DCP) test. In adiditon, a hand auger was performed adjacent to the DCP to verify the soil classification. The approximate locations of the exploratory borings and the DCP test are shown on the Geotechnical Map (Figure 2). The purpose of the borings and the DCP test was to evaluate the underlying stratigraphy, physical characteristics, and specific engineering properties of the soils within the area of the proposed improvements.

The borings were excavated to depths between approximately 3 to 12 feet below the existing ground surface (bgs) with a CME-55 hollow-stem auger drill rig. All borings encountered refusal on gravel-cobble and/or very dense formational material at shallow depths. Due to limited access, one DCP test was advanced to a depth of approximately 3 feet bgs with a Triggs Technologies Wildcat Dynamic Cone Penetrometer using a 35-lb hammer. During the exploration operations, a staff geologist from our firm prepared geologic logs and collected disturbed bulk samples for laboratory testing and evaluation. After logging, the excavations were backfilled with soil cuttings and capped to match existing conditions. The boring logs and DCP test log are provided in Appendix B and laboratory test results are included in Appendix C.

2.2 Laboratory Testing

Laboratory testing performed on representative soil samples obtained during our subsurface exploration included the following: moisture content, expansion index, geochemical analysis for corrosion, direct shear, and maximum dry density and optimum moisture content. A discussion of the laboratory tests performed and a summary of the laboratory test results are presented in Appendix C.

3.0 SUMMARY OF GEOTECHNICAL CONDITIONS

3.1 Geologic Setting

The project area is situated in the Peninsular Ranges Geomorphic Province. This geomorphic province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California, and varies in width from approximately 30 to 100 miles (Norris and Webb, 1990). The province is characterized by mountainous terrain on the east composed mostly of Mesozoic igneous and metamorphic rocks, and relatively low-lying coastal terraces to the west underlain by late Cretaceous-aged, Tertiary-aged, and Quaternary-aged sedimentary units. Most of the coastal region of the County of San Diego, including the site, occur within this coastal region and are underlain by sedimentary units. Specifically, the site is located within the coastal plain section of the Peninsular Range Geomorphic Province of California, which generally consists of subdued landforms underlain by sedimentary bedrock.

3.2 Site-Specific Geology

Based on our subsurface exploration, and review of pertinent geologic literature and maps (Appendix A), the geologic units underlying the site consist of surficial undocumented artificial fill materials overlying Stadium Conglomerate (Tst). A brief description of the geologic units encountered at the site is presented below. The approximate aerial distribution of those units are shown on the Regional Geologic Map (Figure 4). The general vertical extent of the site geologic units is shown on Geologic Cross Section A-A’ and B-B’ (Figure 3).

3.2.1 Undocumented Artificial Fill (Afu)

Based on our subsurface exploration, artificial fill soils were encountered in each boring with thicknesses varying between 1 to 2 feet. An isolated zone of deeper fill with thickness of approximately 5.5 feet was encountered within Boring B-2 . As encountered during our subsurface exploration, the fill soils generally consisted of medium dense, grayish brown, slightly moist to moist, silty to clayey sands with variable amounts of gravel. Concrete coring was performed at boring locations B-4 where the concrete was noted to be approximately 4 inches thick over 4.5 inches of aggregate base. An as-graded report was not available for our review, and it is assumed that no engineering observations of these soils were provided at the time of grading. Therefore, these fill soils are considered undocumented and may settle under the placement of additional fill and structural loads. Undocumented fills are also anticipated where existing utilities are present.

3.2.2 Stadium Conglomerate (Tst)

Underlying the existing undocumented artificial fill soils, the Stadium Conglomerate was encountered in each boring and DCP. During our exploration, this material generally consisted of medium dense to very dense, light brownish gray, moist, clayey and silty sandstone and gravel conglomerate with variable amounts of gravel and well-rounded cobbles. It should be noted that well-rounded gravel and cobble typically comprises between approximately 30 and 60 percent of the conglomerate mass, respectively. The cobbles are typically 3 to 6 inches in maximum dimension, but may include larger cobbles and boulders. Auger refusal was encountered within the Stadium Conglomerate at each boring at depths ranging from 3 to 12 feet bgs.

3.3 Geologic Structure

Based on our recent subsurface exploration, along with previous work completed at nearby sites, the project site is underlain by generally massive, near horizontal, geologic structure consisting of medium dense to very dense Stadium Conglomerate.

3.4 Landslides

Several formations within the San Diego region are particularly prone to landsliding (Friars Formation). These formations generally have high clay content and mobilize when they become saturated with water. Other factors, such as steeply dipping bedding that project out of the face of the slope and/or the presence of fracture planes, will also increase the potential for landsliding.

No landslides or indications of deep-seated landsliding were indicated at the site during our field exploration or our review of available geologic literature, topographic maps, and stereoscopic aerial photographs. Furthermore, as discussed in Section 3.3, the site is underlain by generally massive, favorable oriented geologic structure.

Therefore, the potential for significant landslides or large-scale slope instability at the site is considered low.

3.5 Surface and Groundwater

No indication of surface water or evidence of surface ponding was encountered during our geotechnical investigation performed at the site. However, surface water may drain as sheet flow across the site during rainy periods.

Groundwater was not encountered during our subsurface exploration at the site. It should be noted that groundwater levels may fluctuate with seasonal variations and irrigation and local perched groundwater conditions may exist at the contact between the undocumented artificial fill and the Stadium Conglomerate; nevertheless, based on the above information, we do not anticipate groundwater will be a constraint to the development of the subject site.

3.6 Engineering Characteristics of On-site Soils

Based on the results of our laboratory testing of representative on-site soils, and our professional experience on similar sites with similar soils conditions, the engineering characteristics of the on-site soils are discussed below.

3.6.1 Compressible Soils

The site is underlain by undocumented artificial fill materials. No records for compaction testing were available at the time of our exploration. Therefore, generally, the upper 1 to 2 feet of undocumented artificial fill is considered compressible in its current state. Localized deeper zones of fill up to 5.5 feet deep were encountered in Boring B-2. Recommendations for remedial grading of these soils are provided in the following sections of this report.

3.6.2 Expansion Potential

Expansion index testing on one representative soil sample indicated that the onsite soils generally have a low potential for expansion (Appendix C). However, higher expansive soils may be encountered during the grading of the site and during foundation excavation. Expansive soils are not anticipated to significantly impact the proposed site improvements.

3.6.3 Hydrocollapse

Based on the results of our subsurface exploration, shallow undocumented artificial fill overlays very dense Stadium Conglomerate. Therefore, the potential for hydro-collapse of the underlying earth materials is considered low at the site.

3.6.4 Soil Corrosivity

A preliminary screening of the on-site soils was performed to evaluate their potential corrosive effect on concrete and ferrous metals. In summary, laboratory testing on one representative soil sample obtained during our subsurface exploration evaluated pH, minimum electrical resistivity, and chloride and soluble sulfate content. The sample tested had a measured pH value of 7.1, and a measured minimum electrical resistivity of 1,600 ohm-cm, respectively. Test results also indicated that the samples had chloride content of 80 parts per million (ppm), and soluble sulfate content of 165 ppm, respectively.

3.6.5 Excavation Characteristics

It is anticipated the onsite materials can be excavated with conventional heavy-duty construction equipment. Localized cemented zones within the Stadium Conglomerate may be difficult to excavate and may require heavy ripping or breaking, which can produce oversized rock fragments.

3.7 Flood Hazard

According to a Federal Emergency Management Agency (FEMA) flood insurance rate map (FEMA, 2012), the site is not located within a flood zone (Figure 6). In addition, based on our review of topographic maps and aerial photographs, the site is not located downstream of a dam (Figure 7).

3.8 Exceptional Geologic Conditions

Exceptional geologic conditions are potential hazards that are present across the State of California, and occur on a site by site basis. We have addressed the presence or non-presence of these items typically present across the State in the sections below.

3.8.1 Hazardous Materials

Our scope of work has not included evaluation of the site for hazardous materials in the subsurface and we are not aware of any such reports that pertain to the site.

3.8.2 Regional Subsidence

The site area is not currently utilized for groundwater or oil withdraws. In addition, the dense to very dense nature of the underlying Stadium Conglomerate is not prone to subsidence settlement due to the withdrawal of fluids. Therefore, regional subsidence is considered nil.

3.8.3 Non-Tectonic Faulting

Surface expressions of differential settlement, such as ground fissures, can develop in areas affected by ground water withdrawal or banking activities, including geothermal production. The site location is not within an area affected by differential settlement caused by non-tectonic sources.

3.8.4 Volcanic Eruption

The proposed site is not located within or near a mapped area of potential volcanic hazards (Miller, C.D., 1989). The nearest volcanic activity is located in the Salton Sea area of southern California, approximately 100 miles east of the site.

3.8.5 Asbestos

Due to the lack of proximal sources of serpentinic or ultramafic rock bodies, naturally-occurring asbestos is not considered a hazard at the site.

3.8.6 Radon-222 Gas

Historically, Radon-222 gas has not typically been recognized as an environmental consideration in San Diego County. In particular, the site area is not mapped as containing organic rich marine shales commonly characterized as potentially containing Radon-222 gas (Churchill, Ronald, 2003). Therefore, based on our review of the referenced literature, and our site exploration, the potential for the occurrence of Radon-222 gas at the site is considered low.

4.0 SEISMICITY

4.1 Regional Tectonic Setting

The site is located within the Peninsular Ranges Geomorphic Province, which is traversed by several major active faults. The Whittier-Elsinore, San Jacinto, and the San Andreas faults are major active fault systems located east of the site, and the Rose Canyon, Newport-Inglewood (offshore), and Coronado Bank are active faults located west to southwest of the site (Jennings, 2010), see Figure 5. The primary seismic risk to the site area is the Rose Canyon fault zone located approximately 9.5 miles west of the site (USGS, 2014).

The Rose Canyon fault zone consists predominantly of right-lateral strike-slip faults that extend south-southeast bisecting the San Diego metropolitan area (Figure 6). Various fault strands display strike-slip, normal, oblique, or reverse components of displacement. The Rose Canyon fault zone extends offshore at La Jolla and continues north-northwest subparallel to the coastline. The offshore segments are poorly constrained regarding location and character. South of downtown, the fault zone splits into several splays that underlie San Diego Bay, Coronado, and the ocean floor south of Coronado (Treiman, 1993 and 2000; Kennedy and Clarke, 1999). Portions of the fault zone in the Mount Soledad, Rose Canyon, and downtown San Diego areas have been designated by the State of California (CGS, 2003) as being Earthquake Fault Zones.

4.2 Local Faulting

The California Geologic Survey (CGS, 2018) defines a Holocene-active fault as a fault which has “had surface displacement within Holocene time (about the last 11,700 years).” Our review of available geologic literature (Appendix A) indicates that there are no known pre-Holocene or Holocene-active faults transecting the site. The subject site is also not located within any State mapped Earthquake Fault Zones or City of San Diego mapped fault zones. The nearest active fault is the Rose Canyon fault zone located approximately 9.5 miles west of the site (USGS, 2014).

4.3 Seismicity

The site is considered to lie within a seismically active region, as is all of Southern California. As previously mentioned above, the Rose Canyon fault zone located approximately 9.5 miles west of the site is considered the 'active' fault having the most significant effect at the site from a design standpoint.

4.4 Seismic Hazards

Severe ground shaking is most likely to occur during an earthquake on one of the regional active faults in Southern California. The effect of seismic shaking may be mitigated by adhering to the California Building Code or state-of-the-art seismic design parameters of the Structural Engineers Association of California.

4.4.1 Shallow Ground Rupture

No pre-Holocene or Holocene-active faults are mapped transecting or projecting toward the site. Due to the absence of faults at the site, surface rupture from faulting is considered low. In addition, due to the lack of nearby slopes, ground cracking due to shaking from a seismic event is also considered low.

4.4.2 Mapped Fault Zones

The site is not located within a State mapped Earthquake Fault Zone (EFZ), nor is it located within a City of San Diego fault zone. As previously discussed, the subject site is not underlain by known faults.

4.4.3 Site Class

A subsurface geotechnical investigation was performed for a separate project at Grossmont College in October 2015 (Group Delta, 2015) located at 8800 Grossmont College Drive in El Cajon approximately 3 miles from the Brain and Spine Hospital project site. The geology beneath Grossmont College site consists of Stadium Conglomerate overlying Friars formation. As part of that field investigation, the average shear wave velocity of the Stadium Conglomerate was measured using a refraction microtremor (ReMi) survey. The ReMi survey included 15, 30-second recordings of the ambient vibrations at the site using a 24 channel seismiogrpah with 24 geophones separated at 10 foot spacing intervals. Based on the results of the ReMi survey, an average shear wave velocity (Vs30) of 584 m/s was determined. Utilizing 2019 California Building Code (CBC) procedures, the results of our subsurface exploration, and the ReMi survey from the Grossmont College site described above, we have characterized the site soil profile to be a Site Class C.

4.4.4 Building Code Mapped Spectral Acceleration Parameters

The effect of seismic shaking may be mitigated by adhering to the California Building Code and state-of-the-art seismic design practices of the Structural Engineers Association of California. Provided below in Table 1 are the spectral acceleration parameters for the project determined in accordance with the 2019 CBC (CBSC, 2019) and the SEA/OSHPD Web Application.

Table 1

2019 CBC Mapped Spectral Acceleration Parameters

Site Class	C		
Site Coefficients	F_a	=	1.2
	F_v	=	1.5
Mapped MCE Spectral Accelerations	S_S	=	0.795g
	S_1	=	0.289g
Site Modified MCE Spectral Accelerations	S_{MS}	=	0.954g
	S_{M1}	=	0.434g
Design Spectral Accelerations	S_{DS}	=	0.636g
	S_{D1}	=	0.289g

Utilizing ASCE Standard 7-16, in accordance with Sections 11.8.2 and 11.8.3, the following additional parameters for the peak horizontal ground acceleration are associated with the Geometric Mean Maximum Considered Earthquake (MCE_G). The mapped MCE_G peak ground acceleration (PGA) is 0.342g for the site. For a Site Class C, the F_{PGA} is 1.2 and the mapped peak ground acceleration adjusted for Site Class effects (PGA_M) is 0.411g for the site.

4.5 Secondary Seismic Hazards

In general, secondary seismic hazards can include soil liquefaction, seismically-induced settlement, lateral displacement, surface manifestations of liquefaction, landsliding, seiches, and tsunamis. The potential for secondary seismic hazards at the subject site is discussed below.

4.5.1 Liquefaction and Dynamic Settlement

Liquefaction and dynamic settlement of soils can be caused by strong vibratory motion due to earthquakes. Granular soils tend to densify when subjected to shear strains induced by ground shaking during earthquakes. Research and historical data indicate that loose granular soils underlain by a near surface groundwater table are most susceptible to liquefaction, while the most clayey materials are not susceptible to liquefaction. Liquefaction is characterized by a loss of shear strength in the affected soil layer, thereby causing the soil to behave as a viscous liquid. This effect may be manifested at the ground surface by settlement and, possibly, sand boils where insufficient confining overburden is present over liquefied layers. Where sloping ground conditions are present, liquefaction-induced instability can result.

The site is underlain at shallow depths by Stadium Conglomerate (Figure 4). Since the potentially compressible and weathered upper portions of the undocumented artificial fill materials are recommended for removal, the underlying dense character of the Stadium Conglomerate, and the lack of a shallow ground water table, it is our opinion that the potential for liquefaction and seismic related settlement across the site is low.

4.5.2 Lateral Spread

Empirical relationships have been derived (Youd et al., 1999) to estimate the magnitude of lateral spread due to liquefaction. These relationships include parameters such as earthquake magnitude, distance of the earthquake from the site, slope height and angle, the thickness of liquefiable soil, and gradation characteristics of the soil.

The susceptibility to earthquake-induced lateral spread is considered to be low for the site because of the lack of susceptibility to liquefaction and a lack of open descending slope faces in the site vicinity.

4.5.3 Tsunamis and Seiches

Based upon the California Emergency Management Agency Tsunami Inundation Map (CalEMA, 2009), the site is not located within a tsunami inundation area. In addition, based on the generally strike-slip character of off-shore faulting and proposed elevation of the site with respect to sea level, the possibility of seiches and/or tsunamis is considered to be nil.

4.6 Landslides

Several formations within the San Diego region are particularly prone to landsliding. These formations generally have high clay content and mobilize when they become saturated with water. Other factors, such as steeply dipping bedding that project out of the face of the slope and/or the presence of fracture planes, will also increase the potential for landsliding.

No landslides or indications of deep-seated landsliding were indicated at the site during our field exploration or our review of available geologic literature, topographic maps, and stereoscopic aerial photographs. Furthermore, our field reconnaissance and the local geologic maps indicate the site is generally underlain by generally flat topography and favorable oriented geologic structure, consisting of massively bedded sandstone. Therefore, the potential for significant landslides or large-scale slope instability at the site is considered nil.

4.7 Flood Hazard

According to a Federal Emergency Management Agency (FEMA) flood insurance rate map (FEMA, 2012); the site is not located within a floodplain. Based on our review of topographic maps, the site is not located downstream of a dam or within a dam inundation area (Figures 6 and 7). Based on this review and our site reconnaissance, the potential for flooding of the site is considered low.

5.0 CONCLUSIONS

Based on the results of our geotechnical investigation of the site, it is our opinion that the proposed project is feasible from a geotechnical standpoint, provided the following conclusions and recommendations are incorporated into the project plans and specifications.

- As the site is located in the seismically active southern California area, all structures should be designed to tolerate the dynamic loading resulting from seismic ground motions;
- The site is not transected by pre-Holocene or Holocene-active faults;
- The upper 1 to 2 feet of undocumented artificial fill materials are considered potentially compressible and generally unsuitable in their present state to support additional fill or structural loads. Localized fills up to approximately 5 to 6 feet may be encountered as well. Accordingly, these soils are recommended to be removed and recompacted;
- Based on laboratory testing, the undocumented artificial fill materials possess a low expansion potential;
- The existing onsite soils are generally suitable for use as engineered fill, provided they are free of organic material, debris, and rock fragments larger than 8 inches in maximum dimension. Over-sized material should be anticipated;
- If import soils are planned, the soils should be granular in nature, and have an expansion index less than 50 (per ASTM Test Method D 4829) and have a low corrosion impact to the proposed improvements;
- Based on the results of our subsurface exploration, we anticipate that the on-site materials should be generally excavatable with conventional heavy-duty earthwork equipment. Localized cemented zones within the Stadium Conglomerate may be difficult to excavate and may require heavy ripping or breaking, which can produce oversized rock fragments. In addition, the Stadium Conglomerate contains cobbles that range in size from 3 to 6 inches in maximum dimension, but may include larger cobbles and boulders over 12 inches across. Excavated undocumented fill and Stadium Conglomerate materials will need to be screened of oversized material to be suitable for reuse as engineered fill. Buried concrete footings, utilities, and debris left from previous site uses should be anticipated and are common on sites where previous structures existed;

- Groundwater was not encountered during our investigation, nor is groundwater anticipated to be encountered during site excavation and construction except as possible seepage during/after episodes of precipitation or in areas of irrigation;
- Based on the results of our geotechnical evaluation, it is our opinion that the proposed slab-on-grade structures can be supported with typical conventional foundations;
- Although Leighton does not practice corrosion engineering, laboratory test results indicate the soils present on the site have a low potential for sulfate attack on normal concrete. However, the onsite soils are considered to have a corrosive potential for corrosion to buried uncoated ferrous metal. A corrosion consultant may be consulted to provide additional recommendations.

6.0 RECOMMENDATIONS

6.1 Earthwork

We anticipate that earthwork at the site will consist of site preparation and remedial grading. We recommend that earthwork on the site be performed in accordance with the following recommendations and the General Earthwork and Grading Specifications for Rough Grading included in Appendix E. In case of conflict, the following recommendations supersede those in Appendix E.

6.1.1 Site Preparation

Prior to grading, all areas to receive structural fill or engineered structures should be cleared of surface and subsurface obstructions, including any existing debris and undocumented or loose fill soils, and stripped of vegetation. Removed vegetation and debris should be properly disposed off-site. All areas to receive fill and/or other surface improvements should be scarified to a minimum depth of 6 inches, brought to above-optimum moisture conditions, and recompacted to at least 90 percent relative compaction (based on ASTM Test Method D 1557).

6.1.2 Excavations and Oversize Material

Excavations of the onsite materials may generally be accomplished with conventional heavy-duty earthwork equipment. However, concretionary and cemented layers within the Stadium Conglomerate may require heavy ripping or breaking with specialized equipment during grading if encountered. Excavation for utilities may also be difficult in some areas. Where soils are found to have greater than 30 percent oversize particles retained on the ¾-inch sieve, corrections using ASTM D4718 are no longer considered valid. Where materials exceed the oversize fraction allowed by ASTM D4718, use of a test fill that contains oversize fraction within the allowable limits of the standard can be compacted and tested to develop a field method to obtain the specified compaction. That method should then be applied to subsequent layers that exceed the maximum allowable oversize percentage.

Due to the variable amount of oversized cobble in the existing undocumented fill and the Stadium Conglomerate materials, a screening process of the excavated materials will need to be utilized to remove the oversized cobbles and/or boulders prior to reuse as engineered fill. Placement of fills with oversize materials shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material larger than 3 inches should not be placed within 1 vertical foot of the finish building pad grade and within 2 feet of future utiliites or underground construction. Cobble, or other irreducible material with a maximum dimension greatern than 6 inches, should not be placed within engineered fill areas and should be disposed of offsite.

Due to the general density and soil type characteristiecs of the Stadium Conglomerate, temporary shallow excavations less than 5 feet in depth with vertical sides should remain stable for the period required to construct utilities, provided the trenches are free of adverse geologic conditions. Overlying artificial fill soils present on site may cave during trenching operations. In accordance with OSHA requirements, excavations deeper than 5 feet should be shored or be laid back in accordance with Section 6.7 if workers are to enter such excavations.

6.2 Removal of Compressible Soils

The undocumented artificial fill soils may settle as a result of wetting or settle under the surcharge of engineered fill and/or structural loads supported on conventional foundations. Therefore, we recommend that all undocumented fill (approximately 1 to 2 feet thick with an isolated zone of 5.5 feet thick) located below the proposed structures or other settlement sensitive improvements be removed and reprocessed in accordance with Section 6.3 below. The bottom of all removals should be evaluated by a Certified Engineering Geologist to confirm conditions are as anticipated.

In non-building areas, such as concrete hardscape, and trash/recycling enclosure areas, we recommended that the upper 1 foot of soil materials below proposed subgrade elevations be removed and reprocessed in accordance with Section 6.3 below. Horizontally, the limits of the removal bottoms should extend at least 2 feet laterally beyond the limits of the proposed improvements.

Prior to placement of fill soil and in areas of planned improvements, the upper 6 inches of ground surface should be scarified, moisture conditioned as necessary, and properly recompacted.

In general, the soil that is removed may be reused and placed as engineered fill provided the material is moisture conditioned to at least 2 percent above optimum moisture content, and then recompacted prior to additional fill placement or construction. Soil with an expansion index greater than 50 should not be used within 5 feet of finish grade. The actual depth and extent of the required removals should be confirmed during grading operations by the geotechnical consultant.

6.3 Engineered Fill

The onsite soils are generally suitable for use as compacted fill provided they are free of organic material, debris, and rock fragments larger than 6 inches in maximum dimension. The onsite soils generally have moisture contents below optimum and may require moisture conditioning prior to use as compacted fill. All fill soils should be brought to at least 2 percent above-optimum moisture conditions and compacted in uniform lifts to at least 90 percent relative compaction based on laboratory standard ASTM Test Method D 1557. The optimum lift thickness required to produce a uniformly compacted fill will depend on the type and size of compaction equipment used. In general, fill should be placed in lifts not exceeding 8 inches in thickness.

6.4 Cut/Fill Transition Mitigation

Although grading plans were not available at the time of this report, only minor cuts and fills are anticipated to achieve final grades. To mitigate any potential differential settlement from cut/fill transitions, all footings are recommended to be extended to bear on competent Stadium Conglomerate.

6.5 Expansive Soils and Selective Grading

Based on our laboratory testing and observations, we anticipate the onsite soil materials possess a generally low expansion potential (Appendix C). In addition, to accommodate conventional foundation design, the upper 5 feet of materials within the building pad and 5 feet outside the limits of the building foundation should have a very low to low expansion potential (EI<50).

6.6 Import Soils

If import soils are used, the soil should be granular in nature, and have an expansion index less than 50 (per ASTM Test Method D 4829), and have a low corrosion impact to the proposed improvements. Beneath pavements, subgrade materials should possess an R-Value of 20, or greater. Import soils and/or the borrow site location should be evaluated by the geotechnical consultant prior to import.

6.7 Temporary Excavations

Sloping excavations may be utilized when adequate space allows. Based on the results of our evaluation, we provide the following recommendations for sloped excavations in fill soils or Stadium Conglomerate without seepage conditions.

Table 2
Maximum Slope Ratios

Excavation Depth (feet)	Maximum Slope Ratio Fill Soils	Maximum Slope Ratio In Stadium Conglomerate
0 to 5	1:1 (Horizontal to Vertical)	1:1 (Horizontal to Vertical)

The above values are based on the assumption that no surcharge loading or equipment is present within 10 feet of the top of slope. Care should be taken during design of excavations adjacent to the existing structures so that foundation support is preserved. A "competent person" should observe the slope on a daily basis for signs of instability. All excavations should comply with current OSHA requirements.

6.8 Foundation and Slab Considerations

Based on our understanding of the project, we recommend that conventional spread footings be founded in undisturbed Stadium Conglomerate. Where shallow foundations are constructed alongside existing shallow spread footings, any excavation below the depth of the bottom of the existing footing should be performed in a manner to avoid compromising the bearing capacity of the existing footings. The structural engineer should develop a plan showing the anticipated depth of the existing footings that are adjacent to the proposed Addition foundations. Note that the following recommendations are applicable only to new foundations and should not be used to evaluate existing foundations.

6.8.1 Shallow Spread Footing Considerations

The proposed structure additions may be supported by conventional, continuous or isolated spread footings. Where spread footings need to be deepened to bear on competent Stadium Conglomerate, a controlled low strength material (CLSM) can be used to fill the additional excavation prior to construction of the footing. The CLSM should consist of a two-sack, sand-cement slurry and have a minimum compressive strength of 125 psi when tested in accordance with ASTM D4832. Water content in the CLSM should be maintained at a proportion to minimize subsidence and bleed water shrinkage. The CLSM should be placed on competent materials. Any standing water and any loose or soft materials should be removed prior to placement of the CLSM.

Footings should extend a minimum of 24 inches beneath the lowest adjacent soil grade. At these depths, footings may be designed for a maximum allowable (FS>3) bearing pressure of 4,000 pounds per square foot (psf). The allowable bearing pressures may also be increased by one-third when considering loads of short duration such as wind or seismic forces. The minimum recommended width of footings is 18 inches for continuous footings and 24 inches for square or round footings. Footings should be designed in accordance with the structural engineer’s requirements.

6.8.2 Foundation Setback

We recommend a minimum horizontal setback distance of shallow foundations from the face of slopes or retaining structures, as indicated on the Table 3 below. This distance is measured from the outside bottom edge of the footing, horizontally to the slope or retaining wall face, and is based on the overall slope or wall height. The foundation setback distance may be revised by the geotechnical consultant on a case-by-case basis if the geotechnical conditions are different than anticipated.

foundations. Note that the following recommendations are applicable only to new foundations and should not be used to evaluate existing foundations. However, use of the recommended bearing pressures below for new foundations within the existing building is acceptable.

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Table 3
Minimum Foundation Setback

Slope/Wall Height	Minimum Recommended Foundation Setback
less than 5 feet	5 feet
5 to 15 feet	7 feet

Please note that the soils within the structural setback area possess poor lateral stability, and improvements (such as retaining walls, sidewalks, fences, pavements, etc.) constructed within this setback area may be subject to lateral movement and/or differential settlement. Potential distress to such improvements may be mitigated by providing a deepened footing or a pier and grade beam foundation system to support the improvement.

In addition, open or backfilled utility trenches that parallel or nearly parallel structure footings should not encroach within an imaginary 2:1 (horizontal to vertical) downward sloping line starting 9 inches above the bottom edge of the footing and should also not located closer than 18 inches from the face of the footing. Deepened footings should meet the setbacks as described above.

Where pipes cross under footings, the footings should be specially designed. Pipe sleeves should be provided where pipes cross through footings or footing walls and sleeve clearances should provide for possible footing settlement.

6.8.3 Floor Slabs

Slabs-on-grade should be at least 5 inches thick and be reinforced with No. 4 rebars 18 inches on center each way (minimum) placed at mid-height in the slab. We recommend control joints be provided across the slab at appropriate intervals as designed by the project architect.

For slab areas where vapor control is appropriate, a minimum 15-mil vapor barrier should be provided between the underslab and gravel capillary break. The vapor barrier should have a permeance of less than 0.01 perms across the entire slab area in the final constructed condition. Measures to protect the barrier should be implemented throughout the installation and slab construction process to prevent damage (ASTM E1643). Vapor barrier materials should conform to ASTM E1745 Class A. The gravel capillary break should consist of a layer of uniform 3/8-inch to 1/2-inch gravel that is at least 4-inches thick. The mix design of the slab concrete should be proportioned to control bleeding, shrinkage and curling. The project architect should provide waterproofing and underslab insulation designs where appropriate.

Moisture barriers can retard, but not eliminate moisture vapor movement from the underlying soils up through the slabs. We recommend that the floor covering/insulation installer test the moisture vapor flux rate prior to attempting applications of the flooring/insulation. “Breathable” floor coverings should be considered if the vapor flux rates are high. A slip-sheet or equivalent should be utilized above the concrete slab if crack-sensitive floor coverings (such as ceramic tiles, etc.) are to be placed directly on the concrete slab. Additional guidance is provided in ACI Publications 302.1R-15 Guide for Concrete Floor and Slab Construction and 302.2R-06 Guide for Concrete Slab that Receive Moisture-Sensitive Floor Materials.

The potential for slab cracking may be reduced by careful control of water/cement ratios. The contractor should take appropriate curing precautions during the pouring of concrete in hot weather to minimize cracking of the slabs. We recommend that a slipsheet (or equivalent) be utilized if grouted tile, marble tile, or other crack-sensitive floor covering is planned directly on concrete slabs. All slabs should be designed in accordance with structural considerations. If heavy vehicle or equipment loading is proposed for the slabs, greater thickness and increased reinforcing may be required. The additional measures should be designed by the structural engineer using a modulus of subgrade reaction of 150 pounds per cubic inch. Additional moisture/waterproofing measures that may be needed to accomplish desired serviceability of the building finishes and should be designed by the project architect.

These recommendations assume that the soils encountered within 5 feet of pad grade have a very low to low potential for expansion (EI<50). If more expansive materials are encountered and selective grading cannot be accomplished, revised foundation recommendations may be necessary.

6.8.4 Settlement

For conventional footings, the recommended allowable-bearing capacity is based on a maximum total and differential static settlement of 3/4 inch and 1/2 inch, respectively. Since settlements are a function of footing size and contact bearing pressures, some differential settlement can be expected where a large differential loading condition exists. However, for most cases, differential settlements are considered unlikely to exceed 1/2 inch. The settlements assume that the proposed structure foundations are founded in properly compacted fill materials.

6.8.5 Lateral Earth Pressures and Retaining Wall Design

Although not planned at this time, should retaining walls be added to the project, Table 4 presents the lateral earth pressure values for level or sloping backfill for walls backfilled with and bearing against fully drained soils of very low to low expansion potential (less than 50 per ASTM D 4829).

Table 4
Static Equivalent Fluid Weight (pcf)

Conditions	Level	2:1 Slope
Active	36	55
At-Rest	55	65
Passive	350 (Maximum of 3 ksf)	150 (Sloping Down)

Walls up to 10 feet in height should be designed for the applicable equivalent fluid unit weight values provided above. If conditions other than those covered herein are anticipated, the equivalent fluid unit weight values should be provided on an individual case-by-case basis by the geotechnical engineer. A surcharge load for a restrained or unrestrained wall resulting from automobile traffic may be assumed to be equivalent to a uniform lateral pressure of 75 psf which is in addition to the equivalent fluid pressure given above. For other uniform surcharge loads, a uniform pressure equal to 0.35q should be applied to the wall. The wall pressures assume walls are backfilled with free draining materials and water is not allowed to accumulate behind walls. A typical drainage design is contained in Appendix E. Wall backfill should be compacted by mechanical methods to at least 90 percent relative compaction (based on ASTM D 1557). If foundations are planned over the wall backfill, the wall backfill should be compacted to 95 percent. Wall footings should be designed in accordance with the foundation design recommendations and reinforced in accordance with structural considerations. For all retaining walls, we recommend a minimum horizontal distance from the outside base of the footing to daylight as outlined in Section 6.8.2.

Lateral soil resistance developed against lateral structural movement can be obtained from the passive pressure value provided above. Further, for sliding resistance, the friction coefficient of 0.3 may be used at the concrete and soil interface. These values may be increased by one-third when considering loads of short duration including wind or seismic loads. The total resistance may be taken as the sum of the frictional and passive resistance provided that the passive portion does not exceed two-thirds of the total resistance.

To account for potential redistribution of forces during a seismic event, retaining walls providing lateral support where exterior grades on opposites sides differ by more than 6 feet fall under the requirements of 2019 CBC Section 1803.5.12 and/or ASCE 7-16 Section 15.6.1 and should also be analyzed for seismic loading. For that analysis, an additional uniform lateral seismic force of 8H should be considered for the design of the retaining walls with level backfill, where H is the height of the wall. This value should be increased by 150% for restrained walls.

6.9 Control of Surface Waters

Regarding Best Management Practices (BMP) and Low Impact Development (LID) measures, we are of the opinion that infiltration basins, and other on-site storm water retention and infiltration systems can potentially create adverse perched groundwater conditions, both on-site and off-site, when not installed using proper design recommendations (such as the use of liners) and infiltration design parameters. Due to the dense nature of the Stadium Conglomerate and existing site constraints and conditions, we do not recommend infiltration of surface storm water into the existing site soils. However, Low Impact Development (LID) BMPs that contain and filter surface waters (flow-through planters and bioretention areas) are acceptable provided that they are completely lined with an impermeable liner and have subdrain systems that tie into an approved existing or proposed storm drain system.

Surface storm water should be transported off the site in approved drainage devices or unobstructed swales. We recommend a minimum flow gradient for unpaved drainage within 5 feet of structures of 2 percent sloping away. All area drain inlets should be maintained and kept clear of debris in order to function properly. In addition, landscaping should not cause any obstruction to site drainage. Rerouting of drainage patterns and/or installation of area drains should be performed, if necessary, by a qualified civil engineer or a landscape architect.

6.10 Concrete Flatwork

Concrete sidewalks and other flatwork (including construction joints) should be designed by the project civil engineer and should have a minimum thickness of 4 inches with No. 4 bars at 24 inches on center or No. 3 bars at 18 inches on center. For all concrete flatwork, the upper 12 inches of subgrade soils should be moisture conditioned to at least 2 percent above optimum moisture content depending on the soil type and compacted to at least 90 percent relative compaction based on ASTM Test Method D1557 prior to the concrete placement. Moisture testing should be confirmed 24 hours prior to concrete placement.

6.11 Geochemical Considerations

Concrete in direct contact with soil or water that contains a high concentration of soluble sulfates can be subject to chemical deterioration commonly known as “sulfate attack.” Soluble sulfate test results (Appendix C) indicate an exposure class of S0. We recommend that concrete in contact with earth materials be designed in accordance with Section 4 of ACI 318-14 (ACI, 2014) Table 19.3.1.1.

Based on the results of preliminary screening laboratory testing, the site soils have a corrosive potential to buried uncoated metal conduits (Caltrans, 2018). We recommend measures to mitigate corrosion be implemented during design and construction. Leighton does not practice corrosion engineering. Therefore, a corrosion engineer may be contacted for additional recommendations.

6.12 Construction Observation and Plan Reviews

The recommendations provided in this report are based on preliminary design information and subsurface conditions disclosed by widely spaced borings. The interpolated subsurface conditions should be checked in the field during construction. Construction observation of all onsite excavations and field density testing of all compacted fill should be performed by a representative of this office so that construction is in accordance with the recommendations of this report. We recommend that where possible, excavation exposures be geologically mapped by the geotechnical consultant during grading for the presence of potentially adverse geologic conditions.

Final project grading and foundation plans should be reviewed by Leighton as part of the design development process to ensure that recommendations provided in this report are incorporated in the project plans.

7.0 LIMITATIONS

The conclusions and recommendations presented in this report are based in part upon data that were obtained from a limited number of observations, site visits, excavations, samples, and tests. Such information is by necessity incomplete. The nature of many sites is such that differing geotechnical or geological conditions can occur within small distances and under varying climatic conditions. Changes in subsurface conditions can and do occur over time. Therefore, the findings, conclusions, and recommendations presented in this report can be relied upon only if Leighton has the opportunity to observe the subsurface conditions during grading and construction of the project, in order to confirm that our preliminary findings are representative for the site.

Figures

Approximate Site Location

Project: 13126.001

Eng/Geol: NT/RCS

Scale: 1 " = 2,000 '

Date: May 2021

Base Map: Bing Maps 2021

Author: Leighton Geomatics (mmurphy)

SITE LOCATION MAP

Sharp Grossmont Hospital
Brain and Spine Addition Project
5555 Grossmont Center Drive
La Mesa, California

Figure 1

Leighton

Map Saved as V:\Drafting\13126\001\Maps\13126-001_F01_SLM_2021-05-20.mxd on 5/20/2021 1:19:37 PM

Project: 13126.001
Eng/Geol: NT/RCS
Scale: 1 " = 40 '
Date: May 2021
Base Map: Google Earth, 2021
Layton, 2021

Author: (mmurphy)

GEOTECHNICAL MAP

Sharp Grossmont Hospital
Brain and Spine Addition Project
5555 Grossmont Center Drive
La Mesa, California

Figure 2

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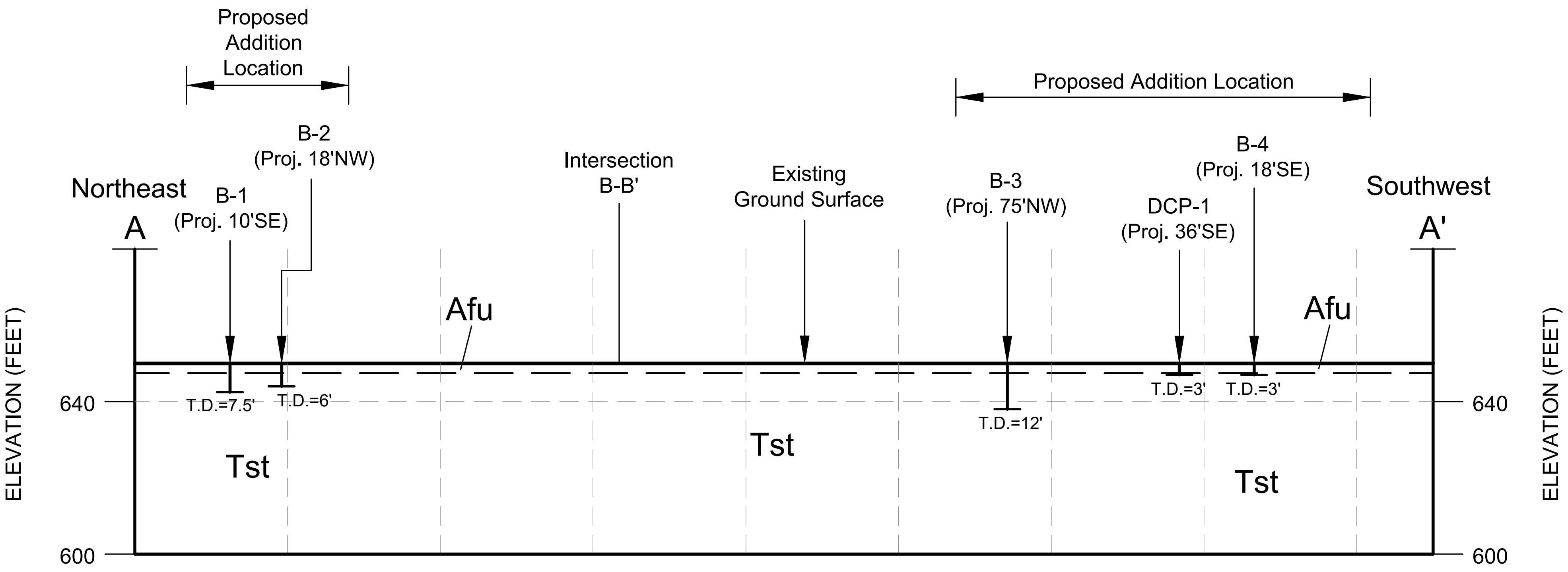
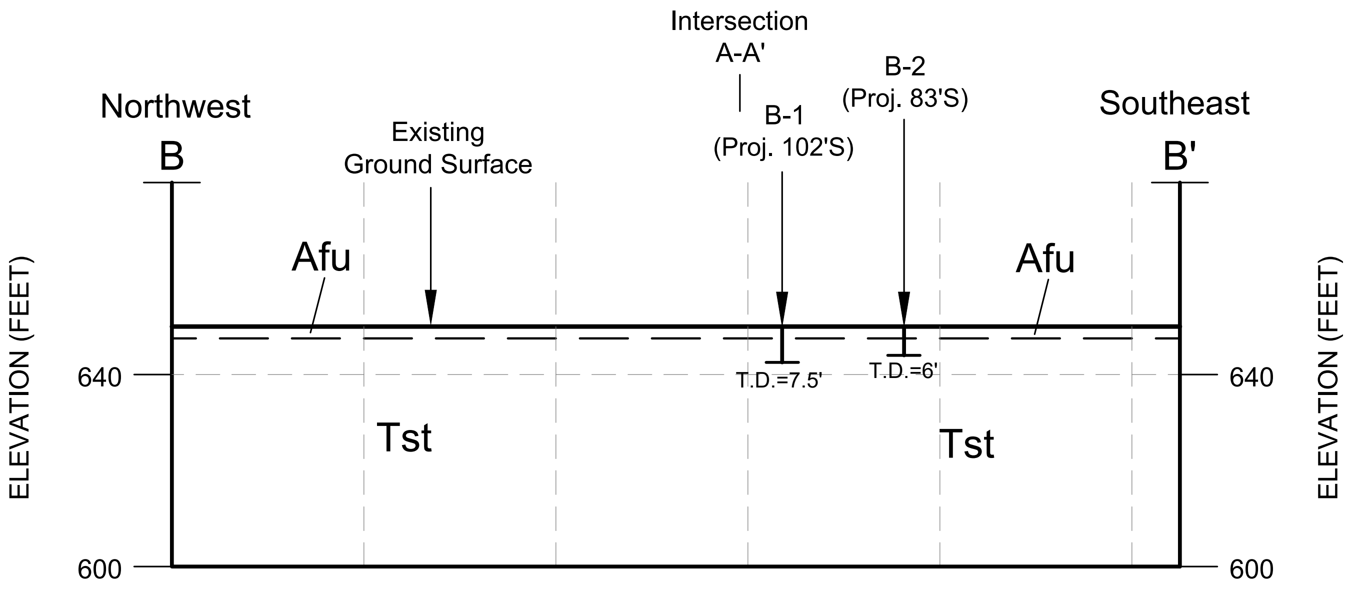
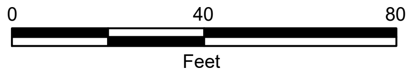




Legend

B-4 ⊥ T.D.=3'	Boring Location showing Total Depth
DCP-1 ⊥ T.D.=3'	Dynamic Cone penetrometer Location showing Total Depth
— — —	Approximate Geologic Contact
Qop	Undocumented Fill
Tst	Stadium Conglomerate



Project: 13126.001	Eng/Geol: NT/RCS
Scale: 1"=40'	Date: May 2021

Reference:

Author: MAM

GEOLOGIC CROSS-SECTION A-A' & B-B'

Sharp Grossmont Hospital
Brain and Spine Addition Project
5555 Grossmont Center Drive
La Mesa, California

Figure 3

Leighton

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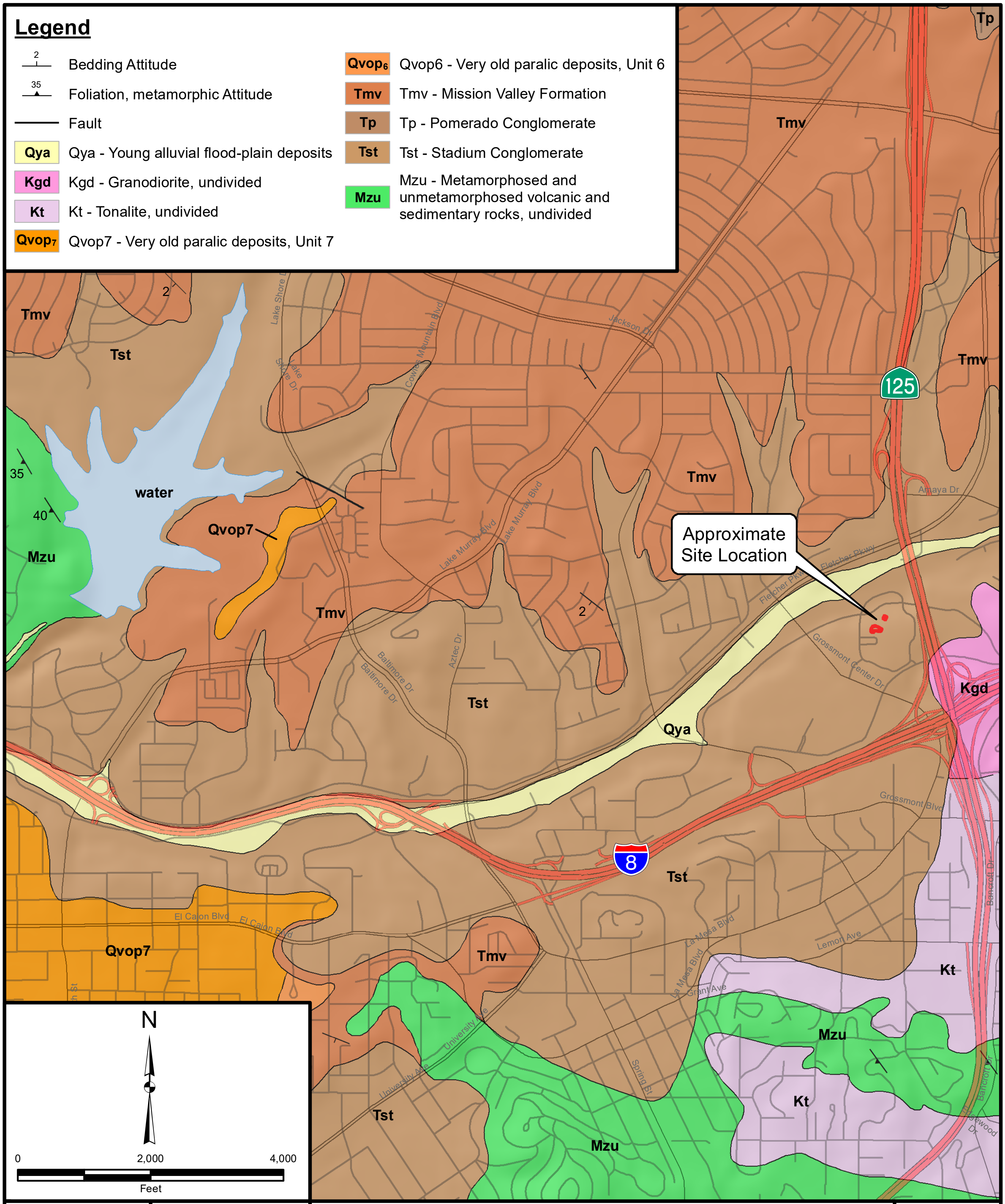

Legend

- 2 Bedding Attitude
- 35 Foliation, metamorphic Attitude
- Fault
- **Qya** Qya - Young alluvial flood-plain deposits
- **Kgd** Kgd - Granodiorite, undivided
- **Kt** Kt - Tonalite, undivided
- **$Qvop_7$** Qvop7 - Very old paralic deposits, Unit 7
- **$Qvop_6$** Qvop6 - Very old paralic deposits, Unit 6
- **Tmv** Tmv - Mission Valley Formation
- **Tp** Tp - Pomerado Conglomerate
- **Tst** Tst - Stadium Conglomerate
- **Mzu** Mzu - Metamorphosed and unmetamorphosed volcanic and sedimentary rocks, undivided

Project: 13126.001
Eng/Geol: NT/RCS
Scale: 1 " = 2,000 '
Date: May 2021

Base map: Kennedy, M.P. and Tan, S.S, 2008, Geologic Map of the San Diego 30' X 60' Quadrangle, California Compiled by Michael P. Digital Preparation by Kelly R. Bovard, Anne G. Garcia and Diane Burns, California Geological Survey.
Author: Leighton Geomatics (mmurphy)

GEOLOGIC MAP

Sharp Grossmont Hospital
Brain and Spine Addition Project
5555 Grossmont Center Drive
La Mesa, California

Figure 4

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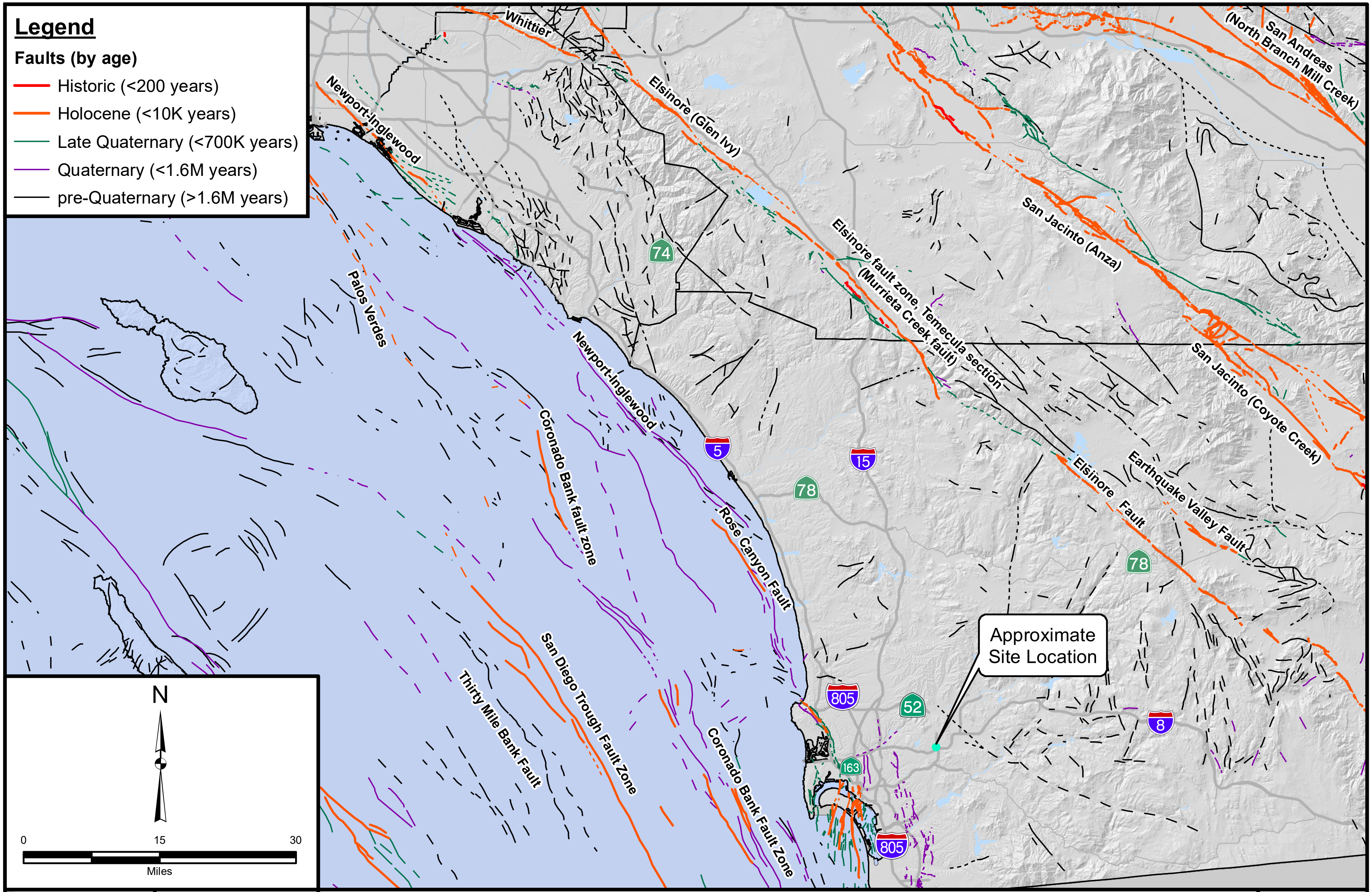

Project: 13126.001

Eng/Geol: NT/RCS

Scale: 1 " = 15 miles

Date: May 2021

Faults: Bryant, Bryant CGS 2010

Author: Leighton Geomatics (mmurphy)

REGIONAL FAULT MAP

Sharp Grossmont Hospital
Brain and Spine Addition Project
5555 Grossmont Center Drive
La Mesa, California

Figure 5

Leighton

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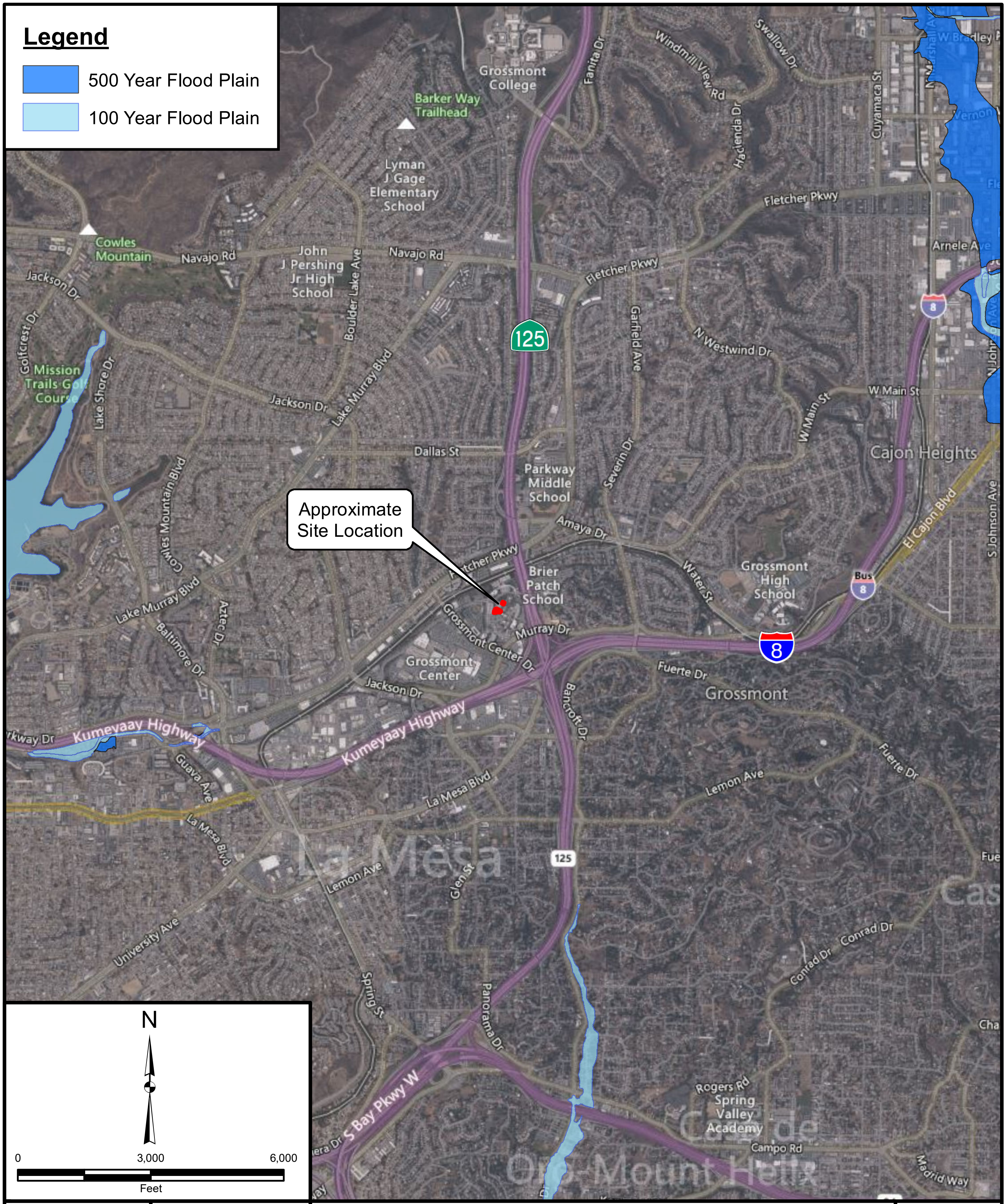

Project: 13126.001	Eng/Geol: NT/RCS
Scale: 1 " = 3,000 '	Date: May 2021

Base Map: Bing Maps 2021

Author: Leighton Geomatics (mmurphy)

FLOOD HAZARD ZONE MAP

Sharp Grossmont Hospital
Brain and Spine Addition Project
5555 Grossmont Center Drive
La Mesa, California

Figure 6

Leighton

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Project: 13126.001 | Eng/Geol: NT/RCS

Scale: 1 " = 2,000 ' | Date: May 2021

Base Map: Bing Maps 2021

Author: Leighton Geomatics (mmurphy)

DAM INUNDATION MAP

Sharp Grossmont Hospital
Brain and Spine Addition Project
5555 Grossmont Center Drive
La Mesa, California

Figure 7

Leighton

Map Saved as V:\Drafting\13126\001\Maps\13126-001_F07_DIM_2021-05-20.mxd on 5/21/2021 8:19:25 AM

Appendix A
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APPENDIX A
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Youd, T. L., Hanson C. M., and Bartlett, S. F., 1999, Revised MLR Equations for Predicting Lateral Spread Displacement, Proceedings of the 7th U.S.-Japan Workshop on Earthquake Resistant Design of Lifeline Facilities and Countermeasures Against Soil Liquefaction, November 19, 1999, pp. 99-114.

Appendix B
Boring Logs

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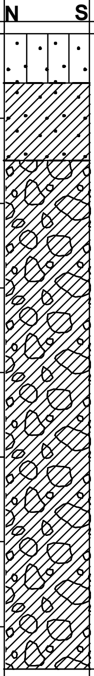
GEOTECHNICAL BORING LOG B-1

Project No.	13126.001	**Date Drilled**	4-27-21
Project	Sharp Grossmont Addition	**Logged By**	CA
Drilling Co.	Baja Exploration	**Hole Diameter**	6"
Drilling Method	CME-55 - 140lb - Autohammer - 30" Drop	**Ground Elevation**	647' msl
Location	See Figure 2	**Sampled By**	CA



Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0							SM	TOPSOIL @ 0'-7": Silty SAND, loose, dark grayish brown, very moist, fine SAND, some rootlets throughout	
				B-1 (7"-5')				SC	UNDOCUMENTED ARTIFICIAL FILL (Afu) @ 7": Clayey SAND, medium dense, light brownish gray to grayish brown, moist, fine to medium SAND, few coarse gravel, gravel well-rounded	
								GC	STADIUM CONGLOMERATE (Tst) @ 1.5': Clayey GRAVEL CONGLOMERATE with SAND, very dense, light brownish gray to grayish brown, moist, fine to medium SAND, few cobble, gravel and cobble well-rounded	
645										
	5			S-1	50/5"				@ 5': Low recovery	
640										
									@ 7.5': Auger refusal on cobble	
									Total Depth = 7.5 Feet (bgs) **No groundwater or seepage encountered during drilling** **Backfilled with soil cuttings on 4/27/21**	
	10									
635										
	15									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING	DS	DIRECT SHEAR	SA	SIEVE ANALYSIS
AL	ATTERBERG LIMITS	EI	EXPANSION INDEX	SE	SAND EQUIVALENT
CN	CONSOLIDATION	H	HYDROMETER	SG	SPECIFIC GRAVITY
CO	COLLAPSE	MD	MAXIMUM DENSITY	UC	UNCONFINED COMPRESSIVE STRENGTH
CR	CORROSION	PP	POCKET PENETROMETER		
CU	UNDRAINED TRIAXIAL	RV	R VALUE		

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG B-2

Project No. 13126.001
Project Sharp Grossmont Addition
Drilling Co. Baja Exploration
Drilling Method CME-55 - 140lb - Autohammer - 30" Drop
Location See Figure 2

Date Drilled 4-27-21
Logged By CA
Hole Diameter 6"
Ground Elevation 647' msl
Sampled By CA

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	**SOIL DESCRIPTION** *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0							SM	TOPSOIL	
				B-1 (4"-5')				SM	@ 0'-4": Silty SAND, loose, brown, damp, fine to medium SAND, some rootlets throughout, few roots, trace clay chunks UNDOCUMENTED ARTIFICIAL FILL (Afu) @ 4": Silty SAND, loose to medium dense, grayish brown, slightly moist, fine to coarse SAND, trace fine to coarse gravel, gravel well-rounded, trace concrete debris	
645										
									@ 3': Becomes medium dense	
	5			R-1	24 50/1"				@ 5': No recovery	
								GC	STADIUM CONGLOMERATE (Tst) @ 5.5': Clayey GRAVEL CONGLOMERATE with SAND, very dense, light brownish gray to grayish brown, moist, fine to medium SAND, few cobble, gravel and cobble well-rounded @ 6': Auger refusal on cobble	
640									**Total Depth = 6 Feet (bgs)** **No groundwater or seepage encountered during drilling** **Backfilled with soil cuttings on 4/27/21**	
	10									
635										
	15									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING
AL	ATTERBERG LIMITS
CN	CONSOLIDATION
CO	COLLAPSE
CR	CORROSION
CU	UNDRAINED TRIAXIAL
DS	DIRECT SHEAR
EI	EXPANSION INDEX
H	HYDROMETER
MD	MAXIMUM DENSITY
PP	POCKET PENETROMETER
RV	R VALUE
SA	SIEVE ANALYSIS
SE	SAND EQUIVALENT
SG	SPECIFIC GRAVITY
UC	UNCONFINED COMPRESSIVE STRENGTH

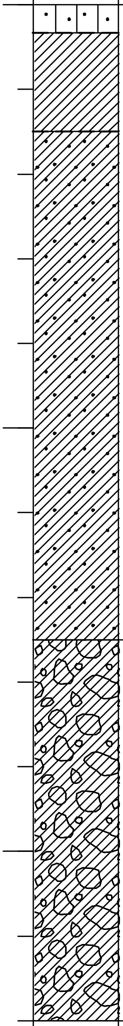
*** * * This log is a part of a report by Leighton and should not be used as a stand-alone document. * * ***

GEOTECHNICAL BORING LOG B-3

Project No.	13126.001	**Date Drilled**	4-28-21
Project	Sharp Grossmont Addition	**Logged By**	CA
Drilling Co.	Baja Exploration	**Hole Diameter**	6"
Drilling Method	CME-55 - 140lb - Autohammer - 30" Drop	**Ground Elevation**	640' msl
Location	See Figure 2	**Sampled By**	CA

SOIL DESCRIPTION

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

Elevation Feet	Depth Feet	Graphic Log N S	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
640	0							SM	TOPSOIL @ 0'-4": Silty SAND, loose, brown, damp, fine to medium SAND, some rootlets throughout, few roots, trace clay chunks	
				B-1 (4"-5')				CL	UNDOCUMENTED ARTIFICIAL FILL (Afu) @ 4": Sandy Lean CLAY, soft to medium stiff, dark grayish brown mottled with dark brown, moist, fine to medium SAND, few coarse gravel, trace cobble, gravel and cobble well-rounded, low to medium plasticity	
								SC	STADIUM CONGLOMERATE (Tst) @ 1.5': Clayey SANDSTONE, medium dense to dense, red, light brownish gray, moist, fine to medium SAND, trace coarse gravel, gravel well-rounded, some oxidation staining, slightly micaceous	
635	5			S-1	9 10 15				@ 5': Becomes dense, reddish gray, grayish brown	
								GC	@ 7.5': Clayey GRAVEL CONGLOMERATE with SAND, very dense, light brownish gray to grayish brown, moist, fine to medium SAND, few cobble, gravel and cobble well-rounded	
630	10			S-2	33 30 50/2"				@ 10': Becomes light gray to grayish brown	
									@ 12': Auger refusal on cobble	
									Total Depth = 12 Feet (bgs) **No groundwater or seepage encountered during drilling** **Backfilled with soil cuttings on 4/28/21**	
625	15									

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

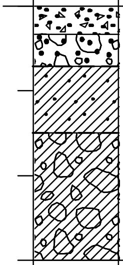
TYPE OF TESTS:

-200	% FINES PASSING
AL	ATTERBERG LIMITS
CN	CONSOLIDATION
CO	COLLAPSE
CR	CORROSION
CU	UNDRAINED TRIAXIAL
DS	DIRECT SHEAR
EI	EXPANSION INDEX
H	HYDROMETER
MD	MAXIMUM DENSITY
PP	POCKET PENETROMETER
RV	R VALUE
SA	SIEVE ANALYSIS
SE	SAND EQUIVALENT
SG	SPECIFIC GRAVITY
UC	UNCONFINED COMPRESSIVE STRENGTH

*** * * This log is a part of a report by Leighton and should not be used as a stand-alone document. * * ***

GEOTECHNICAL BORING LOG B-4

Project No. 13126.001
Project Sharp Grossmont Addition
Drilling Co. Baja Exploration
Drilling Method CME-55 - 140lb - Autohammer - 30" Drop
Location See Figure 2
Date Drilled 4-28-21
Logged By CA
Hole Diameter 6"
Ground Elevation 640' msl
Sampled By CA

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
640	0								4" CONCRETE over 4.5" AGGREGATE BASE	
				B-1 (8.5"-3')				SC	UNDOCUMENTED ARTIFICIAL FILL (Afu) @ 7": Clayey SAND, medium dense, brownish gray mottled with dark grayish brown, moist, fine to medium SAND, few coarse gravel, trace cobble, gravel and cobble well-rounded, trace debris @ 1': Becomes few cobble	
								GC	STADIUM CONGLOMERATE (Tst) @ 1.5': Clayey GRAVEL CONGLOMERATE with SAND, very dense, brownish gray, moist, fine to medium SAND, few cobble, gravel and cobble well-rounded @ 3': Auger refusal on cobble	
									Total Depth = 3 Feet (bgs) **No groundwater or seepage encountered during drilling** **Backfilled with soil cuttings on 4/28/21**	
635	5									
630	10									
625	15									

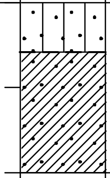
SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** * * This log is a part of a report by Leighton and should not be used as a stand-alone document. * * ***

GEOTECHNICAL BORING LOG HA-1

Project No.	13126.001	**Date Drilled**	5-7-21
Project	Sharp Grossmont Addition	**Logged By**	CA
Drilling Co.	N/A	**Hole Diameter**	3.25"
Drilling Method	Hand Auger	**Ground Elevation**	639' msl
Location	See Figure 2	**Sampled By**	CA

Elevation Feet	Depth Feet	Graphic Log N S	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	**SOIL DESCRIPTION** *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0								TOPSOIL @ 0'-7": Silty SAND, loose, dark brown, very moist, fine SAND, few rootlets throughout	
				B-1 (7"-2')				SC	UNDOCUMENTED ARTIFICIAL FILL (Afu) @ 7": Clayey SAND with GRAVEL, medium dense, brown to brownish gray, moist, fine to medium SAND, trace cobble, gravel and cobble well-rounded @ 1.5': Becomes dense, few cobble @ 2': Hand-auger refusal on cobble	
									Total Depth = 2 Feet (bgs) **No groundwater or seepage encountered during drilling** **Backfilled with soil cuttings on 5/7/21**	
635										
	5									
630										
	10									
625										
	15									

SAMPLE TYPES:

B	BULK SAMPLE
C	CORE SAMPLE
G	GRAB SAMPLE
R	RING SAMPLE
S	SPLIT SPOON SAMPLE
T	TUBE SAMPLE

TYPE OF TESTS:

-200	% FINES PASSING
AL	ATTERBERG LIMITS
CN	CONSOLIDATION
CO	COLLAPSE
CR	CORROSION
CU	UNDRAINED TRIAXIAL
DS	DIRECT SHEAR
EI	EXPANSION INDEX
H	HYDROMETER
MD	MAXIMUM DENSITY
PP	POCKET PENETROMETER
RV	R VALUE
SA	SIEVE ANALYSIS
SE	SAND EQUIVALENT
SG	SPECIFIC GRAVITY
UC	UNCONFINED COMPRESSIVE STRENGTH

WILDCAT DYNAMIC CONE LOG

Page 1 of 1

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PROJECT NUMBER: 13126.001
DATE STARTED: 05-07-2021
DATE COMPLETED: 05-07-2021

HOLE #: DCP-1
CREW: CA
PROJECT: Sharp Grossmont Addition
ADDRESS: 9001 Wakarusa Street
LOCATION: La Mesa, California

SURFACE ELEVATION: 639' msl
WATER ON COMPLETION: N/A
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

	BLOWS	RESISTANCE	GRAPH OF CONE RESISTANCE		TESTED CONSISTENCY	
DEPTH	PER 10 cm	Kg/cm^2	0 50 100 150	N'	NON-COHESIVE	COHESIVE
-	2	8.9	••	2	VERY LOOSE	SOFT
-	18	79.9	•••••••••••••••••••••••	22	MEDIUM DENSE	VERY STIFF
- 1 ft	33	146.5	••	25+	DENSE	HARD
-	28	124.3	••••••••••••••••••••••••••••••••••••	25+	DENSE	HARD
-	24	106.6	••••••••••••••••••••••••••••••	25+	MEDIUM DENSE	VERY STIFF
- 2 ft	19	84.4	••••••••••••••••••••••••	24	MEDIUM DENSE	VERY STIFF
-	18	79.9	•••••••••••••••••••••••	22	MEDIUM DENSE	VERY STIFF
-	14	62.2	••••••••••••••••••	17	MEDIUM DENSE	VERY STIFF
- 3 ft	18	79.9	•••••••••••••••••••••••	22	MEDIUM DENSE	VERY STIFF
- 1 m	24	106.6	••••••••••••••••••••••••••••••	25+	MEDIUM DENSE	VERY STIFF
-	18	69.5	••••••••••••••••••••	19	MEDIUM DENSE	VERY STIFF
- 4 ft	20	77.2	••••••••••••••••••••••	22	MEDIUM DENSE	VERY STIFF
-	30	115.8	•••••••••••••••••••••••••••••••••	25+	DENSE	HARD
-	18	69.5	••••••••••••••••••••	19	MEDIUM DENSE	VERY STIFF
- 5 ft	13	50.2	••••••••••••••	14	MEDIUM DENSE	STIFF
-	12	46.3	•••••••••••••	13	MEDIUM DENSE	STIFF
-	12	46.3	•••••••••••••	13	MEDIUM DENSE	STIFF
- 6 ft	31	119.7	••••••••••••••••••••••••••••••••••	25+	DENSE	HARD
-	60	231.6	••	25+	VERY DENSE	HARD
- 2 m	50	193.0	••	25+	VERY DENSE	HARD
- 7 ft						
-						
-						
- 8 ft						
-						
-						
- 9 ft						
-						
-						
- 3 m 10 ft						
-						
-						
-						
- 11 ft						
-						
-						
- 12 ft						
-						
-						
- 4 m 13 ft						

Appendix C
Laboratory Testing Procedures and Test Results

APPENDIX C

Laboratory Testing Procedures and Test Results

Moisture Determination Tests: Moisture content (ASTM Test Method D2216) determinations were performed on bulk samples obtained from the borings. The results of these tests are presented in the geotechnical boring logs (Appendix B).

Expansion Index Test: The expansion potential of selected material was evaluated by the Expansion Index Text, ASTM Test Method 4829. The specimen was molded under a given compactive energy to approximately 50 percent saturation. The prepared 1-inch thick by 4-inch diameter specimen was loaded to an equivalent 144 psf surcharge and was inundated with water until volumetric equilibrium was reached. The result of the test is presented in the table below:

Sample Location	Sample Description	Expansion Index	Expansion Potential
B-1 @ 1-5 Feet	Brown Clayey Sand	30	Low

Minimum Resistivity and pH Tests: Minimum resistivity and pH tests were performed in general accordance with Caltrans Test Method CT643 for Steel or CT532 for concrete and standard geochemical methods. The results are presented in the table below:

Sample Location	Sample Description	pH	Minimum Resistivity (ohms-cm)
B-1 @ 1-5 Feet	Brown Clayey Sand	7.1	1,600

Chloride Content: Chloride content was tested in accordance with Caltrans Test Method CT422. The results are presented below:

APPENDIX C (Continued)

Sample Location	Sample Description	Chloride Content, ppm
B-1 @ 1-5 Feet	Brown Clayey Sand	120

Soluble Sulfates: The soluble sulfate contents of selected samples were determined by standard geochemical methods (Caltrans Test Method CT417). The test results are presented in the table below:

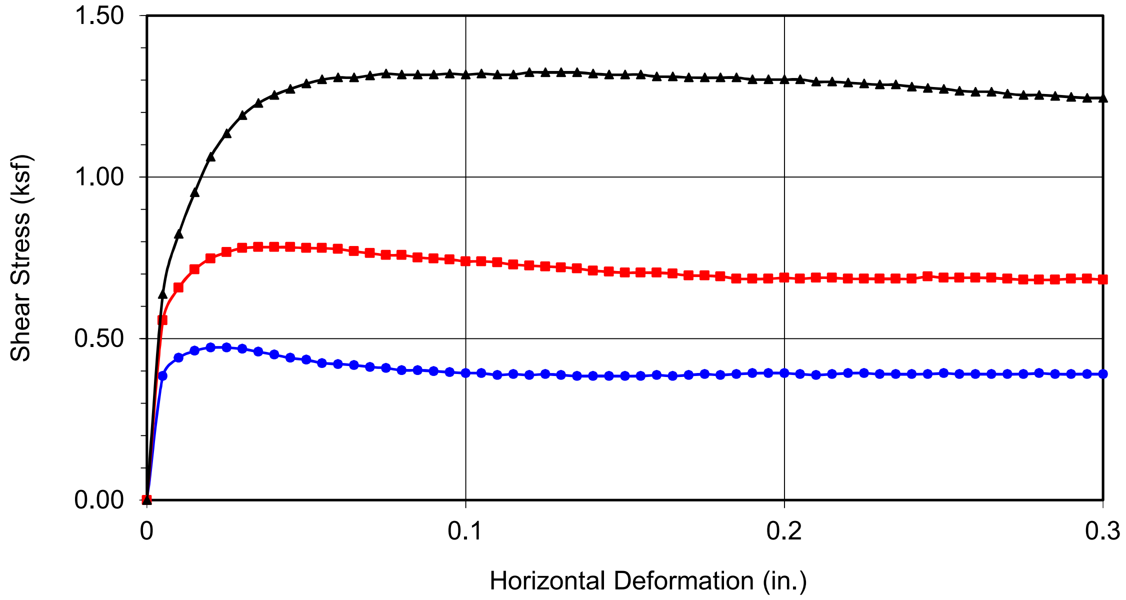
Sample Location	Sample Description	Sulfate Content, ppm	Exposure Class*
B-1 @ 1-5 Feet	Brown Clayey Sand	165	S0

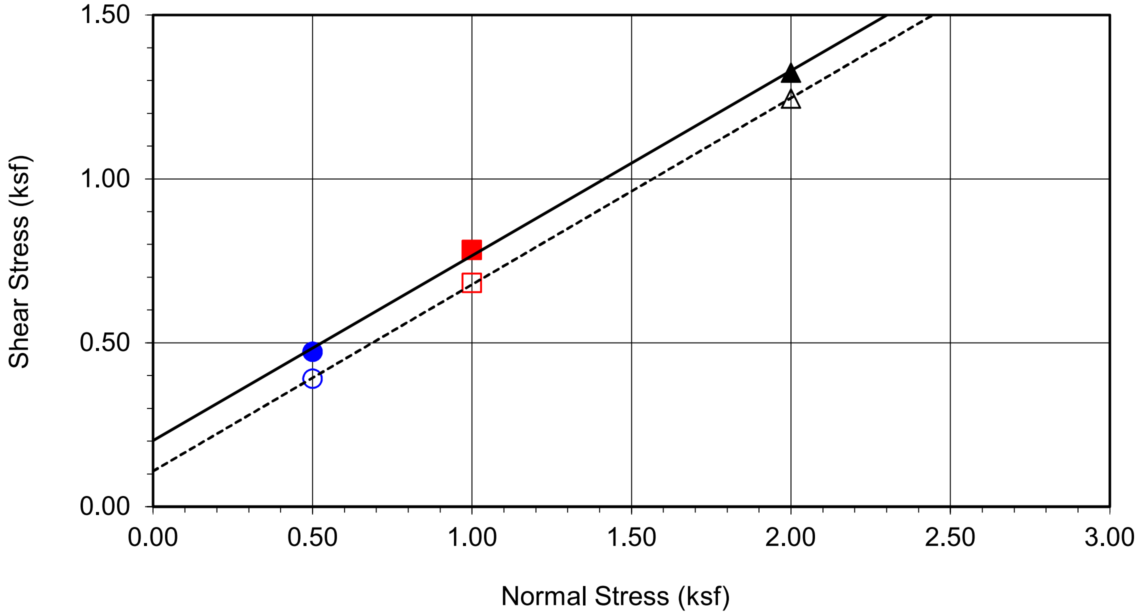
*Based on the 2014 edition of American Concrete Institute (ACI) Committee 318R, Table No. 19.3.1.1

Maximum Density Tests: The maximum dry density and optimum moisture content of a select material was determined in accordance with ASTM Test Method D1557. The results of these tests are presented in the table below:

Sample Location	Sample Description	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
B-1 @ 1-5 Feet	Brown Clayey Sand	123.5	10.0

Direct Shear Strength Test: Direct shear testing, in accordance with ASTM D3080, was performed on one sample which was soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. After transfer of the sample to the shear box, and reloading the sample, pore pressures set up in the sample due to the transfer were allowed to dissipate for a period of approximately 1 hour prior to application of shearing force. The sample was tested under various normal loads, using a motor-driven, strain-controlled, direct-shear testing apparatus. The test results are presented in the accompanying plots.





Boring No.	**B-3**
Sample No.	**B-1**
Depth (ft)	**4 in.-5'**
Sample Type:	Ring

Soil Identification:
Light brown clayey sand (SC)

Strength Parameters

	C (psf)	ϕ (^{o})
Peak	202	29
Ultimate	109	30

Normal Stress (kip/ft²)	0.500	1.000	2.000
Peak Shear Stress (kip/ft²)	● 0.472	■ 0.783	▲ 1.324
Shear Stress @ End of Test (ksf)	○ 0.390	□ 0.682	△ 1.245
Deformation Rate (in./min.)	0.0017	0.0017	0.0017
Initial Sample Height (in.)	1.000	1.000	1.000
Diameter (in.)	2.415	2.415	2.415
Initial Moisture Content (%)	9.81	9.81	9.81
Dry Density (pcf)	111.5	111.6	111.6
Saturation (%)	51.7	51.9	51.9
Soil Height Before Shearing (in.)	1.0152	1.0061	0.9919
Final Moisture Content (%)	18.8	18.1	17.4

Leighton

DIRECT SHEAR TEST RESULTS

Consolidated Drained - ASTM D 3080

Project No.: 13126.001

Sharp Grossmont Addition

05-21

Appendix D
Seismic Hazard Analysis

Latitude, Longitude: 32.7815, -117.0072

Date	5/5/2021, 2:21:07 PM
Design Code Reference Document	ASCE7-16
Risk Category	IV
Site Class	C - Very Dense Soil and Soft Rock

Type	**Value**	**Description**
S_S	0.795	MCE_R ground motion. (for 0.2 second period)
S_1	0.289	MCE_R ground motion. (for 1.0s period)
S_{MS}	0.954	Site-modified spectral acceleration value
S_{M1}	0.434	Site-modified spectral acceleration value
S_{DS}	0.636	Numeric seismic design value at 0.2 second SA
S_{D1}	0.289	Numeric seismic design value at 1.0 second SA

Type	**Value**	**Description**
SDC	D	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	1.5	Site amplification factor at 1.0 second
PGA	0.342	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.411	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	0.795	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	0.871	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.5	Factored deterministic acceleration value. (0.2 second)
S1RT	0.289	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.314	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.6	Factored deterministic acceleration value. (1.0 second)
PGAd	0.5	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.913	Mapped value of the risk coefficient at short periods
C_{R1}	0.921	Mapped value of the risk coefficient at a period of 1 s

Appendix E
General Earthwork and Grading Specifications for Rough Grading

1.0 General

1.1 Intent

These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record

Prior to commencement of work, the owner shall employ the Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultants shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required. Subsurface areas to be geotechnically observed, mapped, elevations recorded, and/or tested include natural ground after it has been cleared for receiving fill but before fill is placed, bottoms of all "remedial removal" areas, all key bottoms, and benches made on sloping ground to receive fill.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to determine the attained level of compaction. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor

The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the plans and specifications.

The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "spreads" of work and the estimated quantities of daily earthwork contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate observations and tests can be planned and accomplished. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified.

2.0 Preparation of Areas to be Filled

2.1 Clearing and Grubbing

Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). No fill lift shall contain more than 5 percent of organic matter. Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed.

2.2 Processing

Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soils are broken down and free of large clay lumps or clods and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

2.3 Overexcavation

In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 Benching

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical

Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.

2.5 Evaluation/Acceptance of Fill Areas

All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

3.1 General

Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 Oversize

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.

3.3 Import

If importing of fill material is required for grading, proposed import material shall meet the requirements of Section 3.1. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 Fill Placement and Compaction

4.1 Fill Layers

Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 Fill Moisture Conditioning

Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557).

4.3 Compaction of Fill

After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

4.4 Compaction of Fill Slopes

In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557.

4.5 Compaction Testing

Field-tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 Frequency of Compaction Testing

Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations

The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 100 feet and vertically less than 5 feet apart from potential test locations shall be provided.

5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 Excavation

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 Trench Backfills

7.1 Safety

The Contractor shall follow all OSHA and Cal/OSHA requirements for safety of trench excavations.

7.2 Bedding and Backfill

All bedding and backfill of utility trenches shall be performed in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1 foot over the top of the conduit and densified. Backfill shall be placed and densified to a minimum of 90 percent of relative compaction from 1 foot above the top of the conduit to the surface.

The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 300 feet of trench and 2 feet of fill.

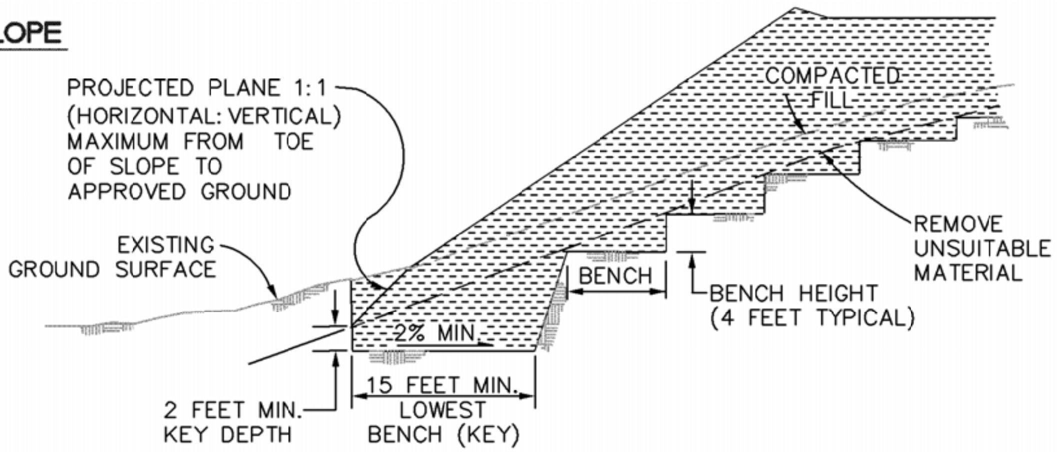
7.3 Lift Thickness

Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

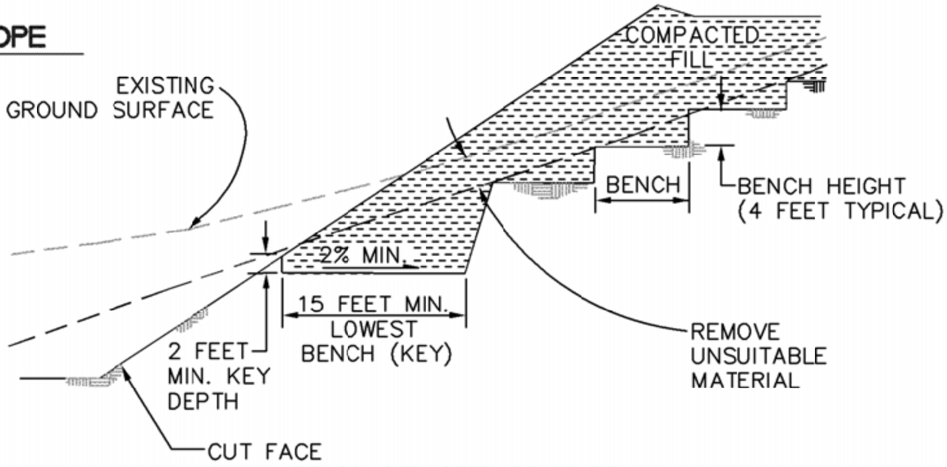
7.4 Observation and Testing

The densification of the bedding around the conduits shall be observed by the Geotechnical Consultant.

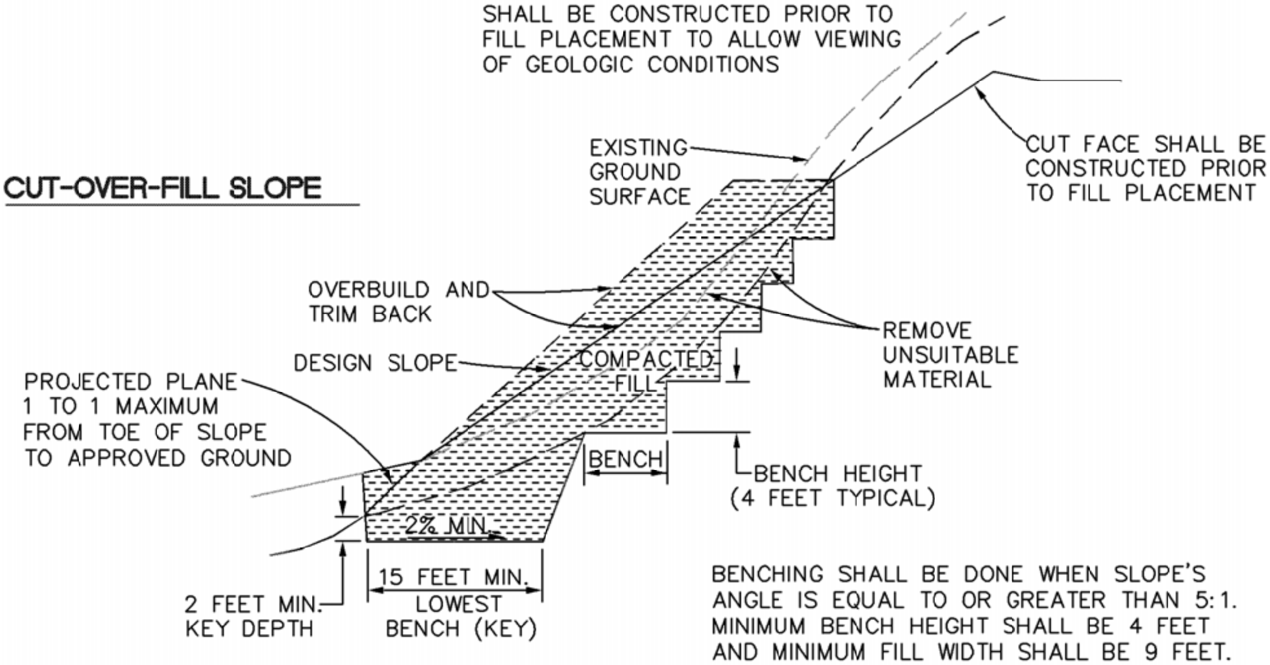
FILL SLOPE



FILL-OVER-CUT SLOPE



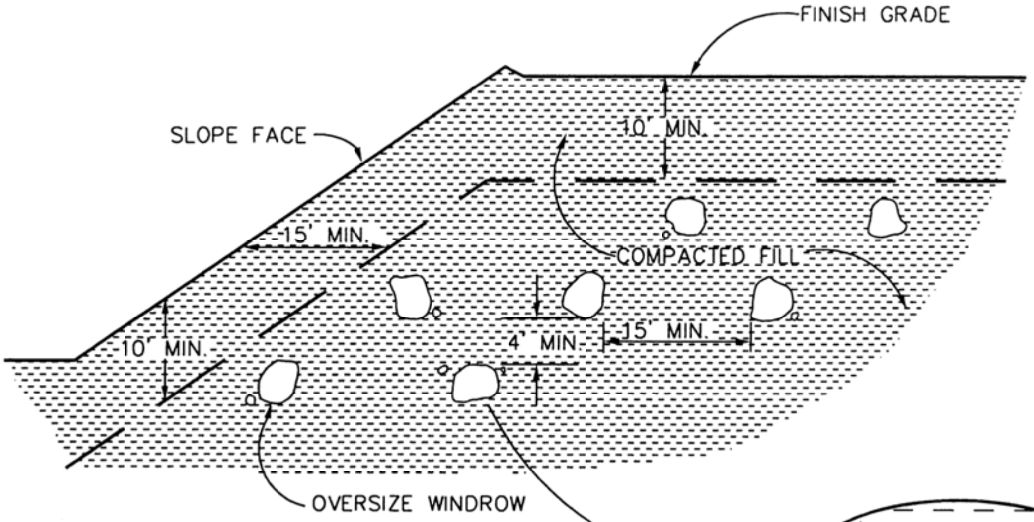
CUT-OVER-FILL SLOPE

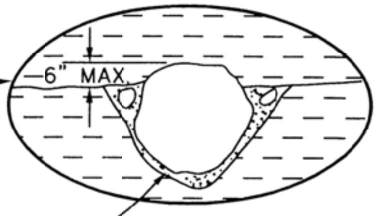


BENCHING SHALL BE DONE WHEN SLOPE'S ANGLE IS EQUAL TO OR GREATER THAN 5:1. MINIMUM BENCH HEIGHT SHALL BE 4 FEET AND MINIMUM FILL WIDTH SHALL BE 9 FEET.

KEYING AND BENCHING

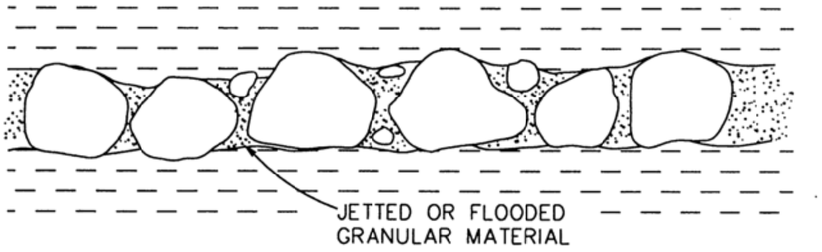
GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL A





DETAIL

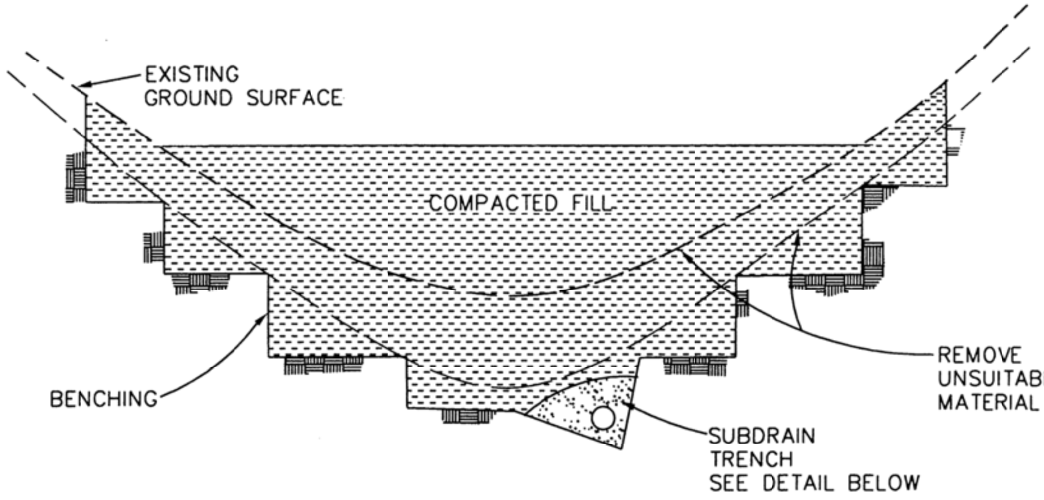
- OVERSIZE ROCK IS LARGER THAN 8 INCHES IN LARGEST DIMENSION.
- EXCAVATE A TRENCH IN THE COMPACTED FILL DEEP ENOUGH TO BURY ALL THE ROCK.
- BACKFILL WITH GRANULAR SOIL JETTED OR FLOODED IN PLACE TO FILL ALL THE VOIDS.
- DO NOT BURY ROCK WITHIN 10 FEET OF FINISH GRADE.
- WINDROW OF BURIED ROCK SHALL BE PARALLEL TO THE FINISHED SLOPE.

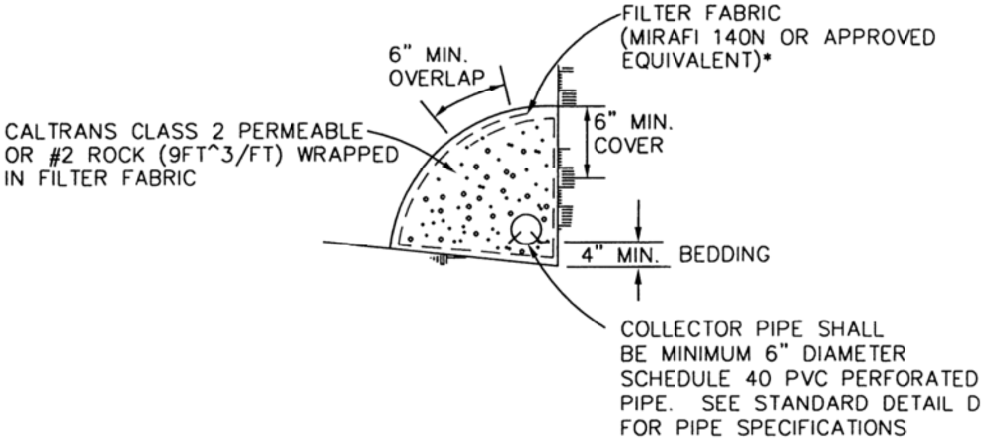


TYPICAL PROFILE ALONG WINDROW

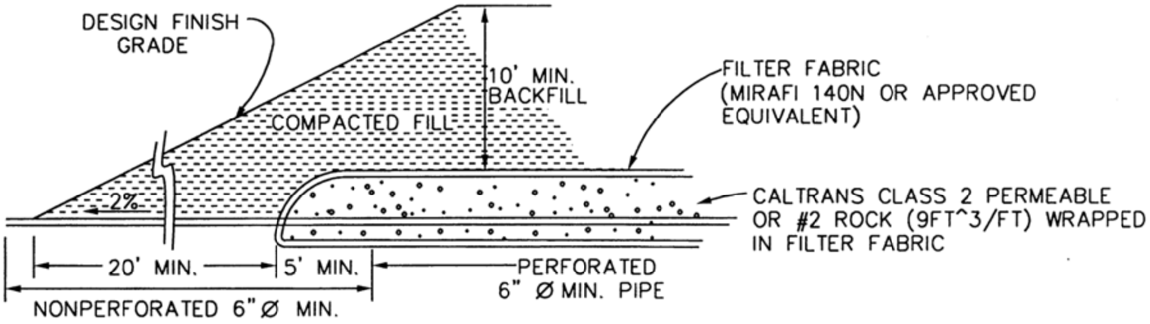
OVERSIZE ROCK DISPOSAL

GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL B





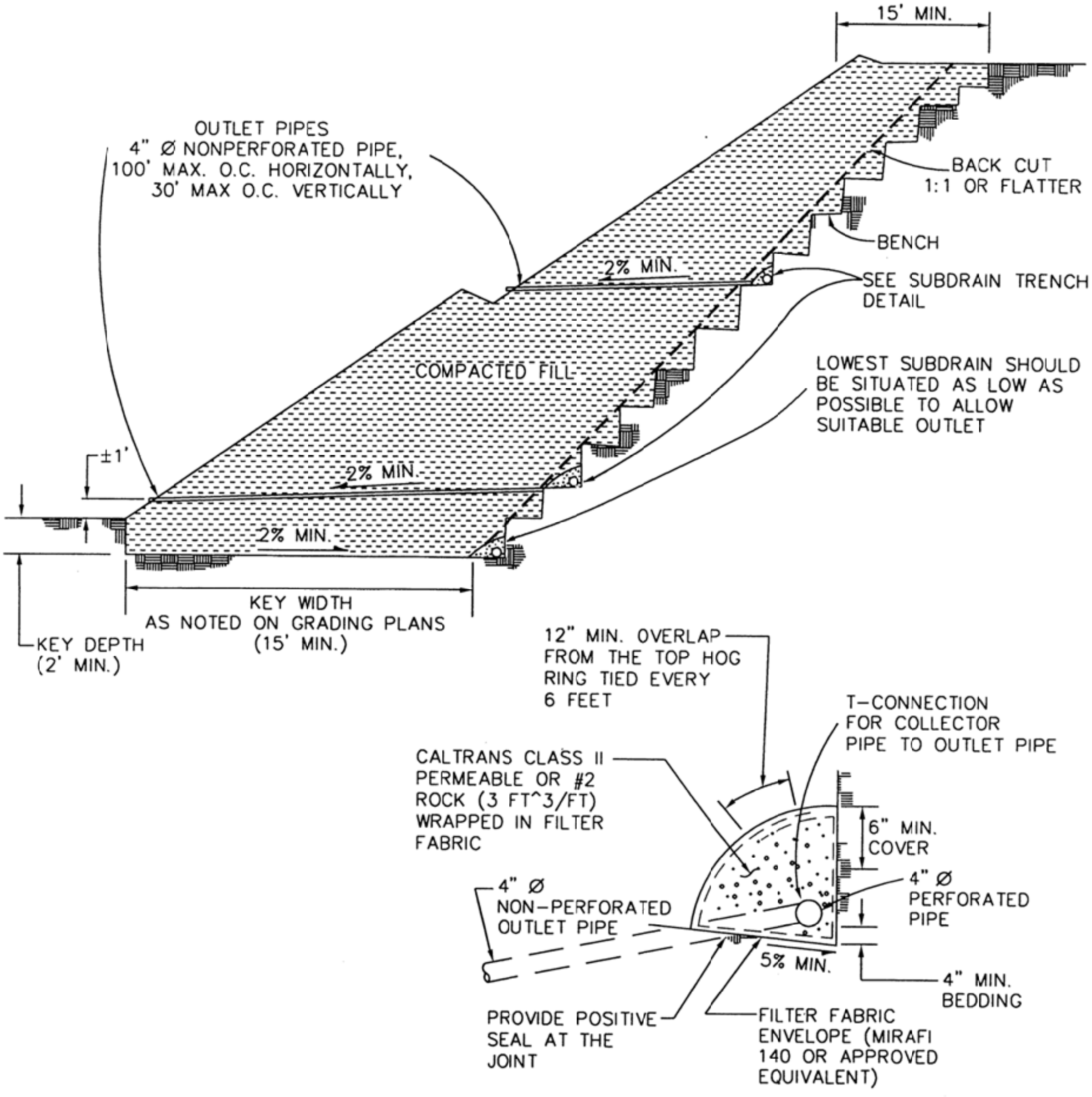
SUBDRAIN DETAIL



DETAIL OF CANYON SUBDRAIN OUTLET

CANYON SUBDRAINS

GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL C



SUBDRAIN TRENCH DETAIL

SUBDRAIN INSTALLATION – subdrain collector pipe shall be installed with perforation down or, unless otherwise designated by the geotechnical consultant. Outlet pipes shall be non-perforated pipe. The subdrain pipe shall have at least 8 perforations uniformly spaced per foot. Perforation shall be 1/4" to 1/2" if drill holes are used. All subdrain pipes shall have a gradient of at least 2% towards the outlet.

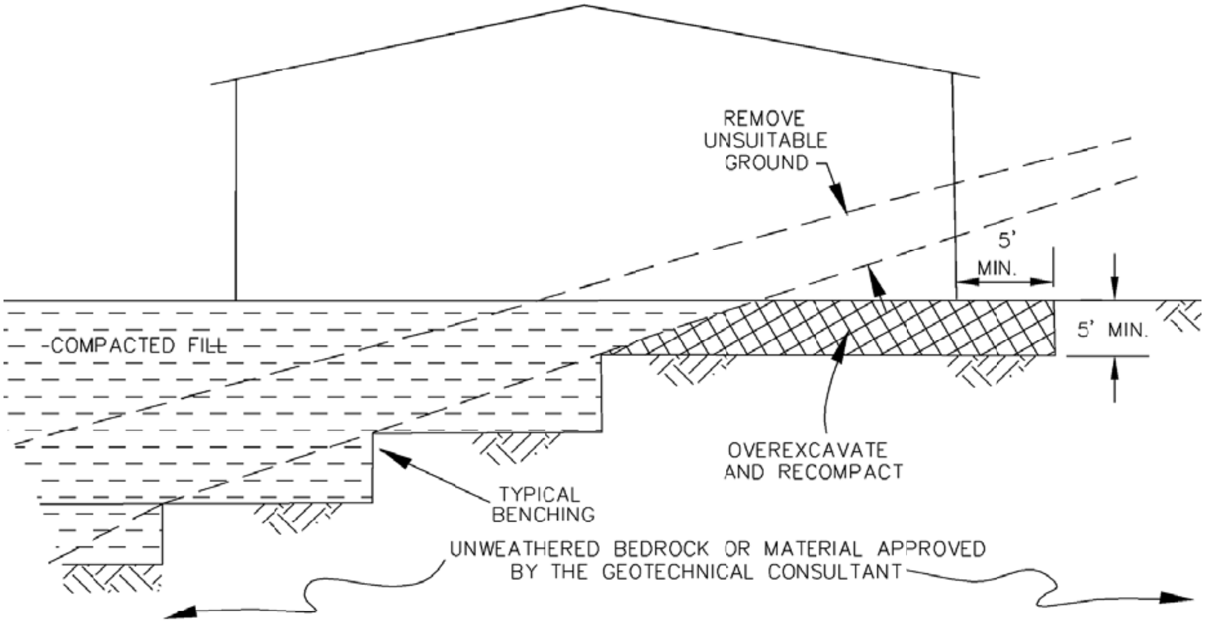
SUBDRAIN PIPE – Subdrain pipe shall be ASTM D2751, SDR 23.5 or ASTM D1527, Schedule 40, or ASTM D3034, SDR 23.5, Schedule 40 Polyvinyl Chloride Plastic (PVC) pipe.

All outlet pipe shall be placed in a trench no wider than twice the subdrain pipe.

BUTTRESS OR REPLACEMENT FILL SUBDRAINS

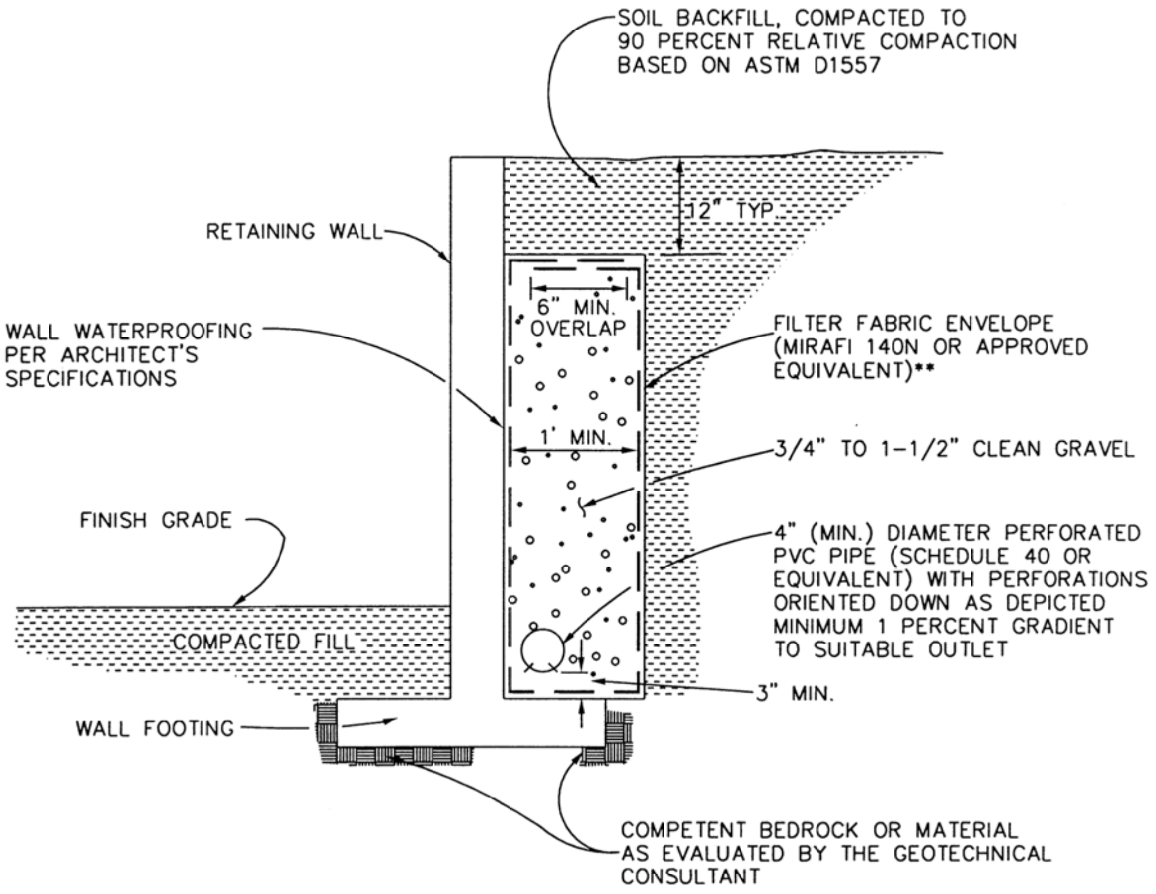
GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL D

CUT–FILL TRANSITION LOT OVEREXCAVATION



TRANSITION LOT FILLS

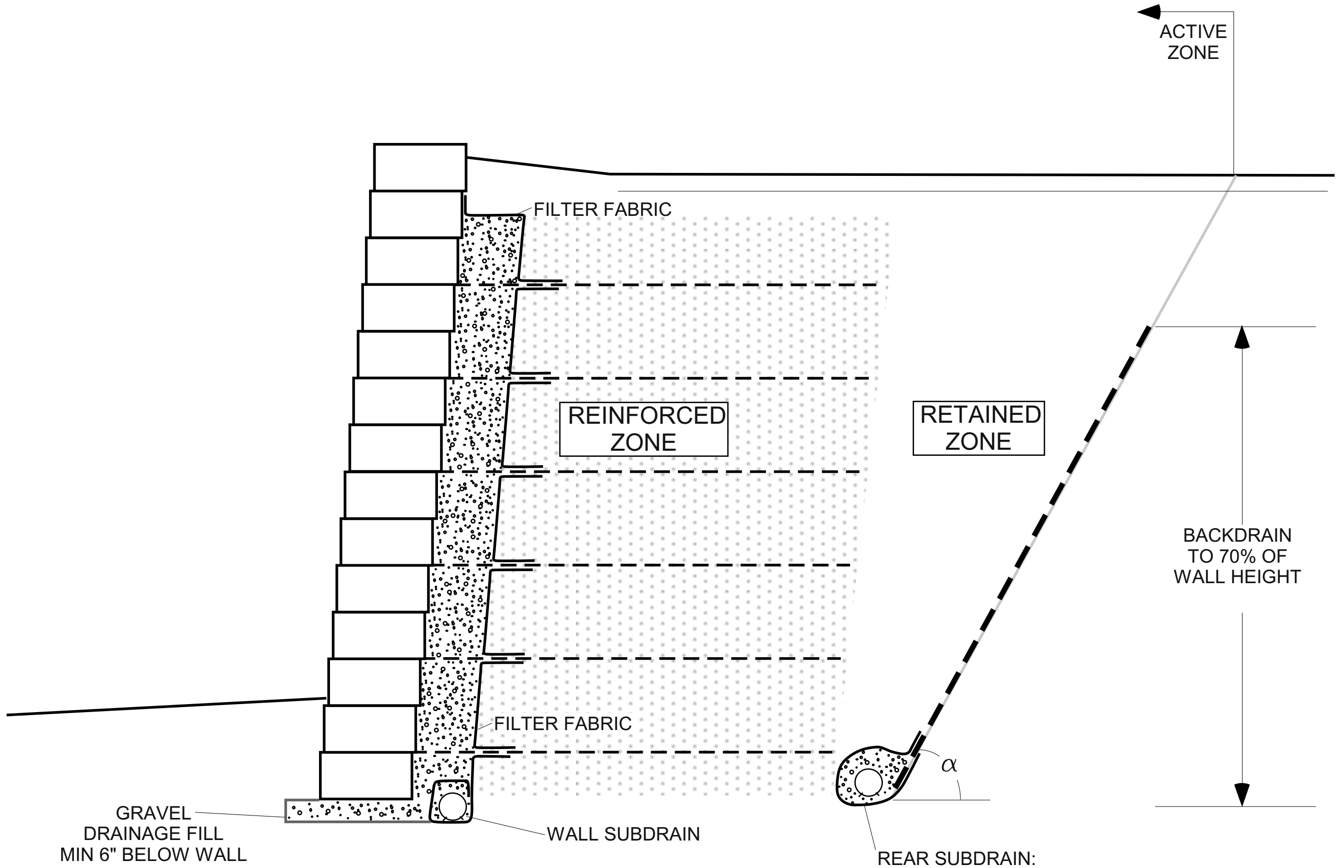
GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL E



NOTE: UPON REVIEW BY THE GEOTECHNICAL CONSULTANT, COMPOSITE DRAINAGE PRODUCTS SUCH AS MIRADRAIN OR J-DRAIN MAY BE USED AS AN ALTERNATIVE TO GRAVEL OR CLASS 2 PERMEABLE MATERIAL. INSTALLATION SHOULD BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

RETAINING WALL DRAINAGE

GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL F



GRAVEL
DRAINAGE FILL
MIN 6" BELOW WALL
MIN 12" BEHIND UNITS AND 24" FROM FACE
<u>WHERE WALL HEIGHT > 10'</u>
SAME AS ABOVE, BUT BELOW UPPER 10'
INCREASE GRAVEL TO
MIN 24" BEHIND UNIT AND 36" FROM FACE
<u>WHERE WALL HEIGHT > 20'</u>
SAME AS ABOVE, BUT BELOW UPPER 20'
INCREASE GRAVEL TO
MIN 36" BEHIND UNIT AND 48" FROM FACE

FOUNDATION SOILS

REAR SUBDRAIN:
4" (MIN) DIAMETER PERFORATED PVC PIPE
(SCHEDULE 40 OR EQUIVALENT) WITH
PERFORATIONS DOWN. SURROUNDED BY
1 CU. FT/FT OF 3/4" GRAVEL WRAPPED IN
FILTER FABRIC (MIRAFI 140N OR EQUIVALENT)

OUTLET SUBDRAINS EVERY 100 FEET, OR CLOSER,
BY TIGHTLINE TO SUITABLE PROTECTED OUTLET

NOTES:

1) MATERIAL GRADATION AND PLASTICITY

REINFORCED ZONE:

SIEVE SIZE	% PASSING
1 INCH	100
NO. 4	20-100
NO. 40	0-60
NO. 200	0-35

FOR WALL HEIGHT < 10 FEET, PLASTICITY INDEX < 20 AND LIQUID LIMIT < 40
FOR WALL HEIGHT 10 FEET OR TALLER, PLASTICITY INDEX < 6
FOR TIERED WALLS, USE COMBINED WALL HEIGHTS
FOR WALL HEIGHT > 20 FEET, REDUCE ALLOWABLE RANGE % PASSING NO. 200 SIEVE TO 0-15

GRAVEL DRAINAGE FILL:

SIEVE SIZE	% PASSING
1 INCH	100
3/4 INCH	75-100
NO. 4	0-60
NO. 40	0-50
NO. 200	0-5

2) CONTRACTOR TO USE SOILS WITHIN THE RETAINED AND REINFORCED ZONES THAT MEET THE STRENGTH AND UNIT WEIGHT REQUIREMENTS OF WALL DESIGN.

3) GEOGRID REINFORCEMENT TO BE DESIGNED BY WALL DESIGNER CONSIDERING INTERNAL, EXTERNAL, AND COMPOUND STABILITY.

3) GEOGRID TO BE PRETENSIONED DURING INSTALLATION.

4) IMPROVEMENTS WITHIN THE ACTIVE ZONE ARE SUSCEPTIBLE TO POST-CONSTRUCTION SETTLEMENT. ANGLE $\alpha = 45+\Phi/2$, WHERE Φ IS THE FRICTION ANGLE OF THE MATERIAL IN THE RETAINED ZONE.

5) BACKDRAIN SHOULD CONSIST OF J-DRAIN 302 (OR EQUIVALENT) OR 6-INCH THICK DRAINAGE FILL WRAPPED IN FILTER FABRIC. PERCENT COVERAGE OF BACKDRAIN TO BE PER GEOTECHNICAL REVIEW.

SEGMENTAL RETAINING WALLS

GENERAL EARTHWORK AND
GRADING SPECIFICATIONS
STANDARD DETAIL G

REVISED 11/16

Appendix D

Sharp Center for Neurosciences, Noise and Vibration Impact Analysis

Technical Memorandum

To:	Sheri Kwok Project Manager – FMD Sharp Grossmont Hospital 5555 Grossmont Center, La Mesa, CA 91942
From:	Jonathan Higginson, INCE Senior Manager, Noise
Date:	August 2022
Re:	**Sharp Center for Neurosciences, Noise and Vibration Impact Analysis**

1. Introduction

The purpose of this memorandum is to support Sharp HealthCare in the environmental review process and provide information regarding potential noise and vibration effects associated with the proposed expansion of the Sharp Center for Neurosciences (project). The analysis provided in this memorandum evaluates the potential for short- and long-term noise and vibration impacts associated with construction and operation of the project. The analysis includes a description of the environmental setting for the project, including existing noise conditions, as well as applicable laws and regulations. It also documents the assumptions, methodologies, and findings used to evaluate the impacts.

2. Project Description

The proposed project would consist of remodeling and additions to the existing single-story rehabilitation center into the Center for Neurosciences. Specifically, the project would consist of the partial demolition and an addition to the southwest corner of the building, an addition to the north side of the building, a tunnel, and the creation of shear walls with new footings inside the building at locations still to be determined. The proposed project would add 20,182 square feet (including the 792-square foot tunnel) to the total building area for a total of 51,672 square feet post-project. The project would add 16 intensive care unit beds and 16 medical surgical beds and remove 12 existing medical surgical beds (resulting in a net increase of 20 beds). Additionally, 18 beds in the existing in-patient rehabilitation center would receive a cosmetic refresh.

The exterior design intent of the building would mimic other existing buildings on campus, namely the West Tower completed around 2010, to create a more uniform look across the public-facing campus. The interior design is Planetree, meaning the intent is to create an inviting space for patients and families with finishes and furnishings that would traditionally be found within the hospitality realm.

3. Noise Fundamentals

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is often defined as sound that is objectionable because it is unwanted, disturbing, or annoying.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and the obstructions or atmospheric factors, which affect the propagation path to the receptor, determine the sound level and the characteristics of the noise perceived by the receptor.

The following sections provide an explanation of key concepts and acoustical terms used in the analysis of environmental and community noise.

Frequency, Amplitude, and Decibels

Continuous sound can be described by *frequency* (pitch) and *amplitude* (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz]) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of Hz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. The amplitude of a sound is typically described in terms of *sound pressure level*, which refers to the root-mean-square pressure of a sound wave and can be measured in units called microPascals (µPa). One µPa is approximately one hundred-billionth (0.00000000001) of normal atmospheric pressure. Sound pressure levels for different kinds of noise environments can range from less than 100 to over 100,000,000 µPa. Because of this large range of values, sound is rarely expressed in terms of µPa. Instead, a logarithmic scale is used to describe the sound pressure level (also referred to simply as the sound level) in terms of decibels, abbreviated dB. Specifically, the decibel describes the ratio of the actual sound pressure to a reference pressure and is calculated as follows:

$$SPL = 20 \times \log_{10}\left(\frac{X}{20\mu Pa}\right)$$

where *X* is the actual sound pressure, and 20 µPa is the standard reference pressure level for acoustical measurements in air. The threshold of hearing for young people is about 0 dB, which corresponds to 20 µPa.

Decibel Addition

Because decibels are logarithmic, sound pressure levels cannot be added or subtracted through ordinary arithmetic. On the dB scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, their combined sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one excavator produces a sound pressure level of 80 dB, two excavators would not produce 160 dB. Rather, they would combine to produce 83 dB. The cumulative sound level of any number of sources can be determined using decibel addition. The same decibel addition is used for A-weighted decibels described below.

Perception of Noise and A-Weighting

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the sound pressure level in that range. In general, people are most sensitive to the frequency range of 1,000 to 8,000 Hz and perceive sounds within that range better than sounds of the same amplitude at higher or lower frequencies. To approximate the response of the human ear, sound levels in various frequency bands are adjusted (or “weighted”), depending on human sensitivity to those frequencies. The resulting sound pressure level is expressed in A-weighted decibels, abbreviated dBA. When people make judgments regarding the relative loudness or annoyance of a sound, their judgments correlate well with the A-weighted sound levels of those sounds. Table 3-1 describes typical A-weighted sound levels for various noise sources.

Table 3-1. Typical Noise Levels in the Environment

Common Outdoor Noise Source	Sound Level (dBA)	Common Indoor Noise Source
	— 110 —	Rock band
Jet flying at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher in next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: California Department of Transportation 2013.

Human Response to Noise

Noise-sensitive receptors (also called “receivers”) are locations where people reside or where the presence of unwanted sound may adversely affect the use of the land. The effects of noise on people can be listed in three general categories.

- Subjective effects of annoyance, nuisance, or dissatisfaction
- Interference with activities such as speech, sleep, learning, or working
- Physiological effects such as startling and hearing loss

In most cases, effects from sounds typically found in the natural environment (compared to an industrial or an occupational setting) would be limited to the first two categories: creating an annoyance or interfering with activities. (Further discussion of health-related effects is provided below.) No completely satisfactory method exists to measure the subjective effects of sound or the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard arises primarily from the wide variation in individual thresholds of annoyance and habituation to sound.

Therefore, an important way of determining a person's subjective reaction to a new sound is by comparing it to the existing baseline or "ambient" environment to which that person has adapted. In general, the more the level or tonal (frequency) variations of a sound exceed the previously existing ambient sound level or tonal quality, the less acceptable the new sound will be, as judged by the exposed individual.

Studies have shown that under controlled conditions in an acoustics laboratory, a healthy human ear is able to discern changes in sound levels of 1 dBA. In the normal environment, the healthy human ear can detect changes of about 2 dBA; however, it is widely accepted that a doubling of sound energy, which results in a change of 3 dBA in the normal environment, is considered just noticeable to most people. A change of 5 dBA is readily perceptible, and a change of 10 dBA is perceived as being twice as loud. Accordingly, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) resulting in a 3-dBA increase in sound would generally be barely detectable.

Noise Descriptors

Because sound levels can vary markedly over a short period of time, various descriptors or noise "metrics" have been developed to quantify environmental and community noise. These metrics generally describe either the average character of the noise or the statistical behavior of the variations in the noise level. The metrics used in this study are described below.

Equivalent Sound Level (L_{eq}) is the most common metric used to describe short-term average noise levels. Many noise sources produce levels that fluctuate over time; examples include mechanical equipment that cycles on and off or construction work, which can vary sporadically. The L_{eq} describes the average acoustical energy content of noise for an identified period of time, commonly 1 hour. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustical energy over the duration of the exposure. For many noise sources, the L_{eq} will vary, depending on the time of day. A prime example is traffic noise, which rises and falls, depending on the amount of traffic on a given street or freeway.

Maximum Sound Level (L_{max}) and **Minimum Sound Level (L_{min})** refer to the maximum and minimum sound levels, respectively, that occur during the noise measurement period. More specifically, they describe the root-mean-square sound levels that correspond to the loudest and quietest 1-second intervals that occur during the measurement.

Percentile-Exceeded Sound Level (L_{xx}) describes the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time, and L_{90} is the sound level exceeded 90 percent of the time).

Community Noise Equivalent Level (CNEL) is a measure of the cumulative 24-hour noise level that considers not only the variation of the A-weighted noise level but also the duration and the time of day of the disturbance. The CNEL is derived from the 24 A-weighted 1-hour L_{eq}s that occur in a day, with "penalties" applied to the level occurring during the evening hours (7 p.m. to 10 p.m.) and nighttime hours (10 p.m. to 7 a.m.) to account for increased noise sensitivity during these hours. Specifically, the CNEL is calculated by adding 5 dBA to the evening L_{eq}, adding 10 dBA to the nighttime L_{eq}, and then taking the average value for all 24 hours.

Sound Propagation

When sound propagates over a distance, it changes in both level and frequency content. The manner in which noise is reduced with distance depends on the following important factors.

- **Geometric Spreading.** Sound from a single source (i.e., a *point source*) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of distance. Highway noise is not a single stationary point source of sound. The movement of vehicles on a highway makes the source of the sound appear to emanate from a line (i.e., a *line source*) rather than from a point. This results in cylindrical spreading rather than the spherical spreading resulting from a point source. The change in sound level (i.e., attenuation) from a line source is 3 dBA per doubling of distance.
- **Ground Absorption.** Usually the noise path between the source and the observer is very close to the ground. The excess noise attenuation from ground absorption occurs due to acoustic energy losses on sound wave reflection. For acoustically absorptive or "soft" sites (i.e., sites with an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dBA per doubling of distance is normally assumed. When added to the geometric spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dBA per doubling of distance for a line source and 7.5 dBA per doubling of distance for a point source.
- **Atmospheric Effects.** Research by the California Department of Transportation (Caltrans 2013) and others has shown that atmospheric conditions can have a major effect on noise levels. Factors include wind, air temperature (including vertical temperature gradients), humidity, and turbulence. Receptors downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas receptors upwind can have lower noise levels. Increased sound levels can also occur over relatively large distances because of temperature inversion conditions (i.e., increasing air temperature with elevation).
- **Shielding by Natural or Human-Made Features.** A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by this shielding depends on the size of the object, proximity to the noise source and receptor, surface weight, solidity, and the frequency content of the noise source. Natural terrain features (such as hills and dense woods) and human-made features (such as buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor with the specific purpose of reducing noise. In addition to the noise that diffracts over the top of a barrier, noise will also diffract around the ends of the barrier, leading to "flanking" noise that can reduce the overall efficacy of the barrier. Assuming it is long enough to minimize the effects of flanking noise, a barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. A taller barrier may provide as much as 20 dB of noise reduction.

4. Environmental Vibration Fundamentals

Groundborne vibration is an oscillatory motion of the soil with respect to the equilibrium position and can be quantified in terms of *velocity* or *acceleration*. The velocity describes the instantaneous speed of the motion, and acceleration is the instantaneous rate of change of the speed. Each of these measures can be further described in terms of *frequency* and *amplitude*.

In contrast to airborne sound, groundborne vibration is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually much lower than the threshold of human perception. Most perceptible indoor vibration is caused by sources within buildings, such as mechanical equipment while in operation, people moving, or doors slamming. Typical outdoor sources of perceptible groundborne vibration are heavy construction equipment (such as blasting and pile driving), railroad operations, and heavy trucks on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible. Groundborne vibration can be a serious concern for neighbors of nearby sources, causing buildings to shake and rumbling sounds to be heard. If a person is engaged in any type of physical activity, vibration tolerance increases considerably. Vibration can result in effects that range from annoyance to structural damage. Variations in geology and distance result in different vibration levels with different frequencies and amplitudes.

Vibration Descriptors

Various descriptors, or “metrics,” can be used to quantify groundborne vibration. The metrics used in the assessment of environmental impacts are generally focused on the short-term maximum vibration levels. The metric considered in this study is described below.

Peak particle velocity (PPV) is defined as the maximum instantaneous positive or negative peak amplitude of the vibration velocity. The unit of measurement for PPV is inches per second (in/s).

5. Existing Noise Environment

The project site is within the Sharp Grossmont Hospital campus, surrounded by existing hospital buildings in each direction. The nearest noise-sensitive land uses to the project site are single-family residential (houses) and multifamily residential (apartments) to the northwest, and apartments and an assisted living facility to the northeast and east (across State Route 125).

The primary sources of noise in the area are traffic on State Route 125, Interstate 8, and the MTS trolley line. Other noise sources include traffic on local roadways, aircraft overflights, and general neighborhood noise. The existing noise environment in the project vicinity varies with proximity to the local noise sources. To document existing noise levels in the study area, short-term (ST) measurements were obtained at the apartments to the northwest, at the apartments and houses beyond Fletcher Parkway to the northwest, and at the assisted living facility to the southeast. An additional measurement from a prior noise study (ICF 2020) was included to supplement measured ambient noise data in the project vicinity; this measurement was obtained at the apartments northeast of the project site. Each ST measurement was conducted over a period of 20 minutes.

The instrumentation used to obtain the noise measurements consisted of Larson Davis (Model 831 and Model LxT) integrating sound level meters and a Larson Davis (Model CAL200) acoustical calibrator used to field-calibrate the sound level meter before and after each measurement for accuracy. The instruments are maintained to manufacturer specifications to ensure accuracy, in accordance with American National Standards Institute standard S1.4 2006.

Measured daytime ambient hourly noise levels ranged from 56.6 to 68.2 dBA L_{eq}. Additional details and a summary of the measurement results are provided in Table 5-1. Field noise survey sheets are provided in Appendix A to this memorandum.

Table 5-1. Measured Existing Noise Levels in Study Area

Location Number, Description (date, time)	Hourly L_{eq}, dBA
ST1: Parking lot near 8741 Mellmanor Drive (03/14/2022, 1:20 p.m.–03/14/2022, 1:40 p.m.)	62.2
ST2: Near 8727 Fletcher Parkway (03/14/2022, 12:48 p.m.–03/14/2022, 1:08 p.m.)	56.6
ST3: Parking lot near 9000 Murray Drive (03/14/2022, 12:11 p.m.–03/14/2022, 12:31 p.m.)	68.1
ST4: Near western end of 9000 Campina Drive (10/22/2020, 8:31 p.m.–8:51 p.m.)	68.2

6. Regulatory Setting

Federal

There are no federal noise or vibration regulations that apply directly to the proposed project.

State

There are no state noise or vibration regulations that apply directly to the proposed project. However, the California Department of Transportation (Caltrans) provides widely referenced vibration guidelines in its publication *Transportation and Construction Vibration Guidance Manual* (Caltrans 2020). Although these guidelines do not represent strict standards that apply to the proposed project, they are useful in assessing potential impacts, particularly because the City of La Mesa does not provide any quantitative standards for groundborne vibration levels. The manual defines two different types of potential vibration impact: (1) building damage potential and (2) annoyance potential, as summarized in Table 6-1 and Table 6-2. Groundborne vibration annoyance criteria are typically only assessed at occupied sensitive buildings, rather than at exterior areas such as yards, parks, or playgrounds, because people are typically much less sensitive to groundborne vibration when they are using exterior areas than when they are inside buildings.

Table 6-1. Caltrans Criteria for Potential Vibration Damage

	Maximum PPV (inches/second)[1]	
Structure and Condition	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

[1] Transient sources create a single, isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 6-2. Caltrans Criteria for Potential Vibration Annoyance

	Maximum PPV (inches/second)[1]	
Human Response	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.90	0.10
Severe	2.00	0.40

[1] Transient sources create a single, isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

City of La Mesa Municipal Code

The City of La Mesa Municipal Code Chapter 10.80, *Noise Regulation*, provides regulations for both construction noise and operational noise, as described in the following sections.

Construction Noise

Section 10.80.100 of the municipal code addresses construction noise. Rather than providing quantitative noise limits, the code regulates the days and times that noise-generating construction equipment may be operated. The code states:

> It shall be unlawful for any person within a residential zone or CN zone, or within a radius of five hundred feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction-type device between the hours of 10:00 p.m. of one day and 7:00 a.m. of the next day or on Sundays unless a special permit authorizing the activity has been duly obtained from the chief building official. No permit shall be required to perform emergency work as defined in this chapter. This section shall not apply to any work of improvement performed by a single-family residential occupant which is performed on the occupant's said premises.

Because the project site is within 500 feet of residential zones, these restrictions would apply to project construction activities.

Operational Noise

Section 10.80.040 of the municipal code establishes standards for exterior noise levels. Noise limits vary depending on the zoning of the receiving land use as summarized in Table 6-3.

Table 6-3. City of La Mesa Municipal Code Exterior Noise Limits

Zone	Time	Sound Level Limits, dBA[1,2]
R1 (Urban Residential) and R2 (Medium Low Density Residential)	Daytime 7 a.m. to 7 p.m.	60
	Evening 7 p.m. to 10 p.m.	55
	Nighttime 10 p.m. to 7 a.m.	50
R3 (Multiple Unit Residential) and RB (Residential Business)	Daytime 7 a.m. to 7 p.m.	60
	Evening 7 p.m. to 10 p.m.	60
	Nighttime 10 p.m. to 7 a.m.	55
C (General Commercial), CN (Neighborhood Commercial), CD (Downtown Commercial), and CM (Light Industrial and Commercial Service)	7 a.m. to 10 p.m.	65
	Evening 7 p.m. to 10 p.m.	65
	10 p.m. to 7 a.m.	60
M (Industrial Service and Manufacturing)	Anytime	70

[1] Limits are assumed to be 1-hour average noise levels (1-hour L_{eq}).

[2] If the measured ambient noise level exceeds the specified limit, the ambient noise level becomes the noise limit.

Section 10.80.090 of the code states that it is unlawful for any person to install or operate any machinery, equipment, pump, fan, air conditioning apparatus, or similar mechanical device that can be or is operated in any manner so as to create noise that will cause the noise level at the property line of any property to exceed the ambient base noise level by more than 5 dBA. The installer of any such mechanical devices is required to furnish to the Department of Building Inspection and Housing a certificate of compliance indicating that the equipment installed as proposed can, without the addition of any baffling or construction, be operated within these sound limits.

City of La Mesa General Plan

The Noise Element of the City of La Mesa *2012 Centennial General Plan* (City of La Mesa 2012) identifies existing and potential noise sources and provides goals, objectives, and policies to keep noise from reducing the quality of life in La Mesa. The Noise Element establishes guidelines to evaluate the compatibility of land uses and noise exposure. Table 6-4 summarizes the City’s exterior land use-noise compatibility guidelines.

Table 6-4. City of La Mesa Noise/Land Use Compatibility Guidelines

	dB CNEL			
Land Use Category	Normally Acceptable[1]	Conditionally Acceptable[2]	Normally Unacceptable[3]	Clearly Unacceptable[4]
Residential – Low Density Single-Family, Duplex, Mobile Home	60 or less	60 to 70	70 to 75	>75
Residential – Multi-Family	65 or less	65 to 70	70 to 75	>75
Transient Lodging – Motels, Hotels	65 or less	65 to 70	70 to 80	>80
*Schools, Libraries, Churches, Hospitals, Nursing Homes	65 or less	65 to 75	75 to 80	
*Auditoriums, Concert Halls, Amphitheaters	60 or less	60 to 80	>80	Not specified
*Sports Arena, Outdoor Spectator Sports	65 or less	65 to 75	>75	Not specified
*Playground, Neighborhood Parks	70 or less	70 to 75	>75	Not specified
*Golf Courses, Riding Stables, Water Recreation, Cemeteries	70 or less	70 to 75	75 to 80	>80
*Office Buildings, Business Commercial and Professional	70 or less	70 to 80	>80	Not specified
*Industrial, Manufacturing, Utilities, Agriculture	75 or less	75 to 80	>80	Not specified

[1] Specified land use is satisfactory, based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
[2] New construction or development should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
[3] New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
[4] New construction or development should generally not be undertaken. If the measured ambient noise level exceeds the specified limit, the ambient noise level becomes the noise limit.
* Denotes facilities used for part of the day; therefore, an hourly standard (L_{eq}) would be used rather than CNEL.

These levels are not specific standards, but rather guidelines intended primarily to guide the location and design of future development. Nonetheless, the guidelines are also useful in assessing impacts, particularly from transportation noise sources (roads, railways, and aircraft), which are not regulated in the La Mesa Municipal Code.

7. Methodology

General Assumptions for Noise and Vibration Calculations

This section describes the general assumptions and methodology used throughout the quantitative analyses in this study. As described previously, three of the most important variables affecting the noise level experienced at a noise-sensitive receptor are (1) the distance between the noise source and the receptor, (2) the ground conditions between the two, and (3) the acoustical shielding between the two. These are each discussed below.

Source-to-Receiver Distances

For all analyses in this report, the closest source-to-receiver distance was used. This is a conservative assumption because it uses the shortest distance between the noise-sensitive receptor and the closest part of the noise source, such as an individual piece of equipment or the closest edge of an active construction site.

Ground Conditions

Noise levels were assumed to decrease at a rate of 7.5 dB per doubling of distance. This is based on 6 dB per doubling of distance for acoustically hard ground surfaces (such as concrete or pavement) plus 1.5 dB of excess attenuation per doubling of distance to account for the various attenuating features between the project site and the closest receivers. These features include areas of acoustically “soft” vegetated ground cover as well as various intervening structures and topography.

Acoustical Shielding

Acoustical shielding from specific barriers (buildings, topography, etc.) was neglected in the calculations. This assumption is conservative in locations where there are buildings and topography that could interrupt noise propagation.

Construction Noise and Vibration

Noise

Construction-related noise was analyzed using data and modeling methodologies from the Federal Highway Administration’s Roadway Construction Noise Model (FHWA 2008), which predicts noise levels at nearby receptors by analyzing the type of equipment, distance from source to receptor, usage factor, and presence or absence of intervening shielding between source and receptor. Although the proposed project is not specifically a roadway construction project, the model is broad enough to be applicable, providing noise data for all the equipment types typically required during conventional construction.

To facilitate a quantitative construction noise analysis, it was necessary to make assumptions about the type of construction activity that might reasonably occur under each project category. The estimated construction equipment lists used in the construction noise analysis were generated as part of the project’s air quality and greenhouse gas technical analysis. The analysis considered six anticipated construction phases. The distance used in the calculations was the closest distance between the project site and the receiver.

Vibration

Construction-related vibration was analyzed using data and modeling methodologies provided by the Caltrans guidance manual (Caltrans 2020). Although the proposed project is not a highway project, the manual provides vibration data for all the equipment types typically required during conventional construction as well as methods for estimating the propagation of groundborne vibration over distance. Therefore, it is considered appropriate for use in analyzing the proposed project.

Table 7-1 provides reference PPV from the guidance manual for various types of construction equipment expected to be used over the course of project construction. The levels are provided for a reference distance of 25 feet.

Table 7-1. Construction Equipment Reference Vibration Levels

Equipment Item	Reference PPV at 25 feet, in/s	Approximate L_V at 25 feet, dBV
Vibratory roller	0.210	94
Large bulldozer[1]	0.089	87
Small bulldozer[2]	0.003	58

Source: Caltrans 2020.

[1] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

[2] Considered representative of other smaller earthmoving equipment such as a Bobcat®, skid steer, etc.

dBV = vibration decibel; L_V = velocity in decibels

The following equation from the guidance manual was used to estimate the change in PPV levels over distance.

$$PPV_{rec} = PPV_{ref} \times (25/D)^n$$

where PPV_{rec} is the PPV at a receptor; PPV_{ref} is the reference PPV at 25 feet from the equipment; D is the distance from the equipment to the receiver, in feet; and n is a value related to the vibration attenuation rate through ground (the default recommended value for n is 1.1).

Operational Noise

Traffic Noise

The analysis of traffic noise in the study area was based on data from the Transportation Impact Analysis (TIA) for the proposed project (Linscott Law & Greenspan 2022). An assessment was made of the potential traffic noise increases due to the project based on the incremental growth in traffic predicted in the TIA.

Onsite Operations

The primary exterior noise source associated with the project would be rooftop mechanical (heating, ventilating, and air conditioning) equipment. The noise from this equipment was analyzed based on acoustical data provided by the project proponent and noise levels at the nearest noise-sensitive receptors were estimated based on their distance from the project site.

8. Impacts Analysis

Construction

Noise

Two types of short-term noise impacts could occur during project construction. First, construction vehicles would incrementally increase noise levels on access roads. This would include construction worker vehicles and haul trucks traveling to and from the project site. Although there would be a relatively high single-event noise level, which could cause an intermittent noise nuisance (e.g., passing trucks at 50 feet would generate up to 77 dBA), the effect on longer-term ambient noise levels would be small. Therefore, there would be no impacts related to the short-term noise associated with commuting construction workers and transporting equipment and materials to the project site.

The second category would be noise generated during onsite project construction. Construction would occur only during the periods permitted by the La Mesa Municipal Code (7 a.m. to 10 p.m., Monday through Saturday). Using the methodology described in Section 7, noise levels at the nearest noise-sensitive receptors were estimated. The analyses are provided in Appendix B, and the results are summarized in Table 8-1. The predicted noise levels are lower than the existing noise levels measured in the project vicinity, indicating construction will likely be inaudible at nearby offsite receptors. Furthermore, no noise would be generated during the most sensitive nighttime hours when residents are trying to sleep. Construction would comply with the applicable noise regulations of the La Mesa Municipal Code, and the impact would be less than significant.

Table 8-1. Construction Noise Levels from Anticipated Construction Phases

Construction Phase	L_{eq} at Homes on Mellmanor Dr, dBA	L_{eq} at The District Apartments, dBA	L_{eq} at Westmont of La Mesa (Assisted Living Facility), dBA	L_{eq} at Campina Court Apartments, dBA
Demolition	50	53	53	52
Site Preparation	49	51	51	50
Grading	49	52	51	51
Building Construction	47	50	50	49
Paving	49	51	51	50
Architectural Coating	39	42	42	41

Source: Appendix B.

Vibration

Heavy construction equipment would generate groundborne vibration that could affect nearby structures or residents. Each of the potential types of construction impact (building damage and human annoyance) is discussed in further detail below.

Potential Building Damage

Using the source vibration levels and methodology described in Section 7, the distances for potential vibration damage impacts at various receiver building categories were calculated for the range of anticipated construction equipment. The analyses are provided in Appendix C, and the results are summarized in Table 8-2. The closest offsite buildings are offices to the northwest, more than 600 feet from the construction zone. These are modern commercial structures with a corresponding vibration damage threshold of 0.5 in/s PPV. These buildings are well outside the potential impact distance of 12 feet shown in Table 8-2. Therefore, project construction would not generate any impacts related to potential building damage.

Potential Human Annoyance

Using the methodology described in Section 7, the distances at which various levels of human vibration perception are expected were calculated for the range of anticipated construction equipment. The analyses are provided in Appendix C, and the results are summarized in Table 8-3. While exact vibration sensitivity varies by individual, the “distinctly perceptible” criterion of 0.04 in/s PPV is selected as the threshold of impact. The closest sensitive offsite buildings are the apartments to the northwest, more than 800 feet from the construction zone. This is well outside the predicted worst-case impact distance of 113 feet. Therefore, project construction would not generate any impacts related to potential human annoyance from groundborne vibration.

Table 8-2. Impact Distances for Potential Vibration Damage from Project Construction

	Building Category[1]:	Extremely fragile historic buildings, ruins, ancient monuments	Fragile buildings	Historic and some old buildings	Older residential structures	New residential structures	Modern industrial/ commercial buildings
Equipment Item	Vibration Damage Impact Criteria, PPV, in/s[2]:	0.08	0.1	0.25	0.3	0.5	0.5
Vibratory roller		61	50	22	19	12	12
Large bulldozer[3]	Distance to Impact Criteria (feet)	28	23	10	9	6	6
Small bulldozer[4]		2	2	1	1	1	1

Source: Appendix C.

[1] All building types shown for reference. Not all building types are present in the project vicinity.

[2] All criteria are based on the values for continuous/frequent intermittent sources (all of the anticipated sources fall into this category).

[3] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

[4] Considered representative of other smaller earthmoving equipment such as a Bobcat® or skid steer.

Table 8-3. Impact Distances for Potential Human Annoyance from Project Construction

	Human Perceptibility[1]:	Barely perceptible	Distinctly perceptible (Threshold of Impact)	Strongly perceptible	Severe
Equipment Item	Vibration Damage Impact Criteria, PPV, in/s[2]:	0.01	0.04	0.1	0.4
Vibratory roller		399	**113**	50	14
Large bulldozer[3]	Distance to Impact Criteria (feet)	183	**52**	23	7
Small bulldozer[4]		9	**3**	2	1

Source: Appendix C.

[1] Various perceptibility levels shown for reference. "Distinctly Perceptible" is used as the threshold for assessing impacts.

[2] All criteria are based on the values for continuous/frequent intermittent sources (all of the anticipated sources fall into this category).

[3] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

[4] Considered representative of other smaller earthmoving equipment such as a Bobcat® or skid steer.

Project Operation

Traffic Noise

The project would generate new vehicle trips. However, the overall change in traffic volumes would be small. Using the existing and projected project traffic volumes provided in the TIA (Linscott Law & Greenspan 2022), the peak hour traffic volumes on each studied roadway segment were calculated for both AM and PM conditions. The relative traffic increase on each segment due to the project could then be calculated. The increase in peak hour traffic volumes on nearby roadways was calculated to range from 0 to 7 percent. Assuming the same relative increase would apply to daily traffic volumes, this would result in maximum traffic noise increases of 0.3 dB, which would be inaudible. As a result, traffic noise impacts would be less than significant. Traffic volume tables generated for this analysis are included in Appendix D and the results are summarized in Table 8-4.

Table 8-4. Roadway Segment Peak-Hour Traffic Volumes and Increases Due to the Project

	Existing		Project		Existing + Project		Increase Due to Project	
Roadway Segment	AM	PM	AM	PM	AM	PM	AM	PM
Grossmont Center Dr, North of Murray Dr	1,052	1,415	19	24	1,071	1,439	2%	3%
La Mesa Blvd, South of Murray Dr	1,269	1,946	13	16	1,282	1,962	1%	2%
Murray Dr, East of La Mesa/Grossmont	391	636	0	0	391	636	0%	0%
Murray Dr, West of La Mesa/Grossmont	308	771	6	8	314	779	2%	2%
Grossmont Center Dr, North of Healthcare Dr	713	1,209	4	4	717	1,213	1%	0%
Grossmont Center Dr, South of Healthcare Dr	1,057	1,494	19	24	1,076	1,518	2%	2%
Healthcare Dr, East of Grossmont Center Dr	506	427	23	28	529	455	5%	7%
Grossmont Center Dr, North of Center Dr	602	1,101	8	10	610	1,111	1%	1%
Grossmont Center Dr, South of Center Dr	558	1,029	4	4	562	1,033	1%	0%
Center Dr, East of Grossmont Center Dr	448	440	6	8	454	448	1%	2%
Center Dr, West of Grossmont Center Dr	246	724	2	2	248	726	1%	0%

Source: Appendix D.

Noise from Onsite Operations

The primary exterior noise source associated with the project would be rooftop mechanical (heating, ventilating, and air conditioning) equipment. Based on data provided by the project proponent, this equipment would consist of six air handling units, each with a sound power of approximately 75.6 dBA, and three condenser units, each with a sound power of approximately 64.8 dBA, resulting in a total sound power of approximately 83.6 dBA. The noise levels at the closest sensitive receptors were predicted based on the distance to each and the results are summarized in Table 8-5. The predicted noise levels all comply with the applicable daytime, evening, and nighttime noise standards. The predicted noise levels are also within the range of existing ambient noise levels measured in the study area. As a result, operational noise would comply with the La Mesa Municipal Code and would not cause a substantial increase in existing ambient noise. The impact would be less than significant. Data and calculations for noise from onsite operations are included in Appendix D.

Table 8-5. Construction Noise Levels from Anticipated Construction Phases

	L_{eq} at Homes on Mellmanor Dr, dBA	L_{eq} at The District Apartments, dBA	L_{eq} at Westmont of La Mesa (Assisted Living Facility), dBA	L_{eq} at Campina Court Apartments, dBA
Distance, feet	1,080	845	865	930
Resulting noise level	25	27	27	27
Daytime noise standard	60	60	60	60
Evening noise standard	55	60	60	60
Nighttime noise standard	50	55	55	55
Complies?	Yes	Yes	Yes	Yes

Operational Vibration

There are no operational elements of the project that would generate noticeable levels of groundborne vibration. Therefore, there would be no vibration impacts as a result of project operation.

Aircraft Noise

There are no airports or private airstrips in the vicinity (i.e., within 2 miles) of the proposed project site. The closest airport is Gillespie Field, which is more than 3 miles to the northeast. At this distance, the project site is not exposed to substantial noise levels from aircraft operations. In addition, the project would not change the operations at any airport or airstrip, and would not alter the aircraft noise exposure at any existing sensitive land uses. As such, project implementation would not expose people residing or working in the project area to excessive aircraft noise levels. Therefore, there would be no impact.

9. Summary and Conclusions

Noise and vibration analyses were conducted for the Sharp Center for Neurosciences. The analyses address potential effects from both project construction and operation. All evaluated effects were determined to have either no impact or less-than-significant impacts. No noise or vibration mitigation measures are required.

10. References

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11. Attachments

Appendix A. Field Noise Survey Sheets for Ambient Noise Measurements

Appendix B. Construction Noise Analysis

Appendix C. Construction Vibration Analysis

Appendix D. Operational Noise Calculations

Appendix A

Field Noise Survey Sheets for Ambient Noise Measurements

FIELD NOISE MEASUREMENT DATA

PROJECT: Sharp center for Brain and Spine PROJ. #

SITE IDENTIFICATION: ST 1 OBSERVER(S): JCR
ADDRESS: near 8741 Mellmanor dr.
START DATE / TIME: 3/14/22 - 1:20 pm END DATE / TIME: 3/14/22 - 1:40 pm

METEROLOGICAL CONDITIONS:
TEMP: 78 °F HUMIDITY: 39 %R.H. WIND: CALM [✓ LIGHT] MODERATE VARIABLE
WINDSPEED: 1-2 MPH DIR: N NE E SE S SW W [✓ NW] STEADY GUSTY
SKY: [✓ SUNNY] [✓ CLEAR] OVRCST PRTLY CLOUDY FOG RAIN OTHER:

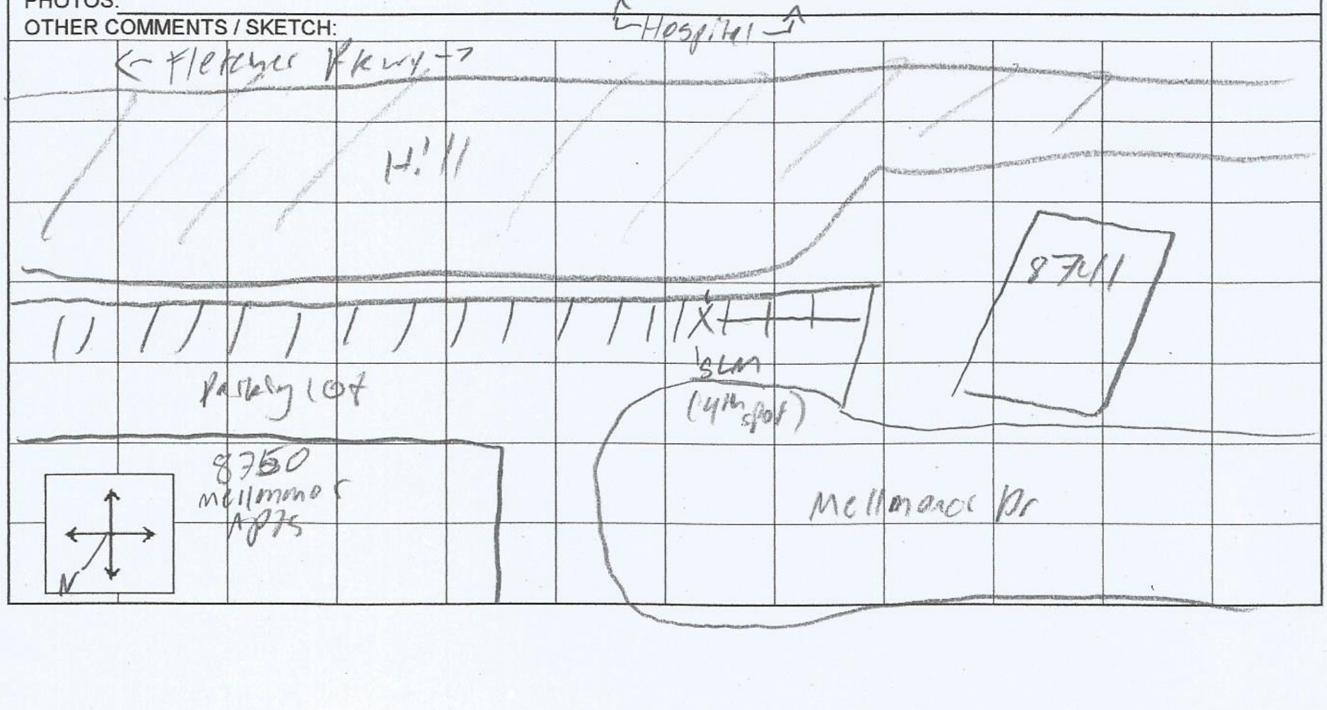
ACOUSTIC MEASUREMENTS:
INSTRUMENT: LD 831 TYPE: [✓ 1] 2 SERIAL #: 3786
CALIBRATOR: LD CAL 200 SERIAL #: 2916
CALIBRATION CHECK, BEFORE: 114.0 AFTER 113.9 WINDSCREEN X
SETTINGS: [✓ A-WEIGHTED] [✓ SLOW] FAST FRONTAL [✓ RANDOM] [✓ ANSI] OTHER:

FILE / MEAS #	START TIME	END TIME	L_{eq}	L max	L 1.67	L 8.33	L 25	L 50	L 90	L 99	L min
.425	1:20 pm	1:40 pm	62.2	69.2	67.5	66.0	63.7	60.8	54.4	50.5	49.2

COMMENTS: paused out helicopter

NOISE SOURCE INFO:
PRIMARY NOISE SOURCE: [✓ TRAFFIC] AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE: Fletcher Pkwy
OTHER SOURCES: DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / [✓ BIRDS] / DIST. INDUSTRIAL
DIST. CHILDREN PLAYING / [✓ DIST. TRAFFIC] / DIST. LANDSCAPING ACTIVITIES / OTHER:

DESCRIPTION / SKETCH:
TERRAIN: HARD SOFT [✓ MIXED] FLAT OTHER:
PHOTOS:
OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

PROJECT: Sharp Center for brain and Spine PROJ. #

SITE IDENTIFICATION: ST2
OBSERVER(S): JCR
ADDRESS: 8727 Fletcher Pkwy, La Mesa, CA 91942
START DATE / TIME:
END DATE / TIME:

METEROLOGICAL CONDITIONS:
TEMP: 75 °F HUMIDITY: 42 %R.H. WIND: [✓ **CALM**] **LIGHT MODERATE VARIABLE**
WINDSPEED: 5 MPH DIR: **N NE E SE S SW** [✓ **W**] **NW** **STEADY GUSTY**
SKY: [✓ **SUNNY**] [✓ **CLEAR**] **OVRCST PRTLY CLOUDY FOG RAIN** **OTHER:**

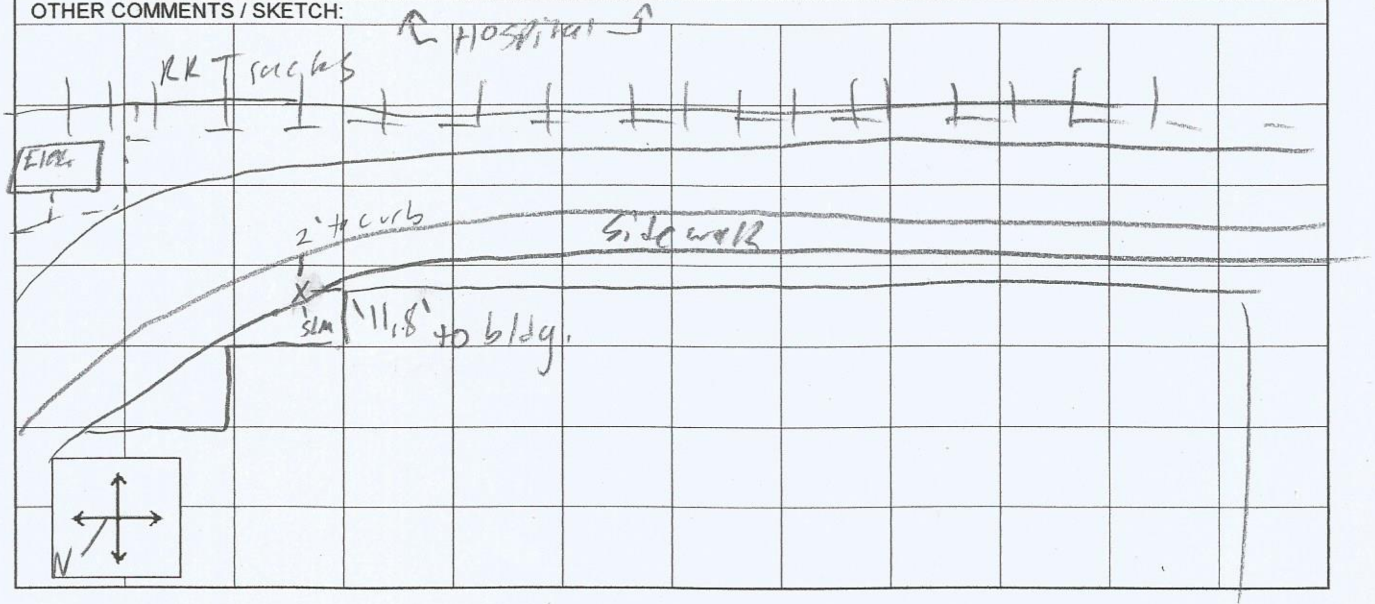
ACOUSTIC MEASUREMENTS:
INSTRUMENT: LD 831 TYPE: [✓ **1**] **2** SERIAL #: 3786
CALIBRATOR: LD CAL 200 SERIAL #: 2916
CALIBRATION CHECK, BEFORE: 114.0 AFTER 114.1 WINDSCREEN X
SETTINGS: [✓ **A-WEIGHTED**] [✓ **SLOW**] **FAST** **FRONTAL** [✓ **RANDOM**] [✓ **ANSI**] **OTHER:**

FILE / MEAS #	**START TIME**	**END TIME**	**L_{eq}**	**L max**	**L 1.67**	**L 8.33**	**L 25**	**L 50**	**L 90**	**L 99**	**L min**
.424	12:48	1:08	56.6	72.3	66.6	59.6	55.0	53.5	47.7	46.5	45.5

COMMENTS: paused out train passing

NOISE SOURCE INFO:
PRIMARY NOISE SOURCE: **TRAFFIC AIRCRAFT RAIL INDUSTRIAL** [✓ **AMBIENT**] **OTHER:**
ROADWAY TYPE:
OTHER SOURCES: **DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL**
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

DESCRIPTION / SKETCH:
TERRAIN: **HARD SOFT MIXED FLAT OTHER:**
PHOTOS:
OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

PROJECT: sharp center for Brain & spine PROJ. #:

SITE IDENTIFICATION: ST3 OBSERVER(S): JCR
ADDRESS: 4000 Murray Dr, La Mesa, CA 9142
START DATE / TIME: 3/14/22 - 12:11 pm END DATE / TIME: 3/14/22 -

METEROLOGICAL CONDITIONS:
TEMP: 70 °F HUMIDITY: 42 %R.H. WIND: **CALM [✓ LIGHT] MODERATE VARIABLE**
WINDSPEED: 6 MPH DIR: **N NE E SE S SW W [✓ NW]** **STEADY GUSTY**
SKY: **[✓ SUNNY] [✓ CLEAR] OVRCST PRTLY CLOUDY FOG RAIN** **OTHER:**

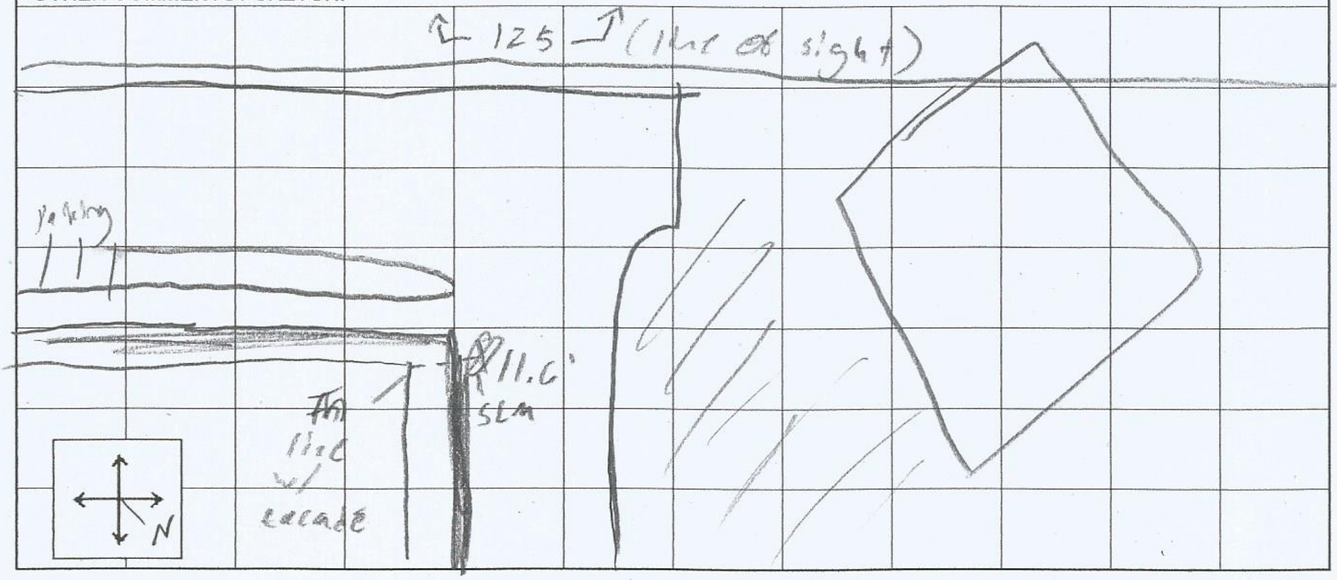
ACOUSTIC MEASUREMENTS:
INSTRUMENT: LD 831 TYPE: [✓ 1] 2 SERIAL #: 3786
CALIBRATOR: LD CAL 200 SERIAL #: 2916
CALIBRATION CHECK, BEFORE: 114.0 AFTER 113.9 WINDSCREEN X
SETTINGS: **[✓ A-WEIGHTED] [✓ SLOW] FAST FRONTAL [✓ RANDOM] [✓ ANSI]** **OTHER:**

FILE / MEAS #	START TIME	END TIME	L_{eq}	L max	L 1.67	L 8.33	L 25	L 50	L 90	L 99	L min
1423	12:11	12:31	68.1	73.4	71.7	70.3	69.0	67.7	65.0	62.5	61.2

COMMENTS:

NOISE SOURCE INFO:
PRIMARY NOISE SOURCE: **[✓ TRAFFIC] AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:**
ROADWAY TYPE: I-125
OTHER SOURCES: **DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:**

DESCRIPTION / SKETCH:
TERRAIN: **HARD SOFT MIXED FLAT OTHER:**
PHOTOS:
OTHER COMMENTS / SKETCH:



Alternate Site ID: ST4

FIELD NOISE MEASUREMENT DATA

PROJECT: Sharp Grossmont Hospital parking structure project **PROJ. #** 00560.20

SITE IDENTIFICATION: ST1 **OBSERVER(S):** JCK
ADDRESS: near 4000 Campina Dr, La Mesa CA 91942
START DATE / TIME: 10/22/20. 8:31 Am **END DATE / TIME:** 10/22/20.

METEROLOGICAL CONDITIONS:
TEMP: 64 °F HUMIDITY: 79 %R.H. WIND: [✓ **CALM**] **LIGHT** **MODERATE** **VARIABLE**
WINDSPEED: – MPH DIR: **N NE E SE S SW W NW** **STEADY** **GUSTY**
SKY: **SUNNY** **CLEAR** [✓ **OVRCST**] **PRTLY CLOUDY** **FOG** **RAIN** **OTHER:**

ACOUSTIC MEASUREMENTS:
INSTRUMENT: LD LXT TYPE: [✓ 1] 2 SERIAL #: 4005
CALIBRATOR: LD CAL 200 SERIAL #: 2416
CALIBRATION CHECK, BEFORE: 114.0 AFTER 114.0 WINDSCREEN X

SETTINGS: [✓ **A-WEIGHTED**] [✓ **SLOW**] **FAST** **FRONTAL** [✓ **RANDOM**] [✓ **ANSI**] **OTHER:**

FILE / MEAS #	START TIME	END TIME	L_{eq}	max	L 1 ~~1.67~~	 10 ~~8.33~~	 25	 50	 90	 99	 min
,973	8:31	8:51	68.2	73.9	72.0	70.0	69.1	68.0	65.4	62.9	61.0

COMMENTS:

NOISE SOURCE INFO:
PRIMARY NOISE SOURCE: [✓ **TRAFFIC**] **AIRCRAFT** **RAIL** **INDUSTRIAL** [✓ **AMBIENT**] **OTHER:**
ROADWAY TYPE: 125
OTHER SOURCES: **DIST. AIRCRAFT / RUSTLING LEAVES / DIST. BARKING DOGS / BIRDS / DIST. INDUSTRIAL**
DIST. CHILDREN PLAYING / DIST. TRAFFIC / DIST. LANDSCAPING ACTIVITIES / OTHER:

DESCRIPTION / SKETCH:
TERRAIN: **HARD** **SOFT** [✓ **MIXED**] **FLAT** **OTHER:**
PHOTOS:
OTHER COMMENTS / SKETCH:

Appendix B

Construction Noise Analysis

Table B1. Sharp Center for Neurosciences Construction Noise Analysis

Equipment		Typical Level @ 50', dBA[1]	Usage Factor[1,2]	Number of Units	Hours per Day	Distance to Receiver, ft.	Hard or Soft Site?	Barrier Attenuation, dB	Leq(h), dBA
Item No.	Description								
Demolition									
48	Saw, Concrete	89.6	0.2	1	8	50	Soft	0	83
13	Dozer	81.7	0.4	1	1	50	Soft	0	69
29	Loader (Front End Loader)	79.1	0.4	1	6	50	Soft	0	74
2	Backhoe	77.6	0.4	1	6	50	Soft	0	72
	Total:								**84**
Site Preparation									
23	Grader	85	0.4	1	8	50	Soft	0	81
29	Loader (Front End Loader)	79.1	0.4	1	8	50	Soft	0	75
	Total:								**82**
Grading									
23	Grader	85	0.4	1	6	50	Soft	0	80
13	Dozer	81.7	0.4	1	6	50	Soft	0	76
29	Loader (Front End Loader)	79.1	0.4	1	7	50	Soft	0	75
	Total:								**82**
Building Construction									
12	Crane	80.6	0.16	1	4	50	Soft	0	70
70	Forklift	79.1	0.4	2	6	50	Soft	0	77
29	Loader (Front End Loader)	79.1	0.4	1	8	50	Soft	0	75
2	Backhoe	77.6	0.4	1	8	50	Soft	0	74
	Total:								**81**
Paving									
31	Mixer, Concrete (or concrete mixe	78.8	0.4	4	6	50	Soft	0	80
34	Paver	77.2	0.5	1	7	50	Soft	0	74
44	Roller	80	0.2	1	7	50	Soft	0	72
29	Loader (Front End Loader)	79.1	0.4	1	7	50	Soft	0	75
	Total:								**82**
Architectural Coating									
10	Compressor, Air	77.7	0.4	1	6	50	Soft	0	72
	Total:								**72**

1. Obtained or estimated from:
   FHWA Roadway Construction Noise Model (RCNM), Version 1.1, December 8, 2008; and/or
2. Usage Factor = percentage of time equipment is operating in noisiest mode while in use

Appendix C

Construction Vibration Analysis

Table C1. Construction Vibration Analysis - Potential Building Damage

Vibration attenuation constant (n):		1.1						
		Building Category:	**Extremely fragile historic buildings, ruins, ancient monuments**	**Fragile buildings**	**Historic and some old buildings**	**Older residential structures**	**New residential structures**	**Modern industrial/ commercial buildings**
Equipment Item	**Reference PPV at 25 feet, in/s** [a]	**Vibration Damage Impact Criteria, PPV, in/s:**	**0.08**	**0.1**	**0.25**	**0.3**	**0.5**	**0.5**
Vibratory roller	0.21	Distance to Impact Criteria, feet:	61	50	22	19	12	12
Large bulldozer[b]	0.089		28	23	10	9	6	6
Small bulldozer[c]	0.003		2	2	1	1	1	1

[a] Obtained from "Transportation and Construction Vibration Guidance Manual", Caltrans 2020

[b] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

[c] Considered representative of smaller equipment such as mini excavators.

Table C2. Construction Vibration Analysis - Potential Human Annoyance

Vibration attenuation constant (n):		1.1				
		Perceptibility:	Barely perceptible	Distinctly perceptible	Strongly perceptible	Severe
Equipment Item	Reference PPV at 25 feet, in/s [a]	Vibration Damage Impact Criteria, PPV, in/s:	0.01	0.04	0.1	0.4
Vibratory roller	0.21	Distance to Impact Criteria, feet:	399	113	50	14
Large bulldozer[b]	0.089		183	52	23	7
Small bulldozer[c]	0.003		9	3	2	1

[a] Obtained from "Transportation and Construction Vibration Guidance Manual", Caltrans 2013

[b] Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

[c] Considered representative of smaller equipment such as mini excavators.

Appendix D

Operational Noise Calculations

Data From TIA Turn Movement Diagrams

INTERSECTION TRAFFIC VOLUMES	DIRECTION	EXISTING						PROJECT TRAFFIC VOLUMES					
		Ram	Rpm	Tam	Tpm	Lam	Lpm	Ram	Rpm	Tam	Tpm	Lam	Lpm
1 (3) Murray Dr / La Mesa Blvd / Grossmont Center Dr	Sb	12	37	318	698	30	104	2	5	4	10	0	0
	Wb	84	96	74	89	67	227	0	0	0	0	0	0
	Nb	109	39	594	449	96	203	0	0	9	6	0	0
	Eb	85	330	27	81	14	31	0	0	0	0	4	3
2 (2) Grossmont Center Dr / Healthcare Dr	Sb	0	0	216	644	32	20	0	0	0	0	3	2
	Wb	49	51	0	0	176	255	1	2	0	0	6	15
	Nb	249	101	416	494	0	0	13	9	0	0	0	0
	Eb	0	0	0	0	0	0	0	0	0	0	0	0
9 (1) Center Dr / Grossmont Center Dr	Sb	64	151	173	326	124	63	0	0	3	2	3	2
	Wb	61	99	30	76	41	110	1	4	1	1	0	0
	Nb	137	33	145	292	29	105	0	0	1	2	0	0
	Eb	33	163	55	59	35	170	0	0	1	1	0	0

Segment Volumes and % Increases Calculated from TIA Volumes

SEGMENT TRAFFIC VOLUMES	STUDY INTERSECTION	EXISTING						PROJECT					
		AM			PM			AM			PM		
		NB/EB	SB/WB	Total	NB/EB	SB/WB	Total	NB/EB	SB/WB	Total	NB/EB	SB/WB	Total
Grossmont Center Dr, North of Murray Dr	3	692	360	**1052**	576	839	**1415**	13	6	**19**	9	15	**24**
La Mesa Blvd, South of Murray Dr		799	470	**1269**	691	1255	**1946**	9	4	**13**	6	10	**16**
Murray Dr, East of La Mesa/Grossmont		166	225	**391**	224	412	**636**	0	0	**0**	0	0	**0**
Murray Dr, West of La Mesa/Grossmont		126	182	**308**	442	329	**771**	4	2	**6**	3	5	**8**
Grossmont Center Dr, North of Healthcare Dr	2	465	248	**713**	545	664	**1209**	1	3	**4**	2	2	**4**
Grossmont Center Dr, South of Healthcare Dr		665	392	**1057**	595	899	**1494**	13	6	**19**	9	15	**24**
Healthcare Dr, East of Grossmont Center Dr		281	225	**506**	121	306	**427**	16	7	**23**	11	17	**28**
N/A		0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
Grossmont Center Dr, North of Center Dr	1	241	361	**602**	561	540	**1101**	2	6	**8**	6	4	**10**
Grossmont Center Dr, South of Center Dr		311	247	**558**	430	599	**1029**	1	3	**4**	2	2	**4**
Center Dr, East of Grossmont Center Dr		316	132	**448**	155	285	**440**	4	2	**6**	3	5	**8**
Center Dr, West of Grossmont Center Dr		123	123	**246**	392	332	**724**	1	1	**2**	1	1	**2**

SEGMENT TRAFFIC VOLUMES	STUDY INTERSECTION	EXISTING + PROJECT						% INCREASE DUE TO PROJECT					
		AM			PM			AM			PM		
		NB/EB	SB/WB	Total	NB/EB	SB/WB	Total	NB/EB	SB/WB	Total	NB/EB	SB/WB	Total
Grossmont Center Dr, North of Murray Dr	3	705	366	**1071**	585	854	**1439**	2%	2%	**2%**	2%	2%	**3%**
La Mesa Blvd, South of Murray Dr		808	474	**1282**	697	1265	**1962**	1%	1%	**1%**	1%	1%	**2%**
Murray Dr, East of La Mesa/Grossmont		166	225	**391**	224	412	**636**	0%	0%	**0%**	0%	0%	**0%**
Murray Dr, West of La Mesa/Grossmont		130	184	**314**	445	334	**779**	3%	1%	**2%**	1%	2%	**2%**
Grossmont Center Dr, North of Healthcare Dr	2	466	251	**717**	547	666	**1213**	0%	1%	**1%**	0%	0%	**0%**
Grossmont Center Dr, South of Healthcare Dr		678	398	**1076**	604	914	**1518**	2%	2%	**2%**	2%	2%	**2%**
Healthcare Dr, East of Grossmont Center Dr		297	232	**529**	132	323	**455**	6%	3%	**5%**	9%	6%	**7%**
N/A													
Grossmont Center Dr, North of Center Dr	1	243	367	**610**	567	544	**1111**	1%	2%	**1%**	1%	1%	**1%**
Grossmont Center Dr, South of Center Dr		312	250	**562**	432	601	**1033**	0%	1%	**1%**	0%	0%	**0%**
Center Dr, East of Grossmont Center Dr		320	134	**454**	158	290	**448**	1%	2%	**1%**	2%	2%	**2%**
Center Dr, West of Grossmont Center Dr		124	124	**248**	393	333	**726**	1%	1%	**1%**	0%	0%	**0%**

Condensing Unit (CU) Noise Calculations

	Octave Band Sound Pressure, dB (from values on graph)							
	63 Hz	**125 Hz**	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**4 kHz**	**8 kHz**
Values from graph - unweighted	54.5	64	53	51	48	43.5	37	30

Adjust for unit dimensions and convert to sound power using
Lw = Lp - 10 * log (Q / (4 * π * r^2))
Where Lw = sound power, Lp = sound pressure, Q = directivity factor (assume 2 for hemispherical spreading), r is in meters

Closest distance to unit	3.3	feet			
Farthest distance to unit ~	6.22	feet			
Acoustical average	4.53	feet	=	1.38	meters

	Octave Band Sound Power, dB							
	63 Hz	**125 Hz**	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**4 kHz**	**8 kHz**
Q	2	2	2	2	2	2	2	2
r	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38
Sound power	65.29	74.79	63.79	61.79	58.79	54.29	47.79	40.79

Rooftop Unit (RTU) Noise

	Octave Band Sound Pressure, dB (from values in table)							
	63 Hz	**125 Hz**	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**4 kHz**	**8 kHz**
Values from data provided	82	78	72	75	71	65	55	51

Combined Noise Levels

				Sound Power									
Label	**Description**	**# Units**		**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**4 kHz**	**8 kHz**	**Sum**	**Weighted?**
RTU	Rooftop units	6		82	78	72	75	71	65	55	51	84.6	Flat
				55.8	61.9	63.4	71.8	71	66.2	56	49.9	75.6	A
CU	Condenser Units	3		65.3	74.8	63.8	61.8	58.8	54.3	47.8	40.8	75.9	Flat
				39.1	58.7	55.2	58.6	58.8	55.5	48.8	39.7	64.8	A
Combined Level				**89.8**	**86.7**	**80.1**	**82.9**	**78.9**	**73.0**	**63.2**	**59.0**	**92.6**	**Flat**
				63.6	**70.6**	**71.5**	**79.7**	**78.9**	**74.2**	**64.2**	**57.9**	**83.6**	**A**

Noise Levels at Receivers

	Leq at Homes on Mellmanor Dr, dBA	**Leq at The District Apartments, dBA**	**Leq at Westmont of La Mesa (Assisted Living Facility), dBA**	**Leq at Campina Court Apartments, dBA**
Distance, feet	1,080	845	865	930
Resulting noise level	25	27	27	27

- The air handling units are self-contained chilled water air handlers and will have no exposed condensing unit fans. There are (6) total new air handling units. (4) on the low roof shielded by the roof systems, i.e. sound will divert upwards. (2) of the air handlers are located on the upper roof of the new 2-story addition which will not be line of sight from grade. The general appearance and size of these units is as depicted in the following images:

Figure 1 - General Unit Appearance

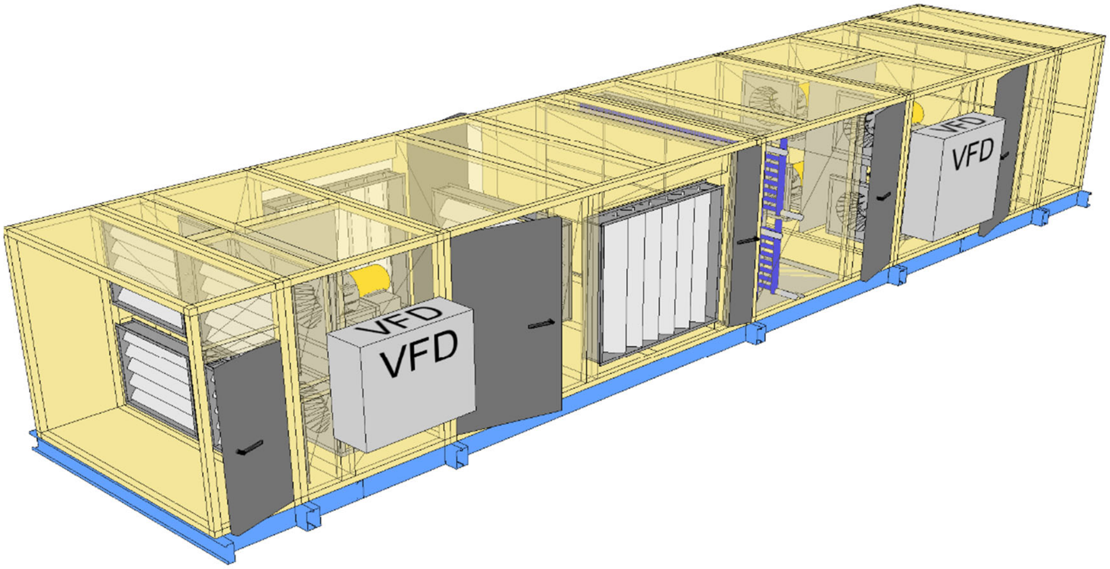


Figure 2 - General Unit Mechanical Configuration

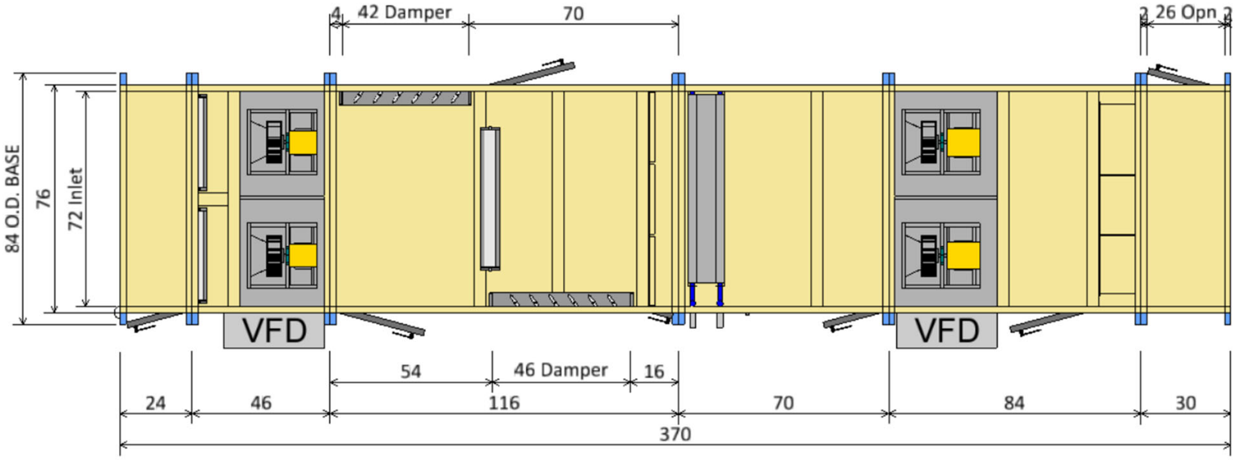
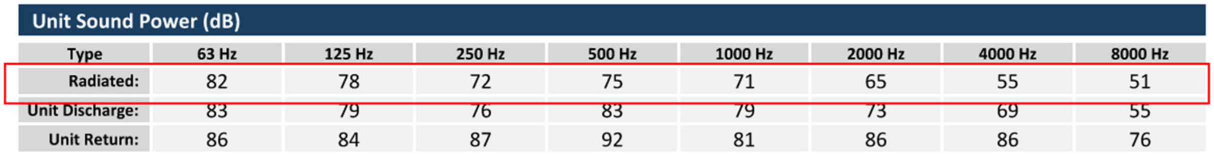


Figure 3 - Typical Unit Size



Unit Sound Power (dB)

Type	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Radiated:	82	78	72	75	71	65	55	51
Unit Discharge:	83	79	76	83	79	73	69	55
Unit Return:	86	84	87	92	81	86	86	76

Figure 4 - Typical Unit Radiated Sound Data

The building will be equipped with (3) outdoor Mitsubishi condensing units that are located on the roof of the 2-story addition. There is (1) PUZ 36 unit and (2) PUZ 42 units. The manufacturer provided sound data for these units as follows:

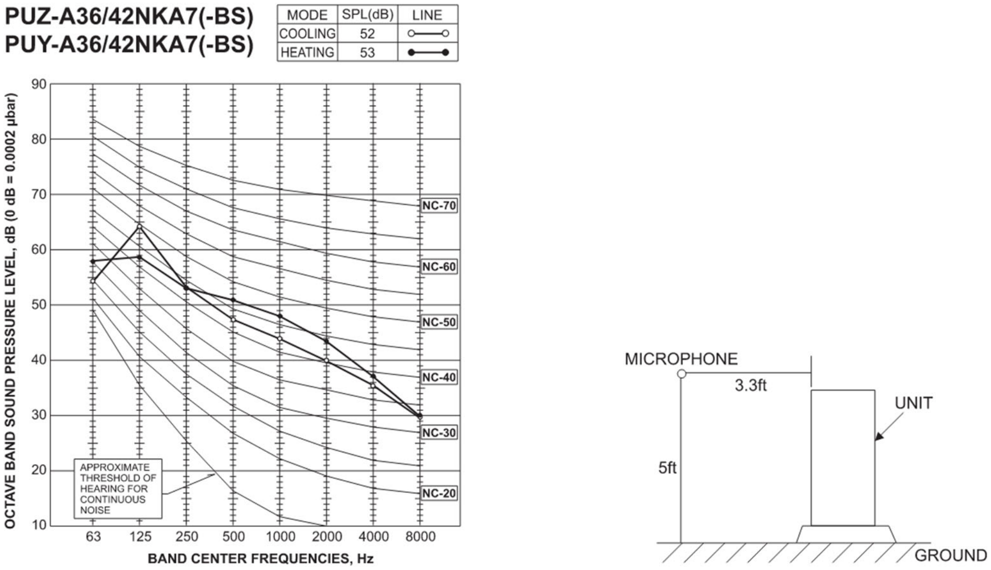


Figure 5 - Mitsubishi Condensing Unit Sound Data

Appendix E

Transportation Impact Analysis: Sharp Grossmont Hospital — Center for Brain and Spine

LINSCOTT
LAW &
GREENSPAN
engineers

TRANSPORTATION IMPACT ANALYSIS

SHARP GROSSMONT HOSPITAL – CENTER FOR BRAIN AND SPINE

La Mesa, California
July 13, 2022

LLG Ref. 3-22-3511

Prepared by:

Román Lopez, PTP
Transportation Planner

Under the Supervision of:

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TABLE OF CONTENTS

APPENDICES

APPENDIX

LIST OF FIGURES

LIST OF TABLES

TRANSPORTATION IMPACT ANALYSIS

SHARP GROSSMONT HOSPITAL – CENTER FOR BRAIN AND SPINE

La Mesa, California
July 13, 2022

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers has prepared this Transportation Impact Analysis (TIA) to document the VMT screening process and conduct a Local Transportation Analysis (LTA) for the Sharp Grossmont Hospital Center for Brain and Spine project (hereby referred to as the "Project". The Project proposes to add in-patient beds to an existing rehabilitation center at 5555 Grossmont Center Drive in the City of La Mesa.

Figure 1–1 shows the Project vicinity and ***Figure 1–2*** illustrates, in more detail, the site location.

This report includes the following sections:

- Project Description
- CEQA VMT Screening
- LTA Study Area, Analysis Approach, Methodology, and Thresholds
- Existing Conditions Discussion
- Analysis of Existing Conditions
- Cumulative Projects Discussion
- Project Trip Generation, Distribution, and Assignment
- Analysis of Near-Term Scenarios
- Pedestrian, Bicycle, and Transit Discussion
- Site Access and Circulation
- Summary and Conclusions

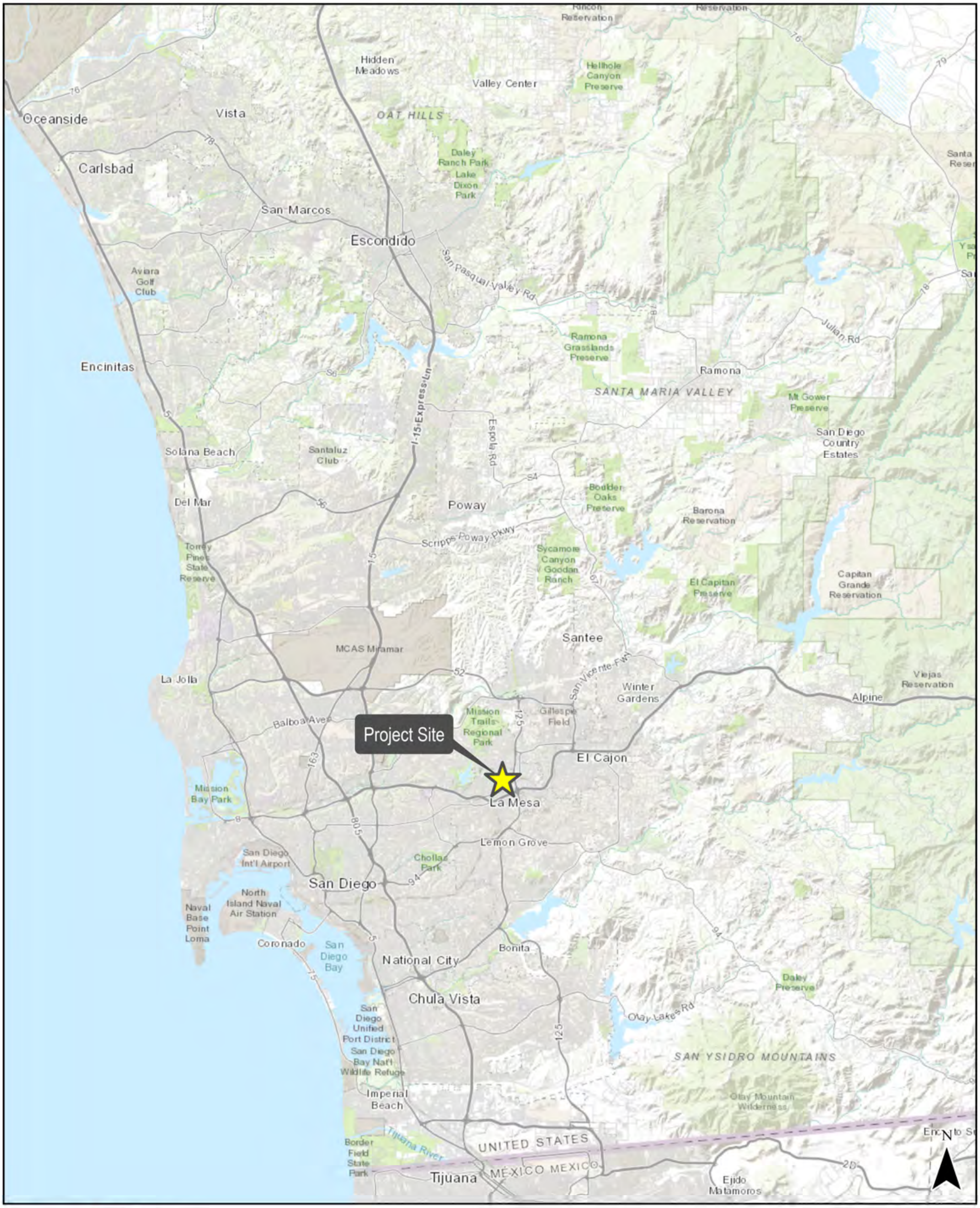

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Figure 1-1
Vicinity Map

Sharp Grossmont Center Brain and Spine

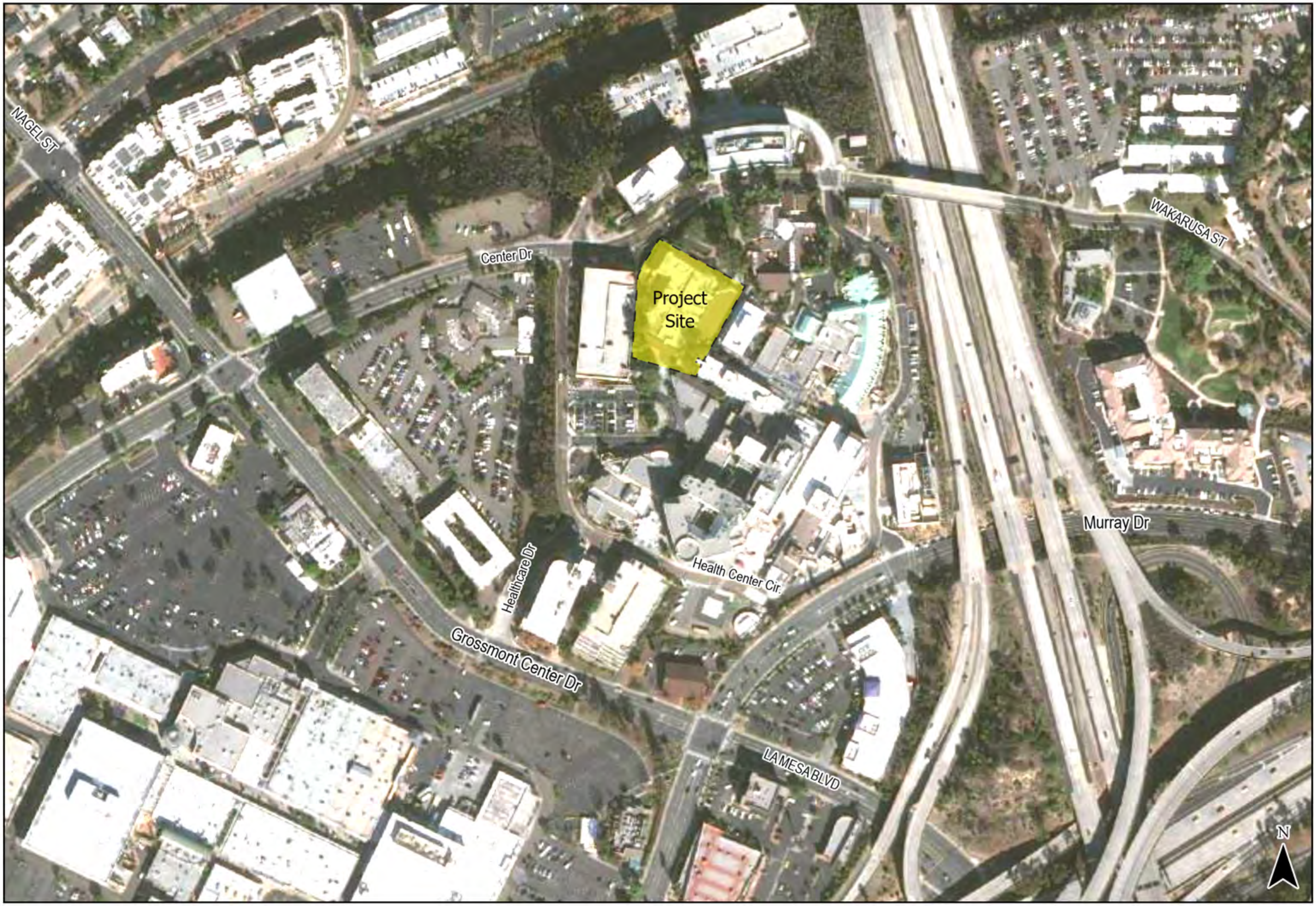

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Figure 1-2
Project Area Map

Sharp Grossmont Center Brain and Spine

2.0 PROJECT DESCRIPTION

2.1 Project Location

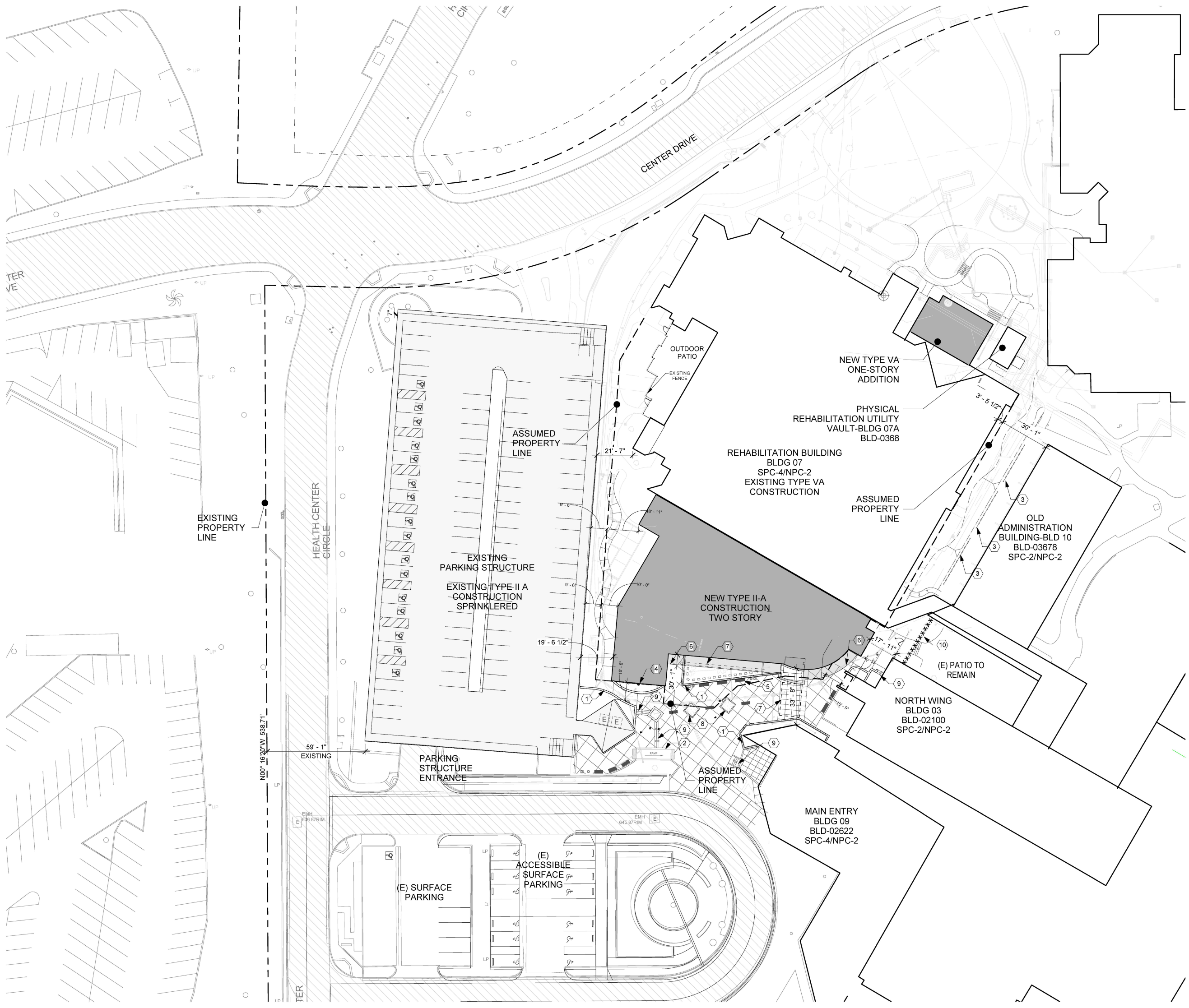
The Project area is in the north-western portion of the existing Sharp Grossmont Hospital campus in the City of La Mesa. The site is located at 5555 Grossmont Center Drive, east of Health Center Circle. The building is located near the main entrance and is accessed via the main driveway drop off to the south or the adjacent parking structure to the west. To the north is open space between the rehabilitation building and the behavioral health building. To the east is the administration building and existing north wing of the main hospital.

2.2 Project Description

The project site is an existing one-story building that includes acute care patient beds, inpatient and outpatient physical, occupational, and speech therapy as well as administrative space for clinical and other staff.

The proposed Project would add 19,390 sf to the total building area for a total of 51,672 sf post-Project. The Project will add 16 intensive care unit beds and 16 medical surgical beds to the existing in-patient rehabilitation center which contains 18 beds. The Project will also remove 12 existing medical surgical beds, resulting in a net increase of 20 beds.

Figure 2–1 depicts the Project site plan.



OVERALL RENOVATION SITE PLAN
SCALE : 1" = 30'-0"

1

SITE PLAN LEGEND

- - - - -	PROPERTY LINE
☐	EXISTING BUILDING TO REMAIN
▨	FIRE LANE
■	NEW ADDITION

GENERAL NOTES

1.SEE CIVIL SHEET C-2 FOR ADDITIONAL SITE DEMOLITION NOTES.

KEYNOTES

1	(N) 3'-0" MAX TALL PLANTER WALL, FOR DETAILS REFER TO LANDSCAPE DRAWINGS
2	(N) ACCESSIBLE RAMPS
3	(N) 6' PRIVACY FENCE PER LANDSCAPE
4	(N) GREEN VEGETATION WALL, FOR DETAILS REFER TO LANDSCAPE DRAWINGS
5	(N) OUTDOOR SEATING BENCHES, REFER TO LANDSCAPE DRAWINGS FOR DETAILS
6	(N) EXTERIOR HORIZONTAL "EYE-BROW" & "HALO", FOR MATERIAL PLEASE REFER TO EXTERIOR ELEVATIONS
7	(N) BUILDING SIGNAGE PLEASE REFER TO EXTERIOR ELEVATIONS FOR MATERIAL & SIZE
8	(N) LOW PLANTER FOR DETAILS REFER TO LANDSCAPE DRAWINGS
9	(N) EXTERIOR STAIRS FOR DETAILS AND FINISH REFER TO LANDCAPE DRAWINGS
10	(E) FENCE TO REMAIN

Layton
CONSTRUCTING WITH INTEGRITY

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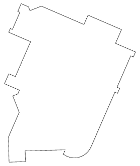

KEY PLAN

SHARP Grossmont Hospital

5555 GROSSMONT CENTER DR.
LA MESA, CA 91942

NEUROSCIENCES CENTER

TITLE SITE RENOVATION PLAN

PROJECT NO. 2021001.10

ISSUE	DATE
1ST SUBMITTAL	11/12/21
BACKCHECK 1	02/11/22

CS- A-011

LINSCOTT LAW & GREENSPAN engineers

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Figure 2-1
Project Site Plan

Sharp Grossmont Center Brain and Spine

3.0 VEHICLE MILES TRAVELED (VMT) SCREENING

3.1 VMT Background

In compliance with Senate Bill 743 (SB 743) and the ITE *Guidelines for Transportation Impact Studies in the San Diego Region* (May 2019) as utilized by the City of La Mesa, a project is required to evaluate transportation impacts under the California Environmental Quality Act (CEQA) using a Vehicle Miles Traveled (VMT) metric, pursuant to guidance from the Governor's Office of Planning and Research (OPR) in December 2018 (*Technical Advisory on Evaluation Transportation Impacts in CEQA*).

VMT refers to the distance a vehicle travels from each origin to destination.

3.2 Technical Methodology

The recommended methodology for conducting a VMT analysis is based on guidance prepared by OPR as provided in the T*echnical Advisory on Evaluation Transportation Impacts in CEQA*. The guidance recommended by OPR has been modified to be better suited to local conditions in the San Diego Region.

The basic process is to compare a project's estimated VMT/capita or VMT/employee to average value on a regional, citywide, or community basis. The target is to achieve a project VMT/capita or VMT/employee that is 85% or less of the appropriate average based on the ITE guidelines.

Certain project types may be presumed to have less than significant VMT impacts, including:

- **Minimum Project Size** – It is recommended that lead agencies determine a minimum project size, below which VMT impacts are presumed to be less than significant. Based on statewide guidance from OPR, the minimum project size is based on a categorical exemption in CEQA that allows expansion of existing structures under certain circumstances, including that the project is in an area where public infrastructure is available to allow for the planned development and the project is not in an environmentally sensitive area. OPR uses a general office building of up to 10,000 square feet as the representative project type for determination of the minimum project size. Typical ITE rates yield a minimum project size based on 110 daily trips. Within the San Diego region, SANDAG trip generation rates would yield a minimum project size based on 200 daily trips.
- **Projects Located Near Transit Stations –** OPR's technical advisory contains guidance that lead agencies should generally presume that certain projects (including residential, retail, and office projects, as well as projects that are a mix of these uses) proposed within ½ mile of an existing major transit stop or an existing stop along a high quality transit corridor will have a less than significant impact on VMT.

  A major transit stop is defined as "a site containing an existing rail transit station, a ferry terminal served by either bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak period."

3.3 VMT Assessment

The proposed Project is located within ½ mile walking distance of the Grossmont Transit Center, which is a major transit stop per OPR guidance.

Based on the Project's characteristics and location it is presumed to have a less than significant VMT impact consistent ITE Guidelines and OPR guidance.

4.0 LOCAL TRANSPORTATION ANALYSIS APPROACH AND METHODOLOGY

ITE recommends that a local transportation analysis (LTA) be prepared for land development projects to forecast, describe, and analyze how a development will affect existing and future circulation infrastructure for users of the roadway system, including vehicles, bicycles, pedestrians, and transit.

4.1 Analysis Approach

The Project proposes to add 16 intensive care unit beds and 16 medical surgical beds to an existing 18-bed in-patient rehabilitation center, while removing 12 existing medical surgical beds, a net increase of 20 beds. The Project is estimated to generate 400 net new daily trips (see *Section 8.1*). Based on the ITE guidelines, an LTA is generally not required, but a focused LTA may still be requested by a local agency to address specific issues.

An explanation of each scenario is provided below:

Existing conditions represent the existing on-the-ground network and traffic volume conditions at the time of data collection in May 2022 while schools were in session.

Existing + Project conditions represent the operations of the existing street network with the addition of the traffic generated by the complete development of the proposed Project.

Existing + Cumulative Projects conditions represent the time period in the near future when it would be expected that other nearby development or infrastructure projects would contribute to cumulative growth in the area which would increase the overall study area traffic volumes prior to the Project's anticipated opening year. *Section 7.0* of this report discusses the cumulative conditions in greater detail.

Existing + Cumulative Projects + Project conditions represent the time period in the near future when traffic generated by the total Project would be on the street system and when it would be expected that other nearby development or infrastructure projects would contribute to cumulative growth in the area which would increase the overall study area traffic volumes.

4.2 Study Area

4.2.1 *Roadway*

Per the ITE, the study area must include:

- All local roadway segments (including all State surface routes), intersections, and mainline freeway locations where the proposed project will add 50 or more peak hour trips in either direction to the existing roadway traffic.
- All freeway entrance and exit ramps where the proposed project will add 20 or more peak hour trips.

The following locations are included in the study area:

Intersections

1. Center Drive / Grossmont Center Drive
2. Healthcare Drive / Grossmont Center Drive
3. Murray Drive / La Mesa Boulevard / Grossmont Center Drive

4.2.2 *Pedestrian*

It is recommended that the geographic area examined in the LTA include the following for pedestrians:

- All pedestrian facilities directly connected to project access points or adjacent to the project development, extending in each direction to the nearest intersection with a classified roadway or connection with a Class I path.
- Facilities connecting to transit stops within two blocks of the project.
- Only facilities on the side of the project or along the walking route to the transit stop.

4.2.3 *Bicycle*

It is recommended that the geographic area examined in the LTA include the following for bicycle travel:

- All roadways adjacent to the project, extending in each direction to the nearest intersection with a classified roadway or with a Class I path.
- Both directions of travel should be evaluated.
- Additional geographic areas may be included in certain cases to address special cases such as schools or retail centers.

4.2.4 *Transit*

It is recommended that the geographic area examined in the LTA include the following for transit:

- All existing transit lines and transit stops within a ½ mile walking distance of the project.
- Any planned transit lines or upgrades within a ½ mile walking distance of the project.

4.3 Methodology

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis considering factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

4.3.1 *Intersections*

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 19 of the *Highway Capacity Manual 6th Edition (HCM 6),* with the assistance of the *Synchro 10* computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS).

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and Levels of Service (LOS) was determined based upon the procedures found in Chapter 20 and Chapter 21 of the *HCM 6* with the assistance of the *Synchro 10* computer software.

4.4 Thresholds & Need for Roadway Improvements

Table 4–1 indicates when a project's effect on the roadway system is considered to justify the need for roadway improvements. That is, if a project's traffic effect causes the values in this table to be exceeded, roadway improvements should be considered.

Not all improvement measures can feasibly consist of roadway widening (new lanes or new capacity). A sample improvement might include financing toward a defined ITS (Intelligent Transportation System) project, enhanced traffic signal communications project, or active transportation projects.

Other improvement measures may include Transportation Demand Management recommendations – transit facilities, bike facilities, walkability, telecommuting, traffic rideshare programs, flextime, carpool incentives, parking cash-out, complete or partial subsidization of transit passes, etc.

TABLE 4–1
DETERMINATION OF THE NEED FOR ROADWAY IMPROVEMENTS

Level of Service with Project [a]	**Allowable Increase Due to Project Effect [b]**					
	Freeways		**Roadway Segments**		**Intersections**	**Ramp Metering**
	V/C	**Speed (mph)**	**V/C**	**Speed (mph)**	**Delay (sec.)**	**Delay (min.)**
E & F (*or ramp meter delays above 15 minutes*)	0.01	1	0.02	1	2	2[c]

Footnotes:

a. All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 2 or a similar LOS chart for each jurisdiction). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped or not densely developed locations per jurisdiction definitions). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

b. If a proposed project's traffic causes the values shown in the table to be exceeded, the effects of the project are deemed to be justify improvements. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigations (within the LTA report) that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note a above), or if the project adds a significant amount of peak hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, roadway improvements should be considered.

c. The impact is only considered to justify improvements if the total delay exceeds 15 minutes.

General Notes:

1. V/C = Volume to Capacity Ratio
2. Speed = Arterial speed measured in miles per hour
3. Delay = Average stopped delay per vehicle measured in seconds for intersections, or minutes for ramp meters.
4. LOS = Level of Service

5.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed *Sharp Grossmont Hospital – Center for Brain and Spine Project* requires an understanding of the existing transportation system within the project area. ***Figure 5–1*** shows an existing conditions diagram, including signalized intersections and lane configurations.

5.1 Existing Street Network

The following is a description of the existing street network in the study area.

Grossmont Center Drive is classified as a four-lane Arterial with a center two-way left-turn lane per *La Mesa General Plan.* No on-street bicycle facilities are provided. On-street parking is prohibited on the roadway and the posted speed limit is 35 mph.

Center Drive is classified as a two-lane Local Collector on the *La Mesa General Plan*. Center Drive is currently constructed west of Grossmont Center Drive as a three-lane roadway (two eastbound lanes, one westbound lane) with a center two-way left-turn lane. Between Grossmont Center Drive and Health Center Circle the roadway transitions to a two-lane with a center two-way left-turn lane and narrows to a two-lane undivided roadway between Health Center Circle and Murray Drive. Class II bicycle lanes on either side of the road west of Grossmont Center Drive. On-street parking is permitted along certain parts of the roadway and the posted speed limit is 25 mph.

Murray Drive is classified as four-lane Major Collector with a center two-way left-turn lane per *La Mesa General Plan* and is built to this classification between Jackson Drive and the Sharp Hospital driveway. East of the Sharp Hospital driveway the roadway provides two eastbound lanes and one westbound lane with a center left-turn lane. Class II bike lanes are provided on either side of the roadway. On-street parking is not permitted, and the posted speed limit is 40 mph.

5.2 Existing Pedestrian Conditions

Continuous sidewalks are provided along both sides of Grossmont Center Drive, Center Drive and Murray Drive in the study area. Further discussion of existing and planned pedestrian conditions and Project recommendations are provided in *Section 10.1*.

5.3 Existing Bicycle Network

Class II bike lanes are provided on Murray Drive within the study area and on Center Drive, west of Grossmont Center Drive. There are no other bicycle facilities provided along the street segments within the study area. Further discussion of existing and planned bicycle conditions and Project recommendations are provided in *Section 10.2*.

5.4 Existing Transit Conditions

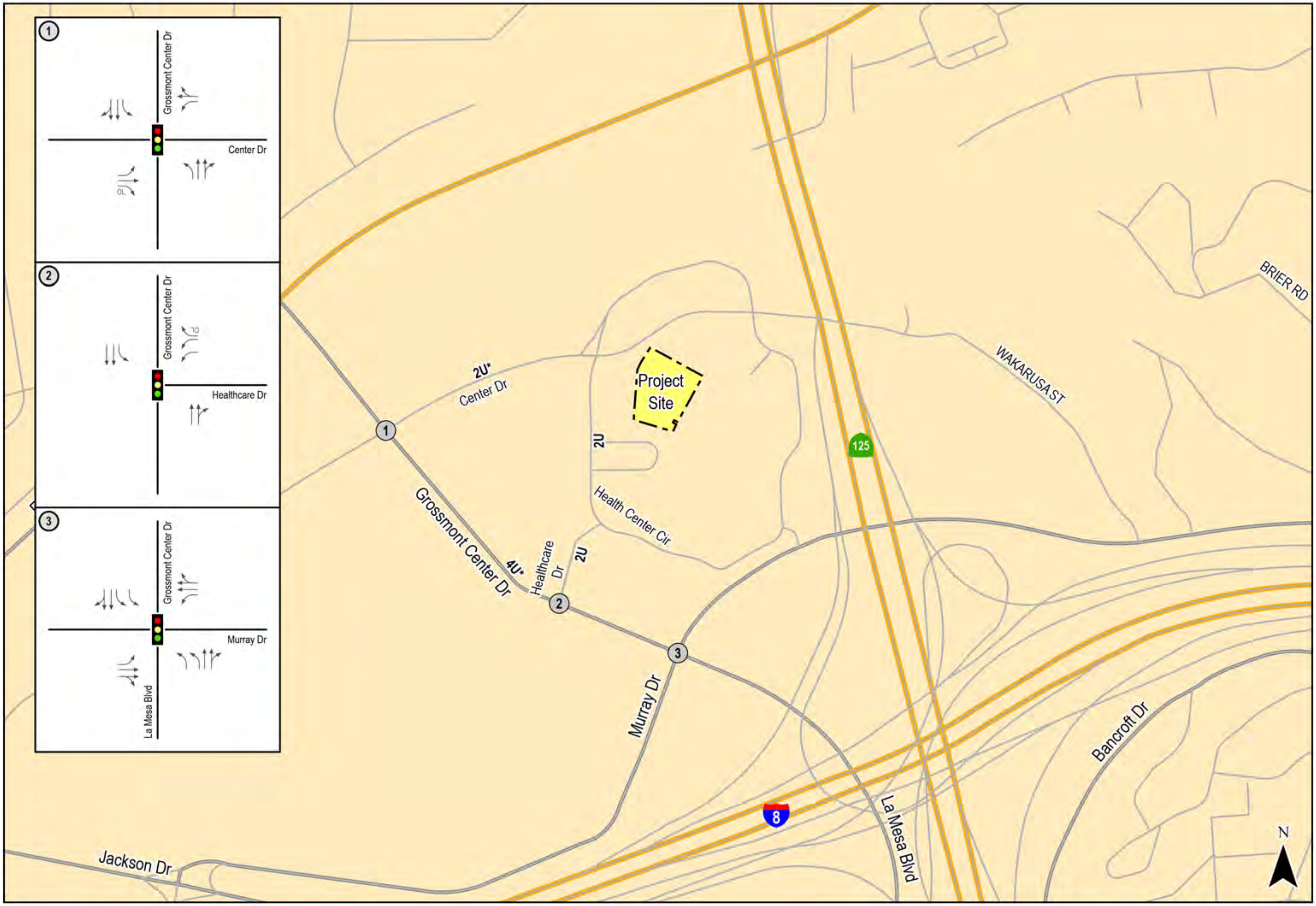
The project site is located within ½ a mile of Route 852 Bus Route and the Grossmont Transit Center which serves the Green Line and Orange Line light rail in the San Diego Trolley system. Route 852 provides bus service to the area via Grossmont Center Drive/ Center Drive intersection.

The Green/Orange Line Trolley has transit stations in the area at Bus Court / Trolley Court. Further discussion of existing and planned transit conditions and Project recommendations are provided in *Section 10.3*.

5.5 Existing Traffic Volumes

Peak hour (7:00-9:00 AM and 4:00-6:00 PM) intersection turning movement counts were conducted on Thursday, May 12, 2022 within the Project study area.

Figure 5–2 shows the Existing Traffic Volumes. ***Appendix A*** contains the count sheets.



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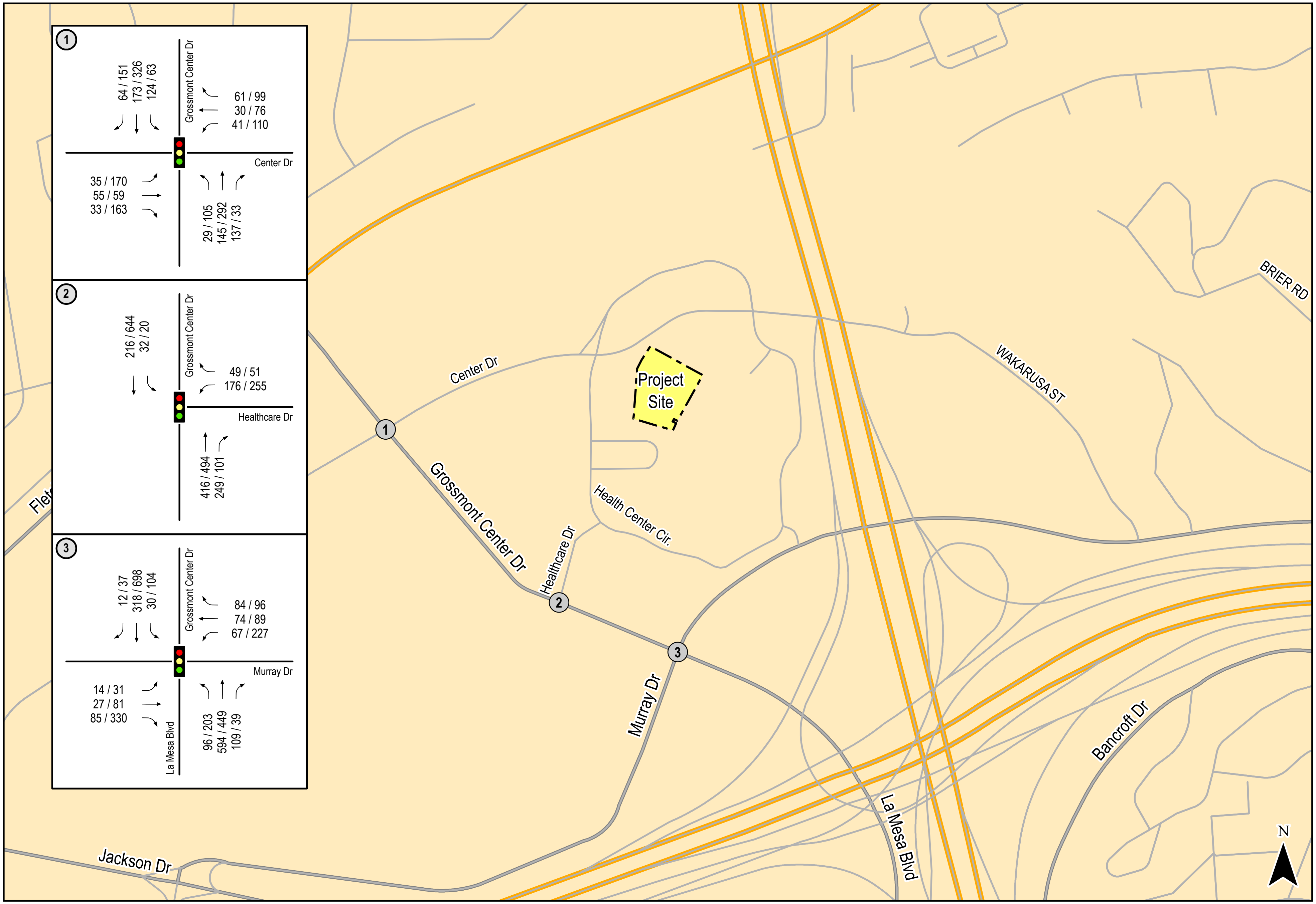
(#)	Study Intersection	*	Two-Way Left-Turn Median
🟨	Project Site	🚦	Traffic Signal
2/4/6	Number of Travel Lanes	↰↑↱	Turning Movements
U / D	Divided/Undivided Roadway	↱	Right-turn overlap

Figure 5-1
Existing Conditions Diagram

Sharp Grossmont Center Brain and Spine



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Study Intersection

↰↑↱ Intersection Peak Hour Volume (AM/PM)

Figure 5-2
Existing Volumes

Sharp Grossmont Center Brain and Spine

6.0 ANALYSIS OF EXISTING CONDITIONS

6.1 Peak Hour Intersection Levels of Service

Table 6–1 summarizes the existing peak hour intersection operations. As seen in ***Table 6–1***, all intersections are calculated to currently operate at LOS D or better.

The existing peak hour intersection analysis worksheets are included in ***Appendix B***.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
1. Center Drive/ Grossmont Center Drive	Signal	AM PM	19.5 28.4	B C
2. Healthcare Drive / Grossmont Center Drive	Signal	AM PM	10.5 8.4	B A
3. Murray Drive/ La Mesa Boulevard/ Grossmont Center Drive	Signal	AM PM	19.1 42.5	B D

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

7.0 CUMULATIVE PROJECTS

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. LLG reviewed the City's Active Development Projects List to identify relevant, pending cumulative projects in the study area that could be constructed and generating traffic in the study area in the near future. Based on this research, three (3) cumulative projects that are under review, entitled, under construction, or complete following the date of the traffic counts used in this study were included in the cumulative conditions analysis.

7.1 Description of Projects

1. **Grossmont Post-Acute Care** proposes to construct a 105-bed skilled nursing facility. The project is located on the north side of Center Drive, east of Grossmont Center Drive. The project would replace the existing 86-bed Grossmont Post-Acute Care facility located on the south side of Center drive, across the street from the proposed project. The project is currently entitled. Subtracting the existing site trip generation from the proposed Project, the net new trips expected on the street system with redevelopment of the site is 58 net new ADT with 3 net new trips during the AM peak hour (2 inbound / 1 outbound) and 4 net new trips during the PM peak hour (1 inbound / 3 outbound).

2. **CityMark Communities** proposes to develop 1,624 square feet of commercial uses and 49 residential dwelling units. The project would replace the existing 7,631 sf La Mesa Women's Club. The project is currently entitled. The project is calculated to generate approximately 168 ADT with 20 inbound and 386 outbound trips in the AM peak hour, and 929 inbound and 1,166 outbound trips in the PM peak hour.

3. **Sharp Grossmont Hospital Parking Structure** will develop a 668-stall multi-level parking structure. The structure will be located on the existing Brier Patch parking lot and will displace surface parking, resulting in a net increase of 443 parking spaces. The project is currently under construction. The project will not generate new traffic in and of itself but will attract and reroute existing traffic within the local area up to 1,922 ADT with 101 inbound and 25 outbound trips during the AM peak hour, and 8 inbound and 79 outbound trips in the PM peak hour.

7.2 Summary of Cumulative Projects Trips

Table 7–1 summarizes the cumulative projects trip generation. As shown in *Table 7–1*, the three cumulative projects are calculated to generate a total of 226 ADT, a portion of which will be added to the Project study area. As noted previously, the Sharp parking structure does not generate new traffic but rather attracts and reroutes existing trips. This estimated rerouted trip total is not included in the cumulative projects trip generation total.

Figure 7–1 shows the locations of the cumulative projects and ***Figure 7–2*** depicts the Existing + Cumulative projects traffic volumes.

TABLE 7–1
CUMULATIVE DEVELOPMENT PROJECTS SUMMARY

No.	Name	Project	ADT [a]	AM		PM		Status
				In	Out	In	Out	
1	Grossmont Post-Acute Care *5601 Grossmont Center Dr*	105 total (19 net) nursing home beds	58	2	1	1	3	Entitled
2	CityMark Communities *5220 Wilson St*	49 multi-family dwelling units, 1,624 sf commercial	168	3	17	12	3	Entitled
3	Sharp Grossmont Hospital Parking Structure [b] *9000 Wakarusa St*	668-stall multi-level parking structure	1,922	101	25	8	79	Under Construction
Total Cumulative Projects [c]			**226**	**5**	**18**	**13**	**6**	—

Footnotes:

a. Average daily traffic.
b. Project will not generate new traffic but rather attract and reroute existing traffic in the area.
c. Total does not include Sharp Grossmont Hospital Parking Structure as these are not new trips to the street system.

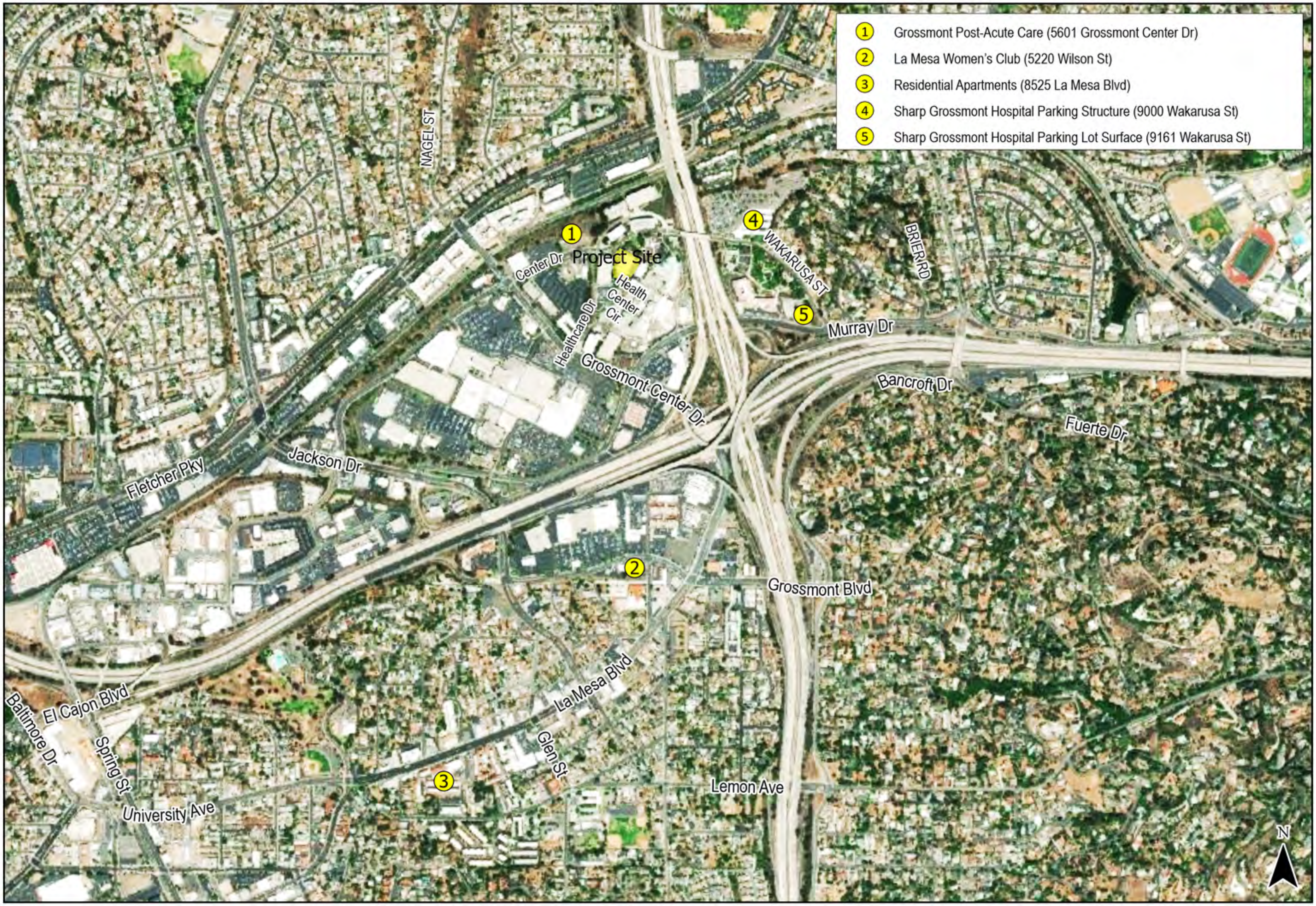

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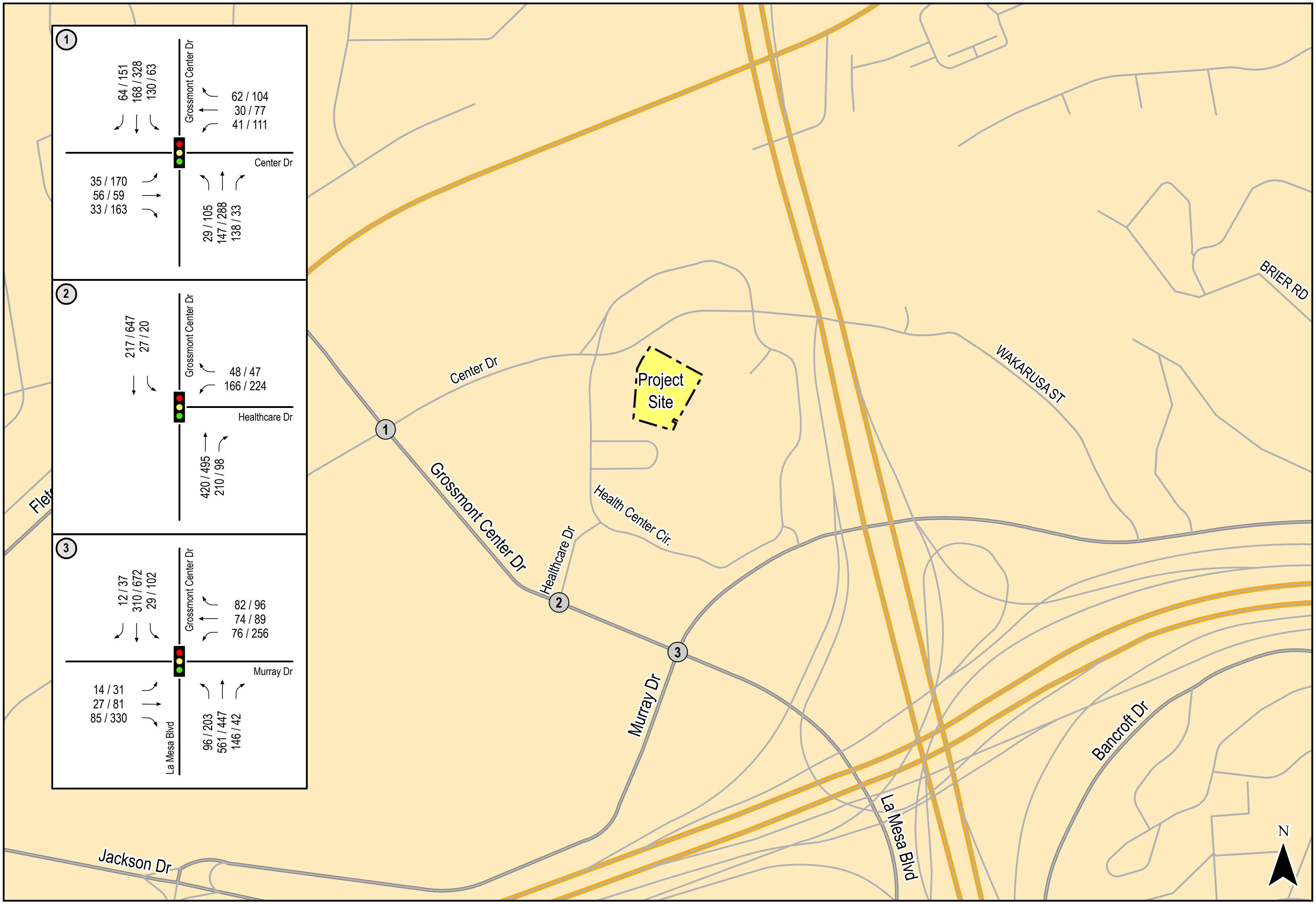
Figure 7-1
Cumulative Projects Location Map



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(#) Study Intersection

↰↑↱ Intersection Peak Hour Volume (AM/PM)

Figure 7-2
Existing+Cumulative Volumes

Sharp Grossmont Center Brain and Spine

8.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

8.1 Trip Generation

The Project proposes to add 16 intensive care unit beds and 16 medical surgical beds to an existing 18 in-patient rehabilitation center while removing 12 existing medical surgical beds, a net increase of 20 beds over existing.

Trip generation for the Project was estimated using trip rates from SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. The general trip rate for "Hospital" was used.

SANDAG provides for a 5% daily trip reduction for land uses with transit access or near transit stations accessible within ¼ mile. The site located near bus transit at Healthcare Drive / Grossmont Center Drive and near rail transit at Grossmont Station. To provide a conservative analysis, however, no transit trip reduction was applied to the trip generation for this analysis.

Table 8–1 the Project traffic generation. The Project is calculated to generate approximately 400 ADT with 22 inbound / 10 outbound trips during the AM peak hour and 16 inbound / 24 outbound trips during the PM peak hour.

TABLE 8–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour				PM Peak Hour			
		Rate[a]	Volume	% of ADT	In:Out Split	Volume		% of ADT	In:Out Split	Volume	
						In	Out			In	Out
Hospital	20 bed	20 /bed	400	8%	70:30	22	10	10%	40:60	16	24

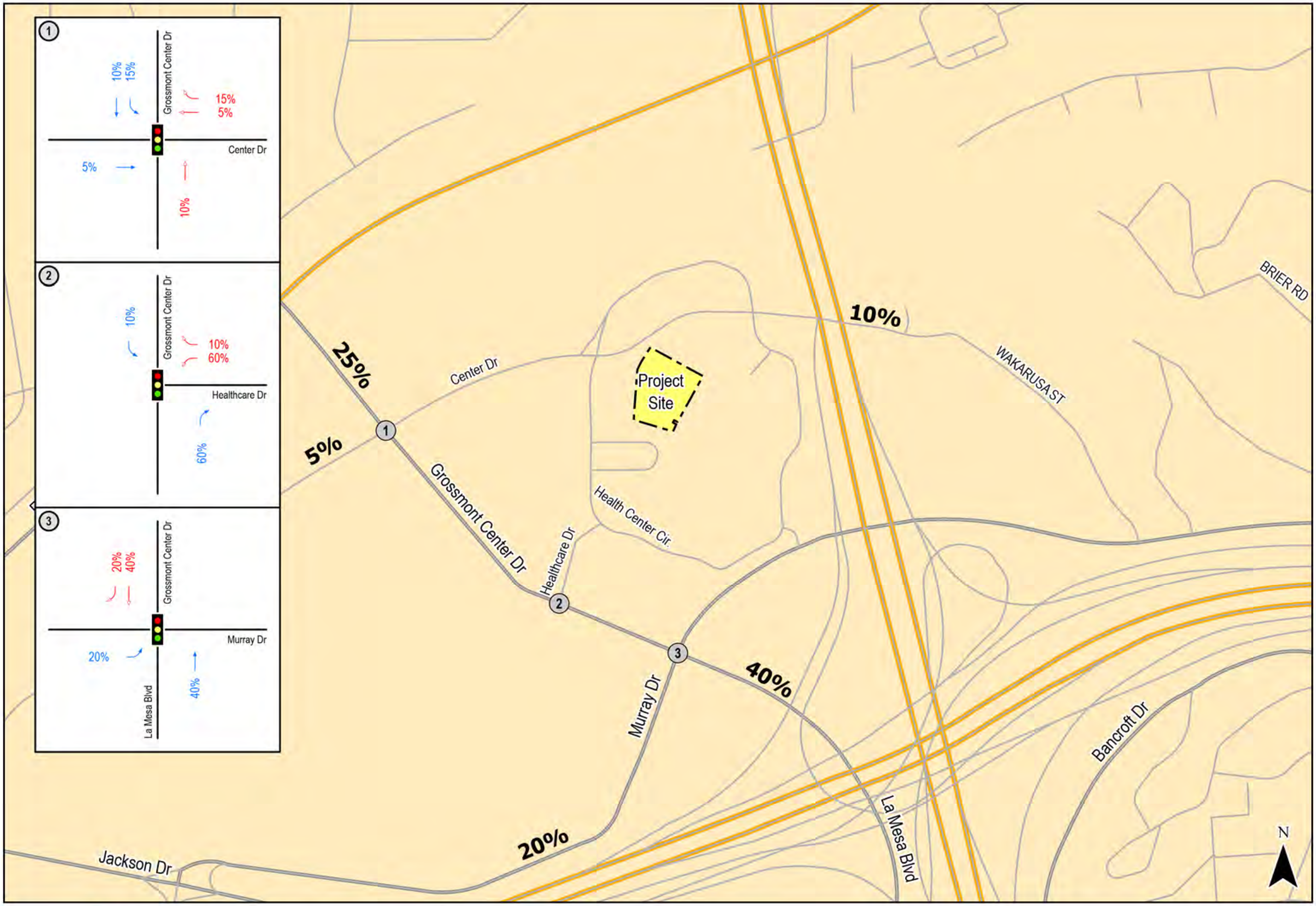
Footnotes:

a. Trip generation rates from SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

8.2 Trip Distribution and Assignment

The traffic generated by the Project was distributed and assigned based on anticipated traffic patterns to and from the site and the Project site's proximity to state highways and arterials.

Figure 8–1 shows the project distribution. ***Figure 8–2*** shows the assigned project trips. ***Figure 8–3*** shows the Existing + Project traffic volumes. ***Figure 8–4*** shows the Existing + Cumulative Projects + Project traffic volumes.



LINSCOTT LAW & GREENSPAN
engineers

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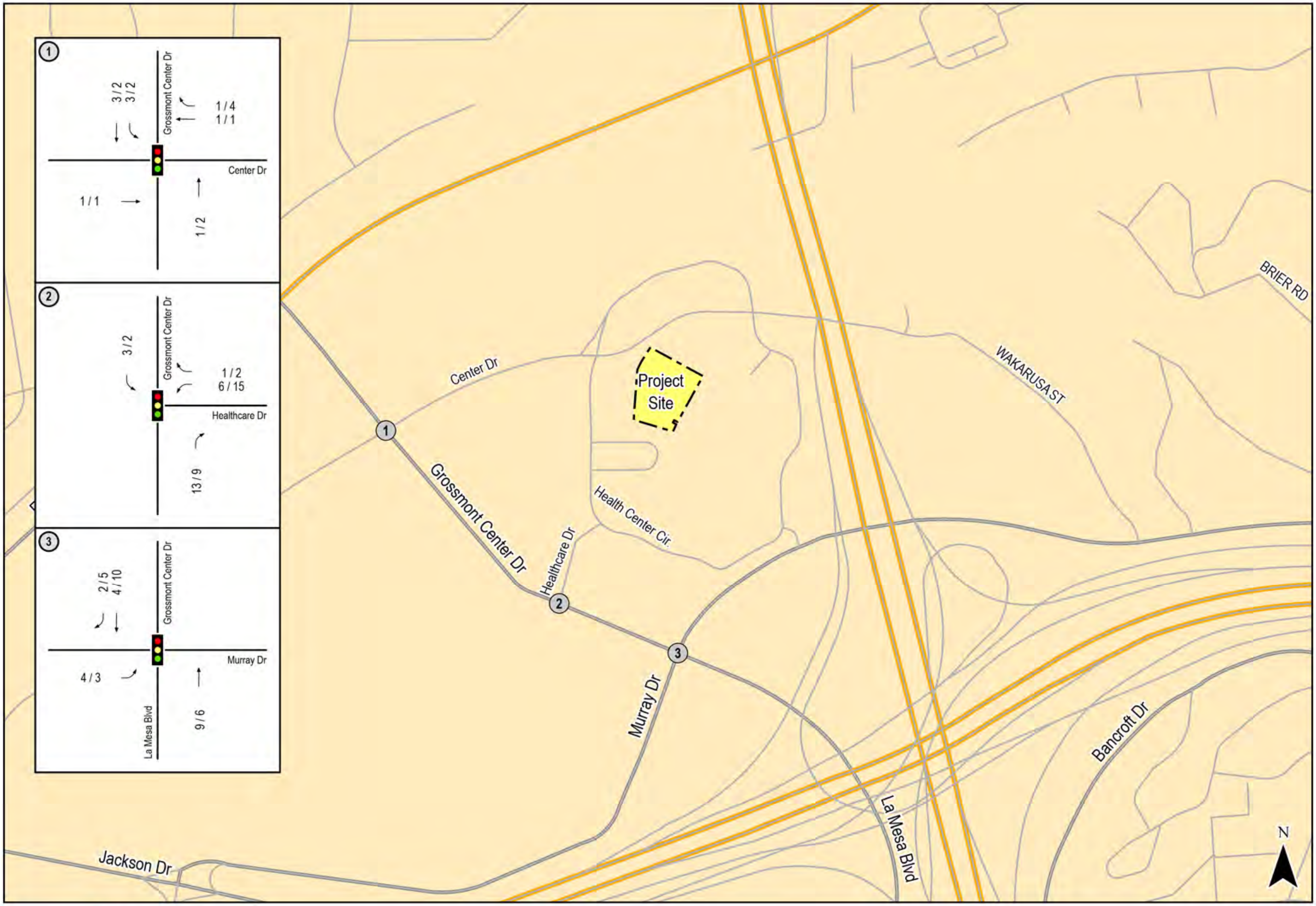
#	Study Intersection
↰↑↱	Inbound Trip Distribution
↰↑↱	Outbound Trip Distribution

Figure 8-1

Project Traffic Distribution

Sharp Grossmont Center Brain and Spine



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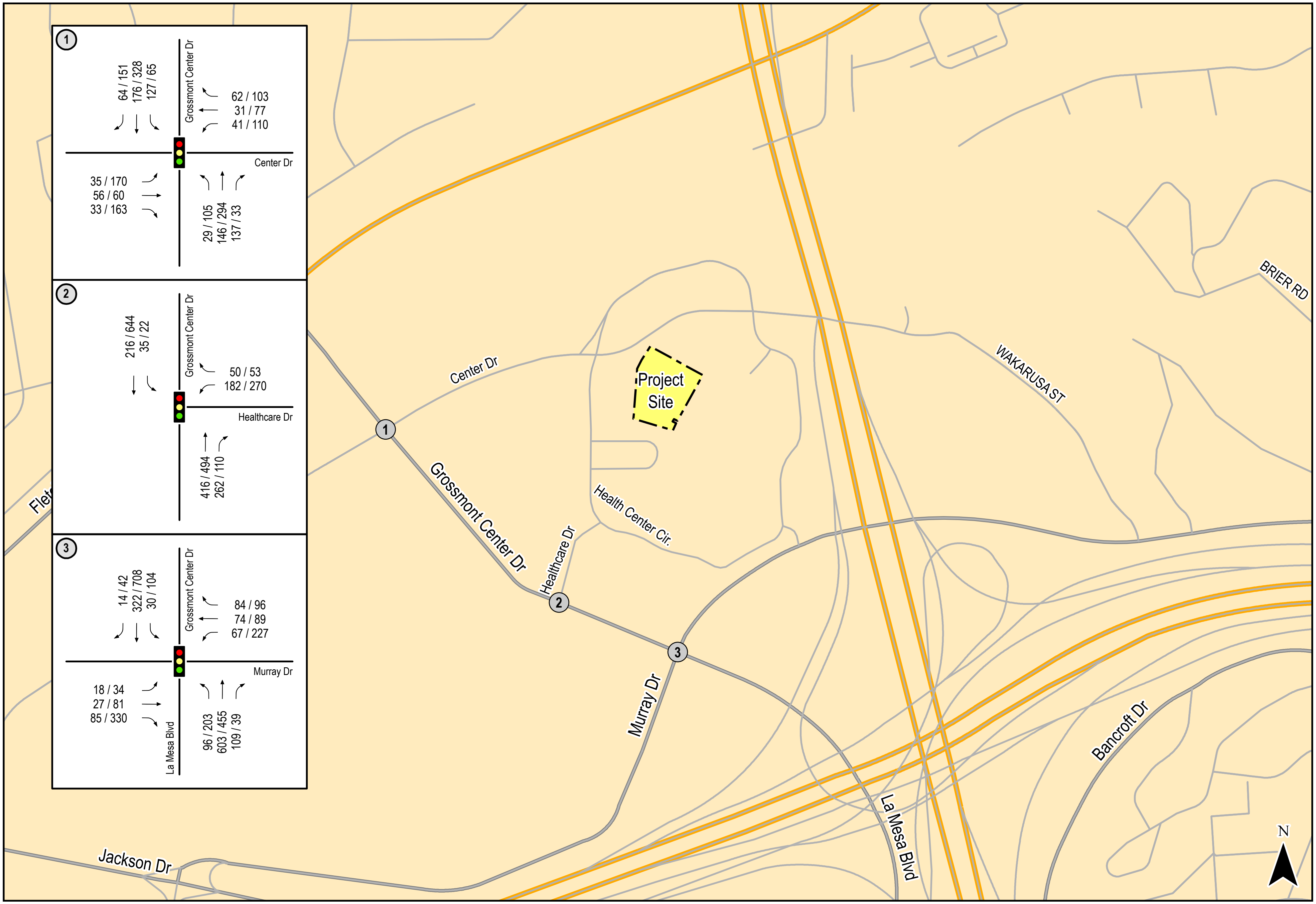
#	Study Intersection
↰↑↱	Intersection Peak Hour Volume (AM/PM)

Figure 8-2
Project Traffic Volumes



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#	Study Intersection
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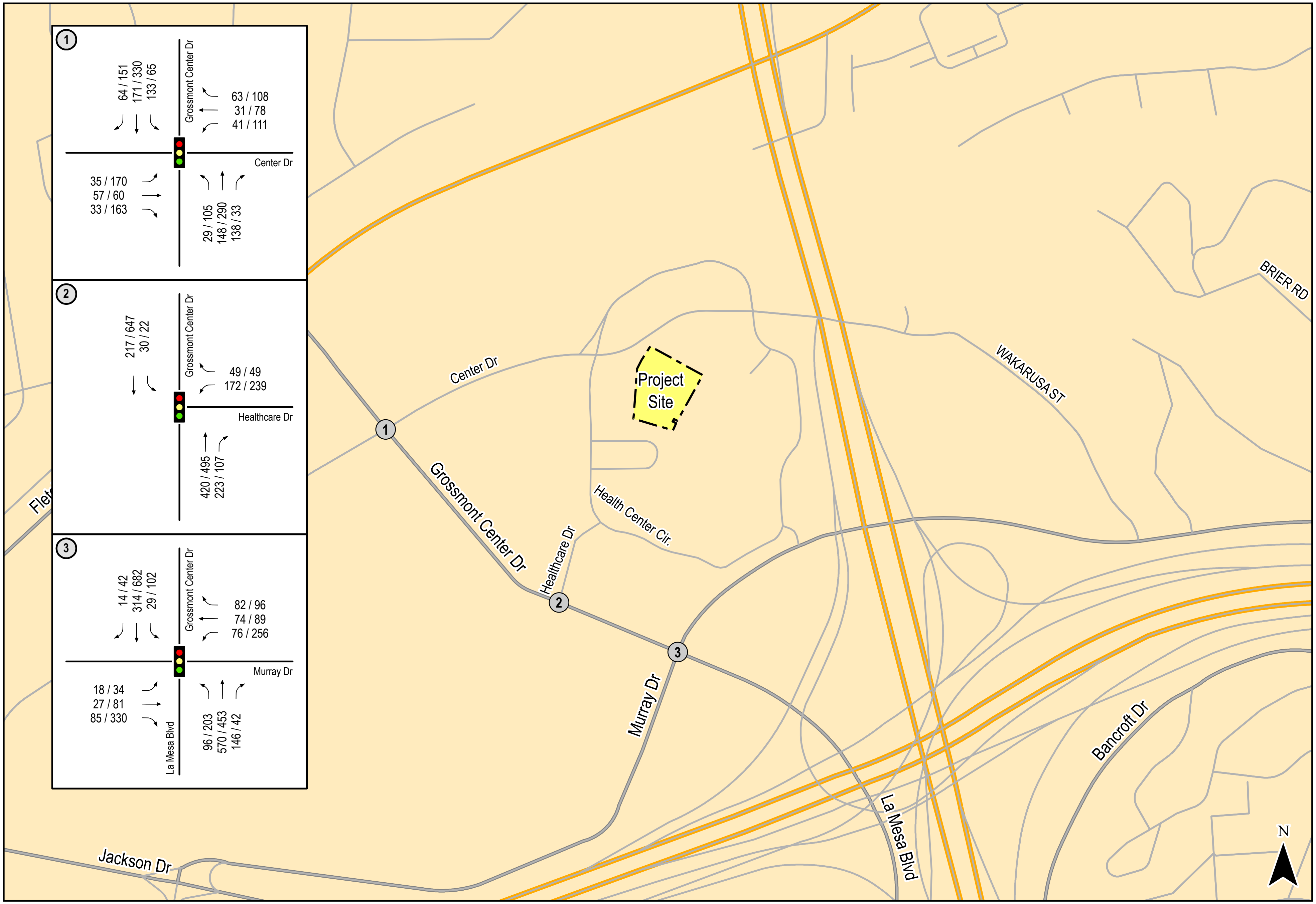
Figure 8-3
Existing+Project Traffic Volumes

Sharp Grossmont Center Brain and Spine



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#	Study Intersection
↰↑↱	Intersection Peak Hour Volume (AM/PM)

Figure 8-4
Existing+Cumulative Projects+Project Traffic Volumes

Sharp Grossmont Center Brain and Spine

9.0 ANALYSIS OF NEAR-TERM SCENARIOS

9.1 Existing + Project

Table 9–1 shows the Existing + Project peak hour intersection operations. As seen in *Table 9–1*, all intersections are calculated to operate at LOS D or better.

Based on the established significance criteria, the Project effects on the study intersections do not justify the need for roadway improvements.

The Existing + Project peak hour intersections analysis worksheets are included in ***Appendix C***.

9.2 Existing + Cumulative Projects

9.2.1 *Intersection Analysis*

Table 9–1 also summarizes the Near-Term (Existing + Cumulative Projects) peak hour intersection operations. As seen in *Table 9–1*, all intersections are calculated to operate at LOS D or better.

The Near-Term (Existing + Cumulative Projects) peak hour intersections analysis worksheets are included in ***Appendix D***.

9.3 Existing + Cumulative Projects + Project

9.3.1 *Intersection Analysis*

Table 9–1 also summarizes the Near-Term (Existing + Cumulative Projects) + Project peak hour intersection operations. As seen in *Table 9–1*, all intersections are calculated to continue to operate at LOS D or better with the addition of Project traffic.

Based on the established significance criteria, the Project effects on the study intersections do not justify the need for roadway improvements.

The Near-Term (Existing + Cumulative Projects) + Project peak hour intersection analysis worksheets are included in ***Appendix E***.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing+ Project		Δ[c]	Existing + Cumulative Projects		Existing + Cumulative Projects + Project		Δ
			Delay[a]	LOS[b]	Delay	LOS		Delay	LOS	Delay	LOS	
1. Center Drive/ Grossmont Center Drive	Signal	AM PM	19.5 28.4	B C	19.8 28.5	B C	0.3 0.1	20.0 28.6	C C	20.2 28.7	C C	0.2 0.1
2. Healthcare Drive / Grossmont Center Drive	Signal	AM PM	10.5 8.4	B A	10.8 8.6	B A	0.3 0.2	10.1 7.9	B A	10.3 8.2	B A	0.2 0.3
3. Murray Drive/ La Mesa Boulevard/ Grossmont Center Drive	Signal	AM PM	19.1 42.5	B D	19.2 42.6	B D	0.1 0.1	19.1 44.5	B D	19.2 44.6	B D	0.1 0.1

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to project.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

10.0 ACTIVE TRANSPORTATION REVIEW

10.1 Pedestrian Infrastructure

10.1.1 *Existing and Planned*

As discussed in *Section 5.2*, continuous sidewalks are generally provided on the major roadways in the area, including Grossmont Center Drive, Murray Drive, and Center Drive. ***Figure 10–1*** illustrates the existing pedestrian conditions and facilities within the immediate area of the project site.

Per the City of La Mesa Sidewalk Master Plan, sidewalks are proposed on Health Center Circle north of Center Drive.

10.1.2 *Project Recommendations*

Based on the existing infrastructure and pedestrian conditions and anticipated circulation needs associated with the Project, the following improvements are recommended.

- Provide high visibility crosswalks, to current City standards, on each leg of the intersection of Center Drive / Health Center Circle (west) if not completed by other area projects such as the Sharp Parking Structure and Surface Lot projects.

10.2 Bicycle Infrastructure

10.2.1 *Existing and Planned*

As described in *Section 5.3* and illustrated on ***Figure 10–2***, there are no bicycle facilities currently provided in the immediate Project area or on the major streets bounding the wider Sharp campus except for a portion of Murray Drive. The streets providing intra-campus access including Center Drive/Wakarusa Street and Health Center Circle are generally two lanes, low speed, and with no on-street parking. This makes these roadways more suitable for bicycles to share with motor vehicles.

Per the *La Mesa Bicycle Facilities and Alternative Transportation Plan,* within the Project vicinity, Class II Bike Lanes are proposed on Murray Drive and on Center Drive, west of Grossmont Center Drive. Center Drive/Wakarusa Street from Grossmont Center Drive to Murray Drive is proposed as a Class III Bike Route.

Per the *City of La Mesa 2012 General Plan*, Class II Bike lanes are proposed at Grossmont Center Drive from Center Drive to Murray Drive.

10.2.2 *Project Recommendations*

The following bicycle improvements are recommended.

- Provide approach/entry point pre-formed thermoplastic sharrows with Class III bike route signage at Center Drive/Wakarusa Street near both Grossmont Center Drive and Murray Drive, if not completed by other area projects such as the Sharp Parking Structure and Surface Lot projects.

10.3 Transit Stops & Routes

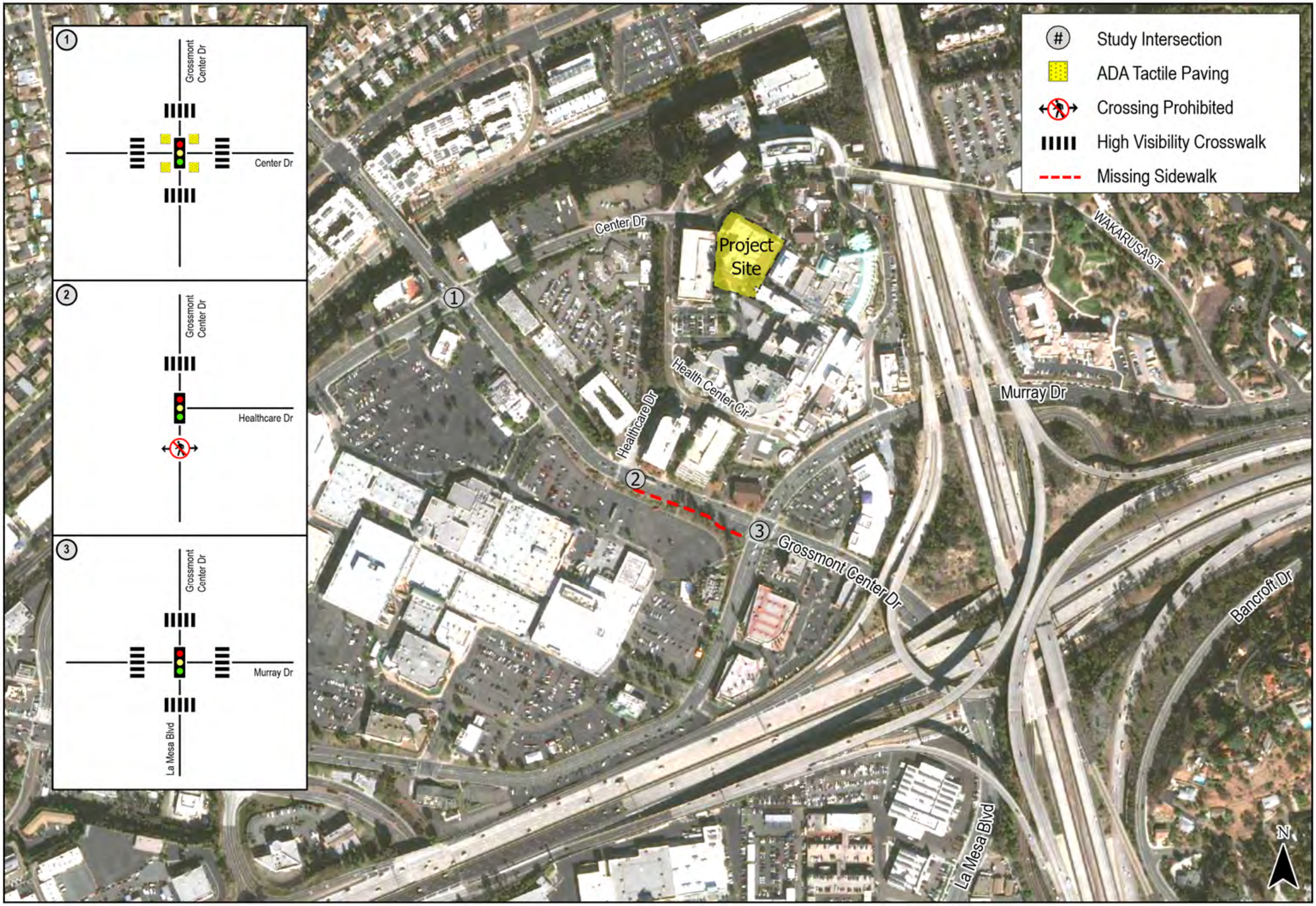
10.3.1 *Existing and Planned*

As noted in *Section 5.4*, the project site is located within ½ a mile from the nearest stops for Route 852 located at the intersection of Grossmont Center Drive / Center Drive and the Grossmont Transit Center which has the Green and Orange light rail in the San Diego Trolley system. These transit stops and routes are illustrated on ***Figure 10–3***.

The stops for Route 852 at Grossmont Center Drive / Center Drive currently provide full stop amenities, including bench, shelter, and trash cans.

10.3.2 *Project Recommendations*

Given that local transit stops provide full stop amenities, no additional transit improvements are recommended.



LINSCOTT LAW & GREENSPAN engineers

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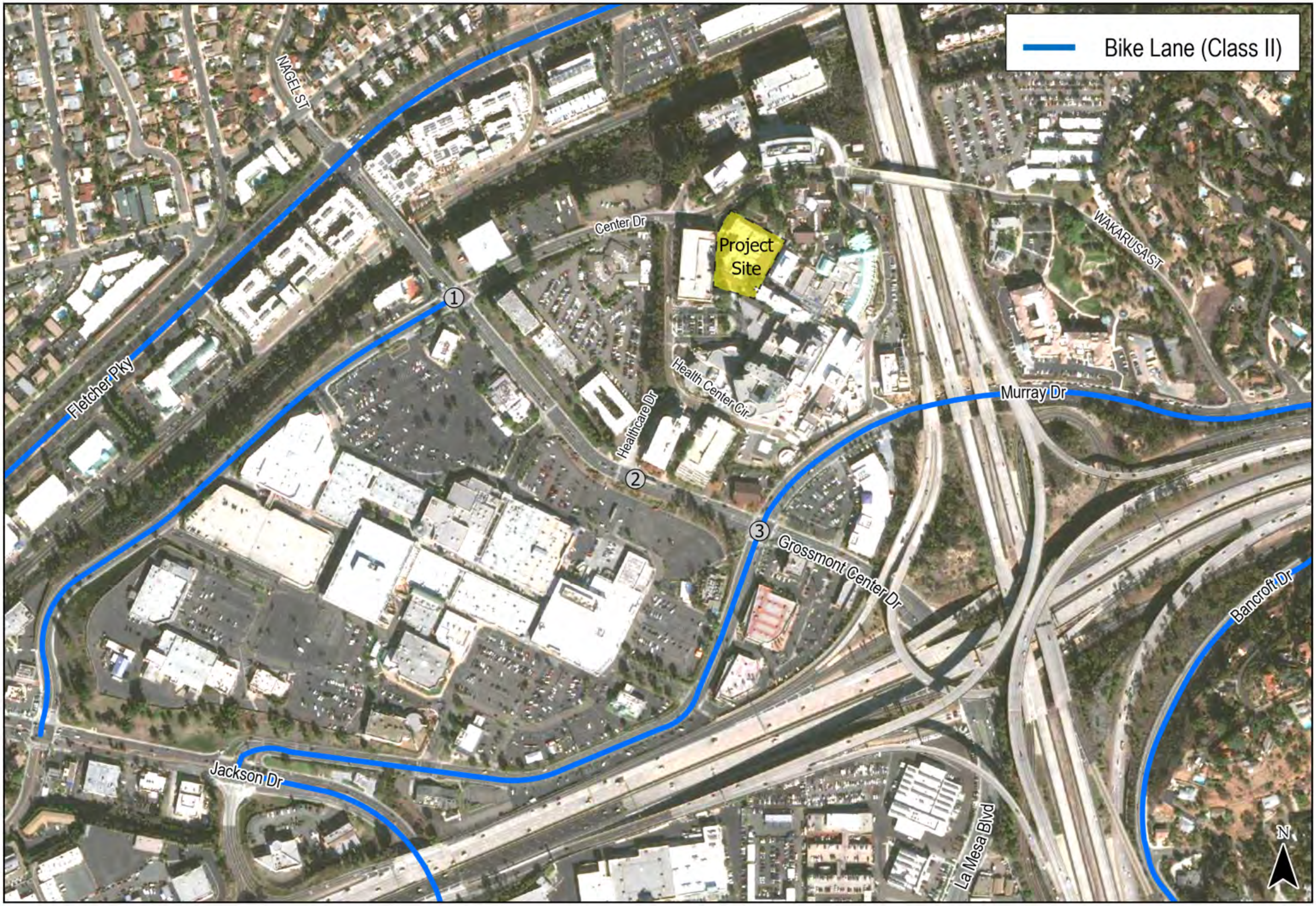
Date: 2/2/2022
Time: 1:04 PM

Maxar

Figure 10-1
Existing Pedestrian Conditions

Sharp Grossmont Center Brain and Spine



LINSCOTT LAW & GREENSPAN engineers

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Date: 2/2/2022
Time: 1:12 PM

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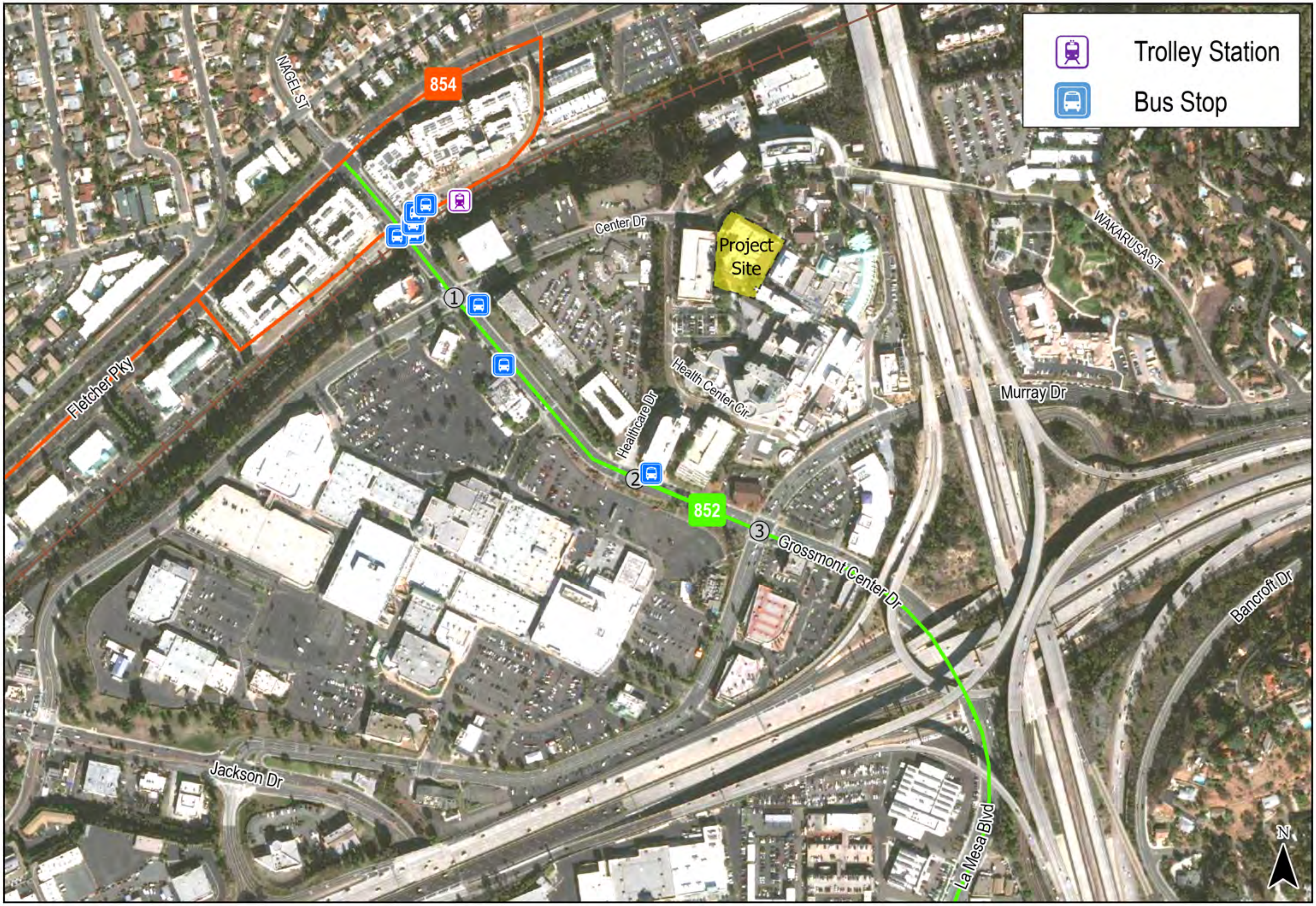
Figure 10-2
Existing Bicycle Conditions



LINSCOTT LAW & GREENSPAN engineers

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Figure 10-3
Existing Transit Conditions

Sharp Grossmont Center Brain and Spine

11.0 SITE ACCESS AND PARKING

11.1 Site Access

Site access will be unchanged as compared to the existing building, with access to the building via the main entry pick-up/drop-off driveway or the adjacent three-story parking structure for visitors and employees.

11.2 Parking

Parking for the proposed Project will be provided primarily in the adjacent parking structure. Per City of La Mesa Municipal Code Section 24.04.050, Hospital land uses require two (2) parking spaces per bed. Thus, the Project will require 40 parking spaces per code.

11.2.1 *Existing Campus Parking Conditions*

LLG assessed existing/short-term parking conditions for the overall Sharp Grossmont Hospital campus as part of the *Sharp Grossmont Hospital Master Plan Parking Assessment* (June 2019). Additionally, following the June 2019 *Parking Assessment*, a surface lot providing 137 parking spaces has been paved at the northwest corner of Murray Drive / Wakarusa Street. ***Table 11–1*** summarizes the results of this assessment. As shown, existing parking supply includes 3,232 off-street spaces plus 80 on-street parking spaces, for a total supply of 3,312 spaces. The 3,232 off-street spaces provide a surplus of 964 above the parking code requirement of 2,268 spaces.

Observed demand of 2,739 spaces is accommodated within the existing supply below the occupancy levels of 85% to 90% where parking facilities are typically considered at or near their effective capacity. For the purposes of the Master Plan parking assessment, a 15% contingency factor, corresponding to an 85% occupancy level, was applied to calculate a design value. Existing parking demand corresponds to approximately 83% occupancy and provides a surplus relative to the design value of 82 spaces.

11.2.2 *Project Parking Conditions*

The proposed Project would require an additional 40 spaces per City code. For the purposes of this assessment, actual Project demand is also assumed to be 40 spaces. *Table 11–1* also shows post-Project parking conditions. With the addition of the Project, the total existing supply of 3,232 off-street spaces would continue to provide a surplus of 924 spaces relative to the code requirement 2,308 spaces. Overall campus parking occupancy would be 84% and remain below the design value.

11.2.3 *Future Parking Conditions*

As described in *Section 7.0*, a parking structure to be located on the Brier Patch surface lot is proposed and under review. The parking structure would provide a net increase of 443 parking spaces. With the addition of these 443 parking spaces, overall campus parking supply would continue to exceed the short-term demand design value, both without and with the Project.

Sharp Grossmont Hospital will continue to monitor parking as part of Master Plan development and implement strategies to manage and better utilize existing parking and provide additional supply where feasible and warranted by demand.

TABLE 11–1
EXISTING/SHORT-TERM PARKING DEMAND CALCULATIONS

Parking Type	Existing/Short-Term Demand					Code Required Parking	
	Supply[a]	Demand[b]	Design Value[c]	Occupancy (%)	Surplus/ Deficit	Parking Code Requirement	Surplus/ Deficit
Public	1,328	1,091	1,290	82%	38	—	—
Employee	1,984	1,648	1,940	83%	44	—	—
Total w/o Project	***3,312***	***2,739***	***3,230***	***83%***	***82***	***2,268***	***964***
Project [d]	+0	+40	—	—	—	+40	—
Total w/ Project	**3,312**	**2,779**	**3,270**	**84%**	**-42**	**2,308**	**924**

Footnotes:

a. Existing supply accounts for only on-campus parking plus adjacent on-street parking (80 spaces). For the purposes of calculating code requirements, on-street parking is excluded. Total off-street parking supply is 3,232 spaces.

b. Existing demand assumes 50% of the '24-hour Fitness Club' and 100% of the on-street parking demand (Murray Drive and Wakarusa Street) based on observations.

c. Design value assumes 15% contingency or 85% occupancy rate and rounded to nearest 10.

d. Project parking demand is assumed to be identical to code required parking for the purposes of this calculation.

12.0 SUMMARY AND CONCLUSIONS

12.1 VMT Summary

Based on the Project's characteristics it is presumed to have a less than significant VMT impact and is not required to prepare a detailed VMT analysis.

12.2 LTA Summary

12.2.1 *Roadway Improvements*

Per the ITE thresholds and the analysis methodology presented in this report, the effects of the Project-related traffic do not indicate the need for roadway improvements within the study area.

12.2.2 *Active Transportation Improvements*

Pedestrian Improvements

- Provide high visibility crosswalks, to current City standards, on each leg of the intersection of Center Drive / Health Center Circle (west) if not completed by other area projects such as the Sharp Parking Structure and Surface Lot projects.

Bicycle Improvements

- Provide approach/entry point pre-formed thermoplastic sharrows with Class III bike route signage at Center Drive/Wakarusa Street near both Grossmont Center Drive and Murray Drive, if not completed by other area projects such as the Sharp Parking Structure and Surface Lot projects.

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GREENSPAN
engineers

TECHNICAL APPENDICES

SHARP GROSSMONT HOSPITAL – CENTER FOR BRAIN AND SPINE

La Mesa, California
July 13, 2022

LLG Ref. 3-22-3511

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APPENDIX A

INTERSECTION TRAFFIC COUNT SHEETS

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#01	File Name:	ITM-22-038-01
Intersection:	Murray Dr & La Mesa Blvd & Grossmont Ctr Dr	Project:	LLG Ref. 3-22-3511
Date of Count:	Thursday, May 12, 2022		Sharp Grossmont Hospital

AM	Grossmont Center Drive **Southbound**			Murray Drive **Westbound**			La Mesa Boulevard **Northbound**			Murray Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	1	48	0	8	10	3	15	90	22	3	2	20	222
7:15	2	67	1	7	17	10	14	119	28	2	6	17	290
7:30	4	105	7	15	19	14	10	132	33	4	8	7	358
7:45	10	82	4	12	17	21	20	158	28	2	8	19	381
8:00	7	83	1	14	13	21	31	152	31	5	7	19	384
8:15	9	48	0	26	25	28	35	152	17	3	4	40	387
8:30	8	59	5	25	11	18	28	123	20	5	8	21	331
8:45	15	69	11	16	11	31	28	137	26	5	7	32	388
Total	56	561	29	123	123	146	181	1063	205	29	50	175	2741
Approach%	8.7	86.8	4.5	31.4	31.4	37.2	12.5	73.4	14.1	11.4	19.7	68.9	
Total%	2.0	20.5	1.1	4.5	4.5	5.3	6.6	38.8	7.5	1.1	1.8	6.4	

AM Intersection Peak Hour: **07:30 to 08:30**

Volume	30	318	12	67	74	84	96	594	109	14	27	85	1,510
Approach%	8.3	88.3	3.3	29.8	32.9	37.3	12.0	74.3	13.6	11.1	21.4	67.5	
Total%	2.0	21.1	0.8	4.4	4.9	5.6	6.4	39.3	7.2	0.9	1.8	5.6	
PHF			0.78			0.71			0.93			0.67	0.98

PM	Grossmont Center Drive **Southbound**			Murray Drive **Westbound**			La Mesa Boulevard **Northbound**			Murray Drive **Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	20	154	9	45	26	23	60	103	13	12	21	63	549
16:15	20	144	5	44	22	23	72	108	9	7	24	81	559
16:30	24	157	13	54	23	33	54	125	9	8	23	91	614
16:45	24	177	8	53	24	15	54	113	12	11	18	82	591
17:00	25	206	9	62	17	20	49	101	9	7	18	78	601
17:15	31	158	7	58	25	28	46	110	9	5	22	79	578
17:30	20	147	8	48	21	28	62	87	7	7	10	88	533
17:45	17	174	17	29	23	36	56	108	6	4	16	78	564
Total	181	1317	76	393	181	206	453	855	74	61	152	640	4589
Approach%	11.5	83.7	4.8	50.4	23.2	26.4	32.8	61.9	5.4	7.2	17.8	75.0	
Total%	3.9	28.7	1.7	8.6	3.9	4.5	9.9	18.6	1.6	1.3	3.3	13.9	

PM Intersection Peak Hour: **16:30 to 17:30**

Volume	104	698	37	227	89	96	203	449	39	31	81	330	2,384
Approach%	12.4	83.2	4.4	55.1	21.6	23.3	29.4	65.0	5.6	7.0	18.3	74.7	
Total%	4.4	29.3	1.6	9.5	3.7	4.0	8.5	18.8	1.6	1.3	3.4	13.8	
PHF			0.87			0.93			0.92			0.91	0.97

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

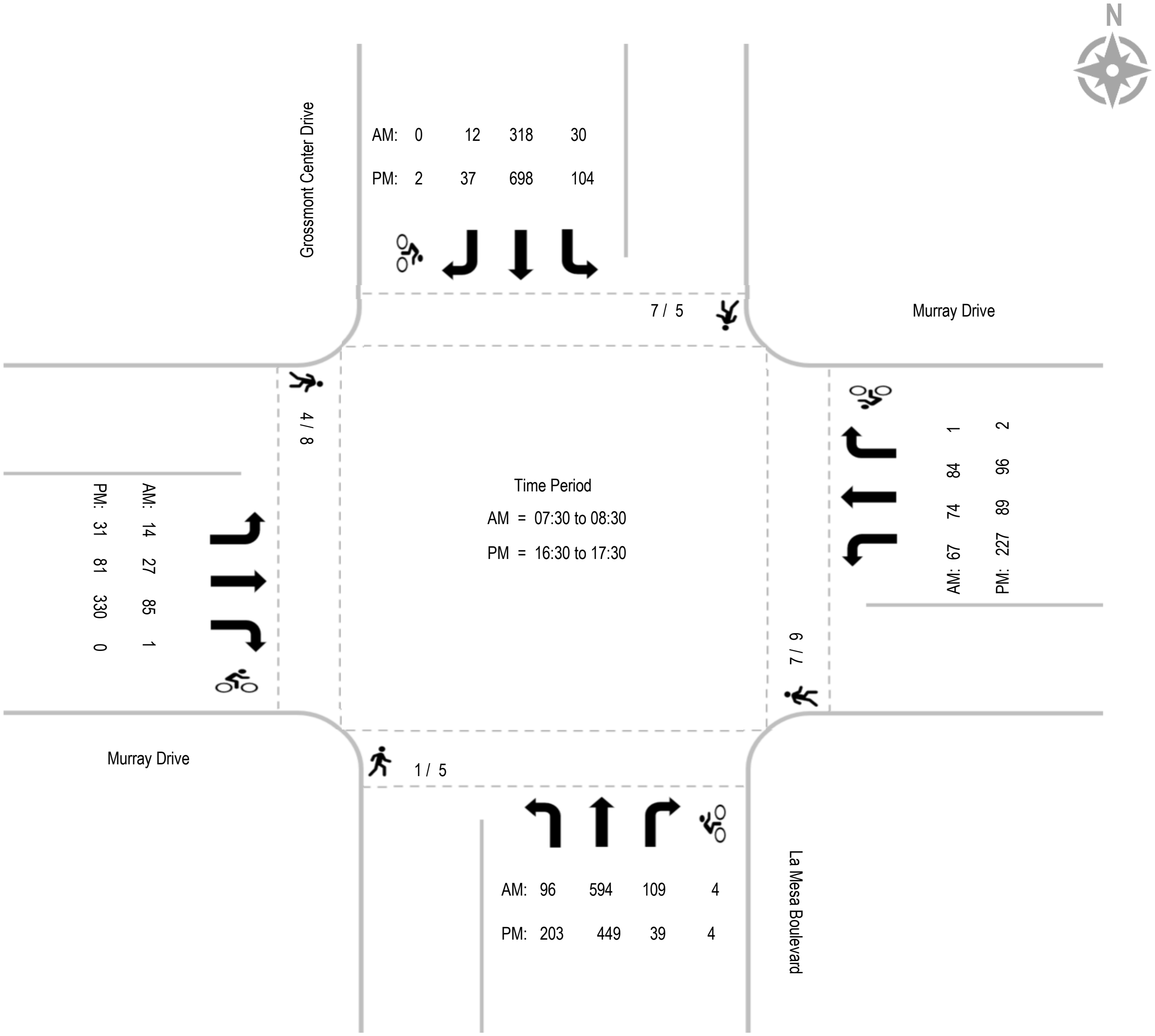
Location:	#01	File Name:	ITM-22-038-01
Intersection:	Murray Dr & La Mesa Blvd & Grossmont Ctr Dr	Project:	LLG Ref. 3-22-3511
Date of Count:	Thursday, May 12, 2022		Sharp Grossmont Hospital

AM	Grossmont Center Drive **Southbound**				Murray Drive **Westbound**				La Mesa Boulevard **Northbound**				Murray Drive **Eastbound**				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	1	2
7:30	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	3	1
7:45	1	0	0	0	1	0	0	0	0	2	0	0	1	0	0	0	3	2
8:00	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
8:15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
8:30	1	0	0	0	2	0	0	0	1	0	0	0	2	0	0	0	6	0
8:45	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
Ped Total	7				7				1				4				19	
Bike Total		0	0	0		0	1	0		2	2	0		0	0	1		6

PM	Grossmont Center Drive **Southbound**				Murray Drive **Westbound**				La Mesa Boulevard **Northbound**				Murray Drive **Eastbound**				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
16:15	1	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0	3	1
16:30	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3	0
16:45	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0
17:00	0	0	1	0	1	0	1	0	2	0	0	2	2	0	0	0	5	4
17:15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
17:30	1	0	1	0	3	0	1	0	2	0	0	0	4	0	0	0	10	2
17:45	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
Ped Total	5				9				5				8				27	
Bike Total		0	2	0		0	2	0		0	1	3		0	0	0		8

Intersection Turning Movement - Peak Hour Summary

Location:	#01	File Name:	ITM-22-038-01
Intersection:	Murray Dr & La Mesa Blvd & Grossmont Ctr Dr	Project:	LLG Ref. 3-22-3511
Date of Count:	Thursday, May 12, 2022		Sharp Grossmont Hospital



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location: #02 Revised
Intersection: Grossmont Ctr Drive & Heathcare Drive
Date of Count: Thursday, May 12, 2022

File Name: ITM-22-038-02
Project: LLG Ref. 3-22-3511
Sharp Grossmont Hospital

AM	Grossmont Center Drive			Healthcare Drive			Grossmont Center Drive			-			
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	4	34	0	17	0	5	0	53	37	0	0	0	150
7:15	6	29	0	47	0	5	0	61	45	0	0	0	193
7:30	8	61	0	79	0	13	0	75	60	0	0	0	296
7:45	3	52	0	49	0	16	0	108	71	0	0	0	299
8:00	8	57	0	35	0	9	0	104	54	0	0	0	267
8:15	13	46	0	13	0	11	0	129	64	0	0	0	276
8:30	6	63	0	18	0	11	0	71	54	0	0	0	223
8:45	7	79	0	26	0	19	0	112	60	0	0	0	303
Total	55	421	0	284	0	89	0	713	445	0	0	0	2007
Approach%	11.6	88.4	-	76.1	-	23.9	-	61.6	38.4	-	-	-	
Total%	2.7	21.0	-	14.2	-	4.4	-	35.5	22.2	-	-	-	

AM Intersection Peak Hour: 07:30 to 08:30

Volume	32	216	-	176	-	49	-	416	249	-	-	-	1,138
Approach%	12.9	87.1	-	78.2	-	21.8	-	62.6	37.4	-	-	-	
Total%	2.8	19.0	-	15.5	-	4.3	-	36.6	21.9	-	-	-	
PHF			0.90			0.61			0.86			#DIV/0!	0.95

PM	Grossmont Center Drive			Healthcare Drive			Grossmont Center Drive			-			
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	9	173	0	45	0	16	0	114	31	0	0	0	388
16:15	9	137	0	50	0	12	0	115	34	0	0	0	357
16:30	5	161	0	65	0	14	0	133	28	0	0	0	406
16:45	3	175	0	65	0	10	0	122	21	0	0	0	396
17:00	3	171	0	75	0	15	0	124	18	0	0	0	406
17:15	3	147	0	51	0	8	0	118	25	0	0	0	352
17:30	5	145	0	47	0	5	0	120	20	0	0	0	342
17:45	4	180	0	37	0	4	0	129	36	0	0	0	390
Total	41	1289	0	435	0	84	0	975	213	0	0	0	3037
Approach%	3.1	96.9	-	83.8	-	16.2	-	82.1	17.9	-	-	-	
Total%	1.4	42.4	-	14.3	-	2.8	-	32.1	7.0	-	-	-	

PM Intersection Peak Hour: 16:15 to 17:15

Volume	20	644	-	255	-	51	-	494	101	-	-	-	1,565
Approach%	3.0	97.0	-	83.3	-	16.7	-	83.0	17.0	-	-	-	
Total%	1.3	41.2	-	16.3	-	3.3	-	31.6	6.5	-	-	-	
PHF			0.93			0.85			0.92			#DIV/0!	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#02 Revised	File Name:	ITM-22-038-02
Intersection:	Grossmont Ctr Drive & Heathcare Drive	Project:	LLG Ref. 3-22-3511
Date of Count:	Thursday, May 12, 2022		Sharp Grossmont Hospital

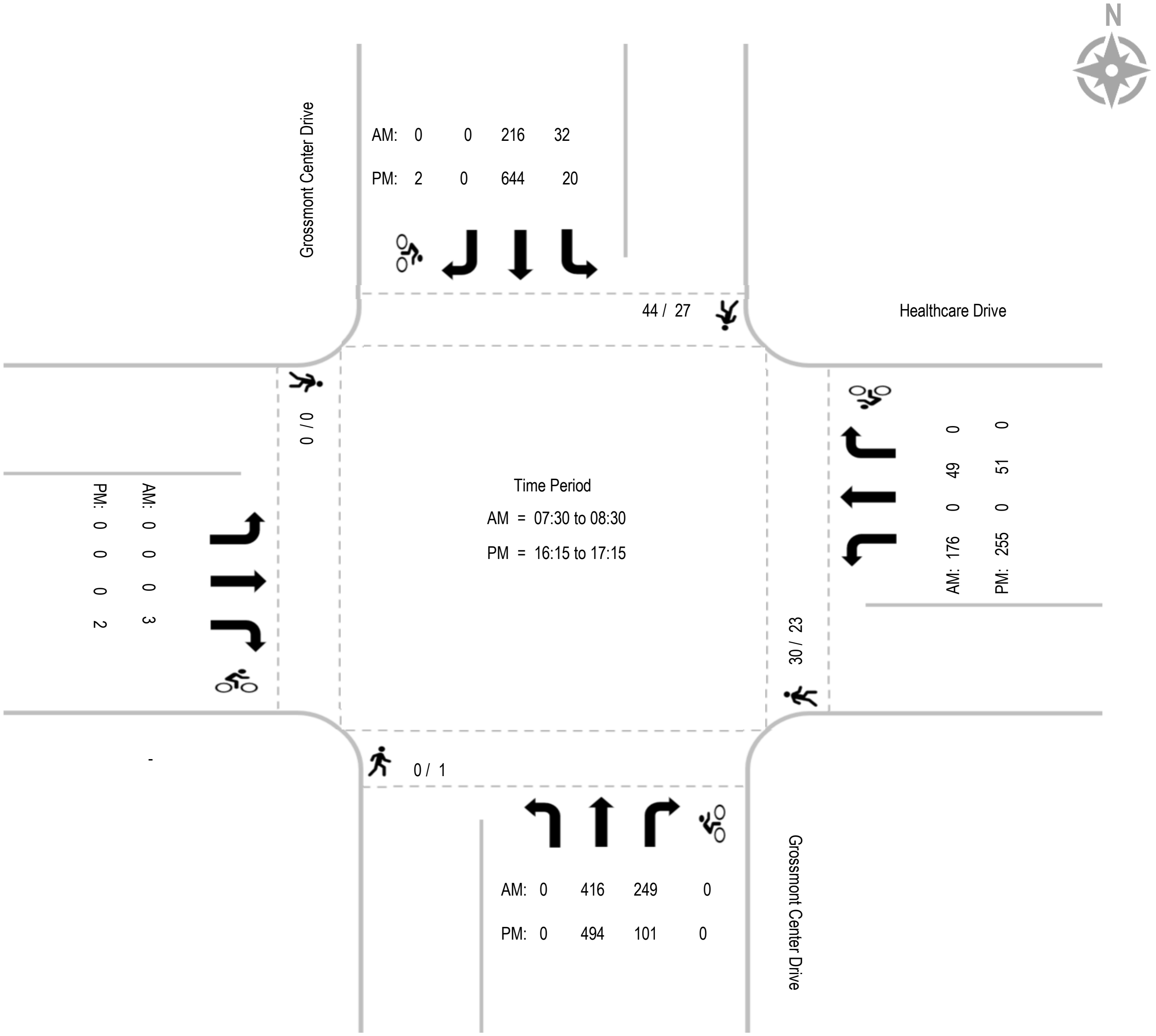
AM	Grossmont Center Drive				Healthcare Drive				Grossmont Center Drive				-				Totals	
	Southbound				**Westbound**				**Northbound**				**Eastbound**					
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0
7:15	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	2	6	2
7:30	8	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	10	0
7:45	7	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	16	0
8:00	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	1	10	1
8:15	4	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	7	0
8:30	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
8:45	11	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	17	0
Ped Total	44				30				0				0				74	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	3		3

PM	Grossmont Center Drive				Healthcare Drive				Grossmont Center Drive				-				Totals	
	Southbound				**Westbound**				**Northbound**				**Eastbound**					
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
16:15	4	0	0	0	5	0	0	0	0	0	0	0	0	0	1	0	9	1
16:30	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0
16:45	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5	0
17:00	2	0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	4	2
17:15	2	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	10	0
17:30	5	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	9	1
17:45	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0
Ped Total	27				23				1				0				51	
Bike Total		0	2	0		0	0	0		0	0	0		0	2	0		4

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers

Location:	#02 Revised	File Name:	ITM-22-038-02
Intersection:	Grossmont Ctr Drive & Heathcare Drive	Project:	LLG Ref. 3-22-3511
Date of Count:	Thursday, May 12, 2022		Sharp Grossmont Hospital



Report Generated by Bearcat Enterprises LLC, DBA "Count Data" | 619-987-5136 |

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#03	File Name:	ITM-22-038-03
Intersection:	Grossmont Center Drive & Center Drive	Project:	LLG Ref. 3-22-3511
Date of Count:	Thursday, May 12, 2022		Sharp Grossmont Hospital

AM	Grossmont Center Drive			Center Drive			Grossmont Center Drive			Center Drive			
	Southbound			**Westbound**			**Northbound**			**Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	24	22	13	5	4	10	4	20	11	7	5	4	129
7:15	20	34	10	5	1	7	4	23	23	7	6	7	147
7:30	31	45	20	10	11	17	5	30	24	4	6	6	209
7:45	45	40	12	12	5	24	7	34	40	7	15	4	245
8:00	24	51	18	9	12	11	7	37	31	6	18	7	231
8:15	28	40	18	7	10	12	6	46	37	12	12	10	238
8:30	27	42	16	13	3	14	9	28	29	10	10	12	213
8:45	24	48	19	13	11	6	9	46	25	12	13	16	242
Total	223	322	126	74	57	101	51	264	220	65	85	66	1654
Approach%	33.2	48.0	18.8	31.9	24.6	43.5	9.5	49.3	41.1	30.1	39.4	30.6	
Total%	13.5	19.5	7.6	4.5	3.4	6.1	3.1	16.0	13.3	3.9	5.1	4.0	

AM Intersection Peak Hour: **07:45 to 08:45**

Volume	124	173	64	41	30	61	29	145	137	35	55	33	927
Approach%	34.3	47.9	17.7	31.1	22.7	46.2	9.3	46.6	44.1	28.5	44.7	26.8	
Total%	13.4	18.7	6.9	4.4	3.2	6.6	3.1	15.6	14.8	3.8	5.9	3.6	
PHF			0.93			0.80			0.87			0.90	0.95

PM	Grossmont Center Drive			Center Drive			Grossmont Center Drive			Center Drive			
	Southbound			**Westbound**			**Northbound**			**Eastbound**			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	23	91	35	28	16	31	33	64	8	51	18	39	437
16:15	16	66	39	19	18	34	15	84	7	43	14	38	393
16:30	14	95	35	28	22	7	35	68	14	34	13	39	404
16:45	10	74	42	35	20	27	22	76	4	42	14	47	413
17:00	6	80	35	30	29	36	31	87	13	29	6	44	426
17:15	6	76	33	24	22	21	18	57	3	39	9	34	342
17:30	11	87	34	10	12	28	33	53	7	48	6	40	369
17:45	12	92	31	18	6	17	25	60	6	37	5	57	366
Total	98	661	284	192	145	201	212	549	62	323	85	338	3150
Approach%	9.4	63.4	27.2	35.7	27.0	37.4	25.8	66.7	7.5	43.3	11.4	45.3	
Total%	3.1	21.0	9.0	6.1	4.6	6.4	6.7	17.4	2.0	10.3	2.7	10.7	

PM Intersection Peak Hour: **16:00 to 17:00**

Volume	63	326	151	110	76	99	105	292	33	170	59	163	1,647
Approach%	11.7	60.4	28.0	38.6	26.7	34.7	24.4	67.9	7.7	43.4	15.1	41.6	
Total%	3.8	19.8	9.2	6.7	4.6	6.0	6.4	17.7	2.0	10.3	3.6	9.9	
PHF			0.91			0.87			0.92			0.91	0.94

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

Location: #03
Intersection: Grossmont Center Drive & Center Drive
Date of Count: Thursday, May 12, 2022

File Name: ITM-22-038-03
Project: LLG Ref. 3-22-3511
Sharp Grossmont Hospital

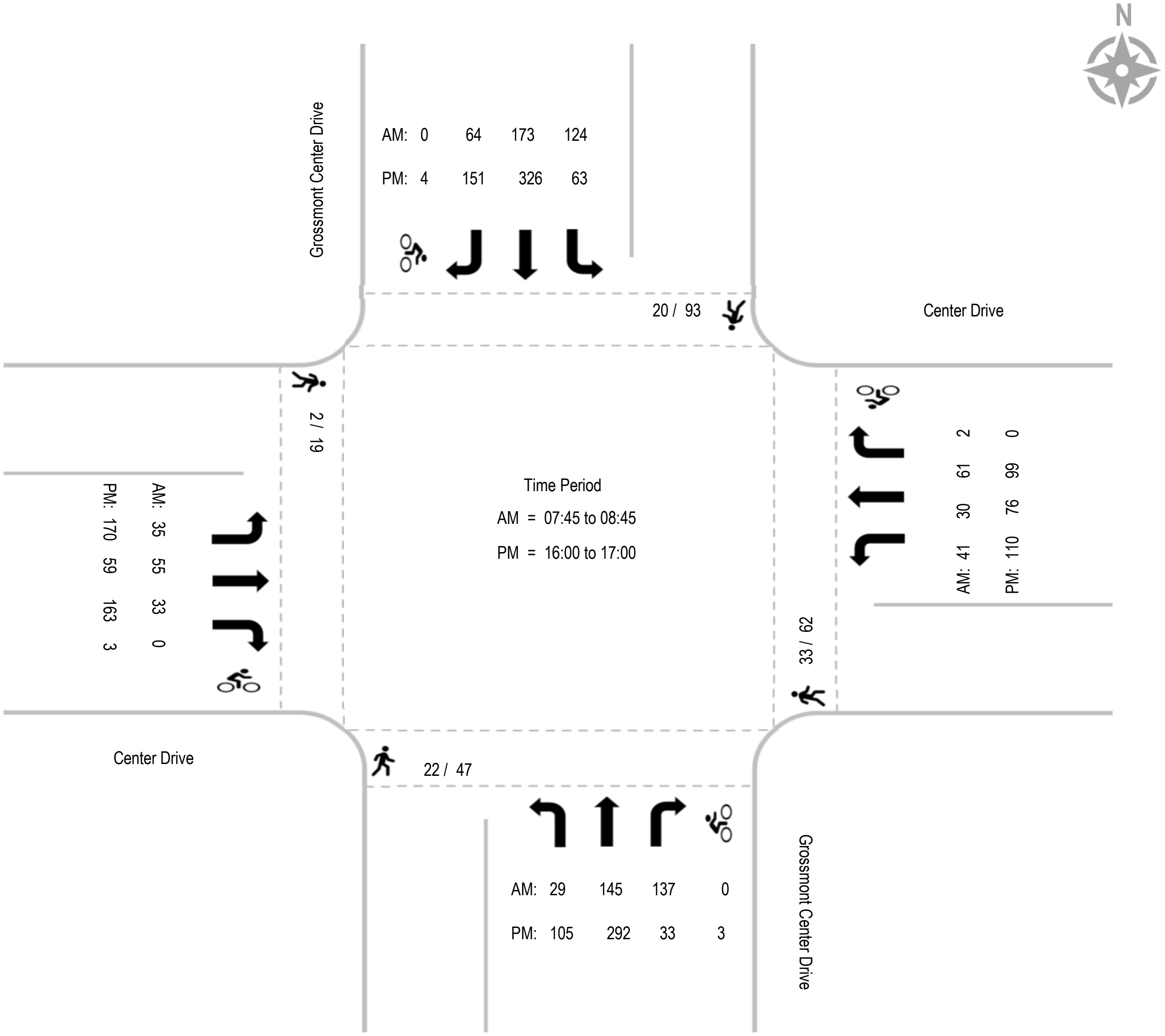
AM	Grossmont Center Drive				Center Drive				Grossmont Center Drive				Center Drive				Totals	
	Southbound				**Westbound**				**Northbound**				**Eastbound**					
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	6	0	0	0	5	0	0	0	2	0	0	0	0	0	0	0	13	0
7:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
7:30	3	0	0	0	6	0	1	0	3	0	0	0	0	0	0	0	12	1
7:45	3	0	0	0	5	0	0	1	1	0	0	0	1	0	0	0	10	1
8:00	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	5	0
8:15	2	0	0	0	2	0	0	0	7	0	0	0	0	0	0	0	11	0
8:30	2	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	10	0
8:45	2	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	14	0
Ped Total	20				33				22				2				77	
Bike Total		0	0	0		0	1	1		0	0	0		0	0	0		2

PM	Grossmont Center Drive				Center Drive				Grossmont Center Drive				Center Drive				Totals	
	Southbound				**Westbound**				**Northbound**				**Eastbound**					
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	7	0	1	0	0	0	0	0	8	0	1	0	0	0	0	0	15	2
16:15	8	0	0	0	10	0	0	0	9	0	1	0	0	0	0	0	27	1
16:30	13	0	0	1	9	0	0	0	4	0	0	0	0	0	0	0	26	1
16:45	16	0	0	0	9	0	0	0	7	0	0	0	0	0	0	0	32	0
17:00	5	0	1	0	10	0	0	0	6	0	1	0	0	0	0	1	21	3
17:15	17	0	0	0	13	0	0	0	7	0	0	0	5	0	0	0	42	0
17:30	18	0	0	0	6	0	0	0	3	0	0	0	5	1	0	1	32	2
17:45	9	0	1	0	5	0	0	0	3	0	0	0	9	0	0	0	26	1
Ped Total	93				62				47				19				221	
Bike Total		0	3	1		0	0	0		0	3	0		1	0	2		10

Intersection Turning Movement - Peak Hour Summary

Location: #03
Intersection: Grossmont Center Drive & Center Drive
Date of Count: Thursday, May 12, 2022

File Name: ITM-22-038-03
Project: LLG Ref. 3-22-3511
Sharp Grossmont Hospital



APPENDIX B

EXISTING PEAK HOUR INTERSECTION ANALYSIS SHEETS

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰↰	↑↱		↰↰	↑↱	
Traffic Volume (veh/h)	14	27	85	67	74	84	96	594	109	30	318	12
Future Volume (veh/h)	14	27	85	67	74	84	96	594	109	30	318	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	40	127	94	104	118	103	639	117	38	408	15
Peak Hour Factor	0.67	0.67	0.67	0.71	0.71	0.71	0.93	0.93	0.93	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	215	188	245	244	212	248	1130	206	138	1210	44
Arrive On Green	0.12	0.12	0.12	0.14	0.14	0.14	0.07	0.38	0.38	0.04	0.35	0.35
Sat Flow, veh/h	1781	1777	1559	1781	1777	1540	3456	2989	546	3456	3495	128
Grp Volume(v), veh/h	21	40	127	94	104	118	103	379	377	38	207	216
Grp Sat Flow(s),veh/h/ln	1781	1777	1559	1781	1777	1540	1728	1777	1759	1728	1777	1847
Q Serve(g_s), s	0.6	1.1	4.3	2.7	3.0	4.0	1.6	9.4	9.4	0.6	4.8	4.8
Cycle Q Clear(g_c), s	0.6	1.1	4.3	2.7	3.0	4.0	1.6	9.4	9.4	0.6	4.8	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		0.07
Lane Grp Cap(c), veh/h	215	215	188	245	244	212	248	671	665	138	615	639
V/C Ratio(X)	0.10	0.19	0.67	0.38	0.43	0.56	0.42	0.56	0.57	0.28	0.34	0.34
Avail Cap(c_a), veh/h	577	576	505	577	576	499	361	671	665	311	646	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	22.0	23.4	21.8	22.0	22.4	24.7	13.7	13.7	25.9	13.4	13.5
Incr Delay (d2), s/veh	0.2	0.4	4.2	1.0	1.2	2.3	1.1	3.4	3.5	1.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.4	1.6	1.1	1.2	1.4	0.6	3.8	3.7	0.2	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.9	22.4	27.5	22.8	23.1	24.7	25.8	17.1	17.2	27.0	13.8	13.8
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		188			316			859			461	
Approach Delay, s/veh		25.8			23.6			18.2			14.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	25.5		11.2	8.5	23.7		12.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	21.0		18.0	5.8	20.2		18.0				
Max Q Clear Time (g_c+I1), s	2.6	11.4		6.3	3.6	6.8		6.0				
Green Ext Time (p_c), s	0.0	3.2		0.7	0.0	2.0		1.1				
Intersection Summary												
HCM 6th Ctrl Delay			19.1									
HCM 6th LOS			B									

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	176	49	416	249	32	216
Future Volume (veh/h)	176	49	416	249	32	216
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.97	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	289	80	484	290	36	240
Peak Hour Factor	0.61	0.61	0.86	0.86	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	506	297	1060	632	72	2295
Arrive On Green	0.15	0.15	0.50	0.50	0.04	0.65
Sat Flow, veh/h	3456	1585	2208	1260	1781	3647
Grp Volume(v), veh/h	289	80	406	368	36	240
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1598	1781	1777
Q Serve(g_s), s	3.4	1.9	6.4	6.5	0.9	1.1
Cycle Q Clear(g_c), s	3.4	1.9	6.4	6.5	0.9	1.1
Prop In Lane	1.00	1.00		0.79	1.00	
Lane Grp Cap(c), veh/h	506	297	891	801	72	2295
V/C Ratio(X)	0.57	0.27	0.46	0.46	0.50	0.10
Avail Cap(c_a), veh/h	1435	722	891	801	226	2295
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	15.1	7.0	7.0	20.4	2.9
Incr Delay (d2), s/veh	1.0	0.5	1.7	1.9	5.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.6	2.0	1.8	0.4	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.2	15.6	8.7	8.9	25.6	3.0
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	369		774			276
Approach Delay, s/veh	17.7		8.8			6.0
Approach LOS	B		A			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.3	26.2				32.5		10.9
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	5.5	18.0				28.0		18.0
Max Q Clear Time (g_c+I1), s	2.9	8.5				3.1		5.4
Green Ext Time (p_c), s	0.0	3.4				1.4		1.0

Intersection Summary			
HCM 6th Ctrl Delay			10.5
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↑↱		↰	↑↑↱	
Traffic Volume (veh/h)	35	55	33	41	30	61	29	145	137	124	173	64
Future Volume (veh/h)	35	55	33	41	30	61	29	145	137	124	173	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.95	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	61	37	51	38	76	33	167	157	133	186	69
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.87	0.87	0.87	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	303	304	89	92	183	65	624	531	169	1050	376
Arrive On Green	0.04	0.16	0.16	0.05	0.17	0.17	0.04	0.35	0.35	0.10	0.41	0.41
Sat Flow, veh/h	1781	1870	1520	1781	537	1074	1781	1777	1511	1781	2561	918
Grp Volume(v), veh/h	39	61	37	51	0	114	33	167	157	133	127	128
Grp Sat Flow(s),veh/h/ln	1781	1870	1520	1781	0	1612	1781	1777	1511	1781	1777	1702
Q Serve(g_s), s	1.1	1.5	1.1	1.5	0.0	3.3	1.0	3.5	4.0	3.8	2.4	2.5
Cycle Q Clear(g_c), s	1.1	1.5	1.1	1.5	0.0	3.3	1.0	3.5	4.0	3.8	2.4	2.5
Prop In Lane	1.00		1.00	1.00		0.67	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	74	303	304	89	0	275	65	624	531	169	729	698
V/C Ratio(X)	0.53	0.20	0.12	0.57	0.00	0.42	0.51	0.27	0.30	0.78	0.17	0.18
Avail Cap(c_a), veh/h	169	639	577	169	0	551	186	624	531	186	729	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	19.1	17.4	24.5	0.0	19.5	24.9	12.2	12.4	23.3	9.9	9.9
Incr Delay (d2), s/veh	5.8	0.3	0.2	5.7	0.0	1.0	6.1	1.0	1.4	18.1	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.6	0.4	0.7	0.0	1.2	0.5	1.4	1.3	2.3	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.6	19.4	17.5	30.2	0.0	20.5	31.0	13.3	13.8	41.4	10.4	10.5
LnGrp LOS	C	B	B	C	A	C	C	B	B	D	B	B
Approach Vol, veh/h		137			165			357			388	
Approach Delay, s/veh		22.1			23.5			15.1			21.0	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	23.0	7.1	13.0	6.4	26.1	6.7	13.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.5	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	5.8	6.0	3.5	3.5	3.0	4.5	3.1	5.3
Green Ext Time (p_c), s	0.0	1.5	0.0	0.3	0.0	1.1	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰↰	↑↱		↰↰	↑↱	
Traffic Volume (veh/h)	31	81	330	227	89	96	203	449	39	104	698	37
Future Volume (veh/h)	31	81	330	227	89	96	203	449	39	104	698	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	89	363	244	96	103	221	488	42	120	802	43
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	378	335	300	299	260	299	1165	100	191	1100	59
Arrive On Green	0.21	0.21	0.21	0.17	0.17	0.17	0.09	0.35	0.35	0.06	0.32	0.32
Sat Flow, veh/h	1781	1777	1574	1781	1777	1548	3456	3305	283	3456	3426	184
Grp Volume(v), veh/h	34	89	363	244	96	103	221	262	268	120	416	429
Grp Sat Flow(s),veh/h/ln	1781	1777	1574	1781	1777	1548	1728	1777	1812	1728	1777	1833
Q Serve(g_s), s	1.3	3.5	18.1	11.2	4.0	5.0	5.3	9.5	9.6	2.9	17.7	17.7
Cycle Q Clear(g_c), s	1.3	3.5	18.1	11.2	4.0	5.0	5.3	9.5	9.6	2.9	17.7	17.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.10
Lane Grp Cap(c), veh/h	379	378	335	300	299	260	299	626	638	191	571	589
V/C Ratio(X)	0.09	0.24	1.08	0.81	0.32	0.40	0.74	0.42	0.42	0.63	0.73	0.73
Avail Cap(c_a), veh/h	379	378	335	383	382	333	345	626	638	227	571	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	27.8	33.5	34.1	31.1	31.5	37.9	20.9	21.0	39.4	25.6	25.6
Incr Delay (d2), s/veh	0.1	0.3	73.8	10.1	0.6	1.0	7.0	2.0	2.0	4.0	4.7	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	13.3	5.5	1.7	1.9	2.5	4.1	4.2	1.3	7.8	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.0	28.1	107.3	44.2	31.7	32.5	45.0	23.0	23.0	43.4	30.3	30.2
LnGrp LOS	C	C	F	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		486			443			751			965	
Approach Delay, s/veh		87.2			38.8			29.5			31.9	
Approach LOS		F			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	34.5		22.6	11.9	31.8		18.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.6	30.0		18.1	8.5	27.1		18.3				
Max Q Clear Time (g_c+I1), s	4.9	11.6		20.1	7.3	19.7		13.2				
Green Ext Time (p_c), s	0.0	2.9		0.0	0.1	3.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay			42.5									
HCM 6th LOS			D									

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	255	51	494	101	20	644
Future Volume (veh/h)	255	51	494	101	20	644
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	300	60	537	110	22	692
Peak Hour Factor	0.85	0.85	0.92	0.92	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	513	278	1504	307	48	2290
Arrive On Green	0.15	0.15	0.51	0.51	0.03	0.64
Sat Flow, veh/h	3456	1585	3020	597	1781	3647
Grp Volume(v), veh/h	300	60	325	322	22	692
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1747	1781	1777
Q Serve(g_s), s	3.5	1.4	4.7	4.8	0.5	3.7
Cycle Q Clear(g_c), s	3.5	1.4	4.7	4.8	0.5	3.7
Prop In Lane	1.00	1.00		0.34	1.00	
Lane Grp Cap(c), veh/h	513	278	913	898	48	2290
V/C Ratio(X)	0.58	0.22	0.36	0.36	0.46	0.30
Avail Cap(c_a), veh/h	1432	699	913	898	225	2290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	15.4	6.3	6.3	20.8	3.4
Incr Delay (d2), s/veh	1.1	0.4	1.1	1.1	6.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.5	1.4	1.4	0.3	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.3	15.7	7.4	7.4	27.6	3.8
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	360		647			714
Approach Delay, s/veh	17.9		7.4			4.5
Approach LOS	B		A			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.7	26.8				32.5		11.0
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	5.5	18.0				28.0		18.0
Max Q Clear Time (g_c+I1), s	2.5	6.8				5.7		5.5
Green Ext Time (p_c), s	0.0	3.0				4.7		1.0

Intersection Summary			
HCM 6th Ctrl Delay			8.4
HCM 6th LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	170	59	163	110	76	99	105	292	33	63	326	151
Future Volume (veh/h)	170	59	163	110	76	99	105	292	33	63	326	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.88	1.00		0.88	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	187	65	179	126	87	114	114	317	36	69	358	166
Peak Hour Factor	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.92	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	515	538	160	162	212	145	988	111	96	661	299
Arrive On Green	0.13	0.28	0.28	0.09	0.24	0.24	0.08	0.31	0.31	0.05	0.28	0.28
Sat Flow, veh/h	1781	1870	1483	1781	680	891	1781	3171	355	1781	2327	1054
Grp Volume(v), veh/h	187	65	179	126	0	201	114	176	177	69	271	253
Grp Sat Flow(s),veh/h/ln	1781	1870	1483	1781	0	1571	1781	1777	1749	1781	1777	1604
Q Serve(g_s), s	6.9	1.7	5.9	4.6	0.0	7.5	4.2	5.0	5.2	2.6	8.6	9.0
Cycle Q Clear(g_c), s	6.9	1.7	5.9	4.6	0.0	7.5	4.2	5.0	5.2	2.6	8.6	9.0
Prop In Lane	1.00		1.00	1.00		0.57	1.00		0.20	1.00		0.66
Lane Grp Cap(c), veh/h	226	515	538	160	0	374	145	554	545	96	505	456
V/C Ratio(X)	0.83	0.13	0.33	0.79	0.00	0.54	0.78	0.32	0.33	0.72	0.54	0.55
Avail Cap(c_a), veh/h	226	526	546	205	0	423	173	554	545	146	505	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	18.2	15.7	29.8	0.0	22.3	30.1	17.6	17.6	31.1	20.2	20.4
Incr Delay (d2), s/veh	21.6	0.1	0.4	14.2	0.0	1.2	17.7	1.5	1.6	9.5	4.1	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.7	1.9	2.6	0.0	2.8	2.4	2.1	2.2	1.3	3.8	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	18.3	16.1	44.0	0.0	23.5	47.8	19.1	19.2	40.7	24.3	25.2
LnGrp LOS	D	B	B	D	A	C	D	B	B	D	C	C
Approach Vol, veh/h		431			327			467			593	
Approach Delay, s/veh		31.2			31.4			26.2			26.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	25.3	10.5	22.9	10.0	23.5	13.0	20.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.5	20.0	7.7	18.8	6.5	19.0	8.5	18.0				
Max Q Clear Time (g_c+I1), s	4.6	7.2	6.6	7.9	6.2	11.0	8.9	9.5				
Green Ext Time (p_c), s	0.0	1.6	0.0	0.7	0.0	2.0	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay			28.4									
HCM 6th LOS			C									

APPENDIX C

EXISTING + PROJECT PEAK HOUR INTERSECTION ANALYSIS SHEETS

1: La Mesa Blvd/Grossmont Center Dr & Murray Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰↰	↑↱		↰↰	↑↱	
Traffic Volume (veh/h)	18	27	85	67	74	84	96	603	109	30	322	14
Future Volume (veh/h)	18	27	85	67	74	84	96	603	109	30	322	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	40	127	94	104	118	103	648	117	38	413	18
Peak Hour Factor	0.67	0.67	0.67	0.71	0.71	0.71	0.93	0.93	0.93	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	214	191	245	244	212	248	1133	204	138	1201	52
Arrive On Green	0.12	0.12	0.12	0.14	0.14	0.14	0.07	0.38	0.38	0.04	0.35	0.35
Sat Flow, veh/h	1781	1777	1581	1781	1777	1540	3456	2998	540	3456	3469	151
Grp Volume(v), veh/h	27	40	127	94	104	118	103	384	381	38	211	220
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1777	1540	1728	1777	1761	1728	1777	1843
Q Serve(g_s), s	0.8	1.1	4.3	2.7	3.0	4.0	1.6	9.5	9.5	0.6	4.9	4.9
Cycle Q Clear(g_c), s	0.8	1.1	4.3	2.7	3.0	4.0	1.6	9.5	9.5	0.6	4.9	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		0.08
Lane Grp Cap(c), veh/h	215	214	191	245	244	212	248	672	666	138	615	638
V/C Ratio(X)	0.13	0.19	0.67	0.38	0.43	0.56	0.42	0.57	0.57	0.28	0.34	0.34
Avail Cap(c_a), veh/h	577	576	512	577	576	499	361	672	666	311	646	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	22.0	23.4	21.8	21.9	22.4	24.7	13.7	13.7	25.9	13.5	13.5
Incr Delay (d2), s/veh	0.3	0.4	4.0	1.0	1.2	2.3	1.1	3.5	3.6	1.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.4	1.6	1.1	1.2	1.4	0.6	3.8	3.8	0.2	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	22.4	27.3	22.8	23.1	24.7	25.8	17.2	17.3	27.0	13.8	13.8
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		194			316			868			469	
Approach Delay, s/veh		25.6			23.6			18.3			14.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	25.5		11.2	8.5	23.7		12.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	21.0		18.0	5.8	20.2		18.0				
Max Q Clear Time (g_c+I1), s	2.6	11.5		6.3	3.6	6.9		6.0				
Green Ext Time (p_c), s	0.0	3.2		0.7	0.0	2.0		1.1				

Intersection Summary			
HCM 6th Ctrl Delay			19.1
HCM 6th LOS			B

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	182	50	416	262	35	216
Future Volume (veh/h)	182	50	416	262	35	216
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.95	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	298	82	484	305	39	240
Peak Hour Factor	0.61	0.61	0.86	0.86	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	517	306	1019	639	77	2287
Arrive On Green	0.15	0.15	0.50	0.50	0.04	0.64
Sat Flow, veh/h	3456	1585	2144	1285	1781	3647
Grp Volume(v), veh/h	298	82	419	370	39	240
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1559	1781	1777
Q Serve(g_s), s	3.5	1.9	6.8	6.8	0.9	1.1
Cycle Q Clear(g_c), s	3.5	1.9	6.8	6.8	0.9	1.1
Prop In Lane	1.00	1.00		0.82	1.00	
Lane Grp Cap(c), veh/h	517	306	883	775	77	2287
V/C Ratio(X)	0.58	0.27	0.47	0.48	0.51	0.10
Avail Cap(c_a), veh/h	1430	724	883	775	225	2287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	14.9	7.2	7.2	20.4	3.0
Incr Delay (d2), s/veh	1.0	0.5	1.8	2.1	5.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.6	2.1	1.9	0.4	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.2	15.4	9.0	9.3	25.4	3.1
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	380		789			279
Approach Delay, s/veh	17.6		9.2			6.2
Approach LOS	B		A			A

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	6.4	26.1	32.5	11.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.0	28.0	18.0
Max Q Clear Time (g_c+I1), s	2.9	8.8	3.1	5.5
Green Ext Time (p_c), s	0.0	3.4	1.4	1.1

Intersection Summary	
HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	35	56	33	41	31	62	29	146	137	127	176	64
Future Volume (veh/h)	35	56	33	41	31	62	29	146	137	127	176	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	62	37	51	39	78	33	168	157	137	189	69
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.87	0.87	0.87	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	305	305	89	92	184	65	621	517	174	1057	373
Arrive On Green	0.04	0.16	0.16	0.05	0.17	0.17	0.04	0.35	0.35	0.10	0.41	0.41
Sat Flow, veh/h	1781	1870	1521	1781	537	1075	1781	1777	1478	1781	2573	908
Grp Volume(v), veh/h	39	62	37	51	0	117	33	168	157	137	129	129
Grp Sat Flow(s),veh/h/ln	1781	1870	1521	1781	0	1612	1781	1777	1478	1781	1777	1704
Q Serve(g_s), s	1.1	1.5	1.1	1.5	0.0	3.4	1.0	3.6	4.1	4.0	2.4	2.6
Cycle Q Clear(g_c), s	1.1	1.5	1.1	1.5	0.0	3.4	1.0	3.6	4.1	4.0	2.4	2.6
Prop In Lane	1.00		1.00	1.00		0.67	1.00		1.00	1.00		0.53
Lane Grp Cap(c), veh/h	73	305	305	89	0	277	65	621	517	174	730	700
V/C Ratio(X)	0.53	0.20	0.12	0.57	0.00	0.42	0.51	0.27	0.30	0.79	0.18	0.18
Avail Cap(c_a), veh/h	168	636	575	168	0	548	185	621	517	185	730	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	19.2	17.4	24.6	0.0	19.6	25.1	12.4	12.5	23.3	9.9	9.9
Incr Delay (d2), s/veh	5.8	0.3	0.2	5.7	0.0	1.0	6.1	1.1	1.5	18.8	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.6	0.4	0.7	0.0	1.3	0.5	1.4	1.4	2.4	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.7	19.5	17.6	30.4	0.0	20.6	31.1	13.4	14.1	42.1	10.4	10.5
LnGrp LOS	C	B	B	C	A	C	C	B	B	D	B	B
Approach Vol, veh/h		138			168			358			395	
Approach Delay, s/veh		22.2			23.6			15.3			21.5	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	23.0	7.1	13.1	6.4	26.3	6.7	13.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.5	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	6.0	6.1	3.5	3.5	3.0	4.6	3.1	5.4
Green Ext Time (p_c), s	0.0	1.5	0.0	0.3	0.0	1.1	0.0	0.5

Intersection Summary			
HCM 6th Ctrl Delay			19.8
HCM 6th LOS			B

1: La Mesa Blvd/Grossmont Center Dr & Murray Dr

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰↰	↑↱		↰↰	↑↱	
Traffic Volume (veh/h)	34	81	330	227	89	96	203	455	39	104	708	42
Future Volume (veh/h)	34	81	330	227	89	96	203	455	39	104	708	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	89	363	244	96	103	221	495	42	120	814	48
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	378	335	300	299	264	299	1166	99	191	1094	64
Arrive On Green	0.21	0.21	0.21	0.17	0.17	0.17	0.09	0.35	0.35	0.06	0.32	0.32
Sat Flow, veh/h	1781	1777	1574	1781	1777	1571	3456	3310	280	3456	3405	201
Grp Volume(v), veh/h	37	89	363	244	96	103	221	265	272	120	425	437
Grp Sat Flow(s),veh/h/ln	1781	1777	1574	1781	1777	1571	1728	1777	1813	1728	1777	1829
Q Serve(g_s), s	1.4	3.5	18.1	11.2	4.0	5.0	5.3	9.7	9.7	2.9	18.1	18.2
Cycle Q Clear(g_c), s	1.4	3.5	18.1	11.2	4.0	5.0	5.3	9.7	9.7	2.9	18.1	18.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.11
Lane Grp Cap(c), veh/h	379	378	335	300	299	264	299	626	639	191	571	588
V/C Ratio(X)	0.10	0.24	1.08	0.81	0.32	0.39	0.74	0.42	0.43	0.63	0.74	0.74
Avail Cap(c_a), veh/h	379	378	335	383	382	338	345	626	639	227	571	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	27.8	33.5	34.1	31.1	31.5	37.9	21.0	21.0	39.4	25.8	25.8
Incr Delay (d2), s/veh	0.1	0.3	73.7	10.1	0.6	0.9	7.0	2.1	2.1	4.0	5.2	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.5	13.3	5.5	1.7	1.9	2.5	4.2	4.3	1.3	8.1	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.1	28.1	107.3	44.2	31.7	32.5	45.0	23.1	23.1	43.4	31.0	30.9
LnGrp LOS	C	C	F	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		489			443			758			982	
Approach Delay, s/veh		86.8			38.8			29.5			32.5	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.2	34.5		22.6	11.9	31.8		18.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.6	30.0		18.1	8.5	27.1		18.3
Max Q Clear Time (g_c+I1), s	4.9	11.7		20.1	7.3	20.2		13.2
Green Ext Time (p_c), s	0.0	2.9		0.0	0.1	2.9		0.9

Intersection Summary	
HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

2: Grossmont Center Dr & Healthcare Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	270	53	494	110	22	644
Future Volume (veh/h)	270	53	494	110	22	644
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	318	62	537	120	24	692
Peak Hour Factor	0.85	0.85	0.92	0.92	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	534	291	1461	325	51	2274
Arrive On Green	0.15	0.15	0.51	0.51	0.03	0.64
Sat Flow, veh/h	3456	1585	2969	640	1781	3647
Grp Volume(v), veh/h	318	62	331	326	24	692
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1738	1781	1777
Q Serve(g_s), s	3.7	1.5	4.9	5.0	0.6	3.8
Cycle Q Clear(g_c), s	3.7	1.5	4.9	5.0	0.6	3.8
Prop In Lane	1.00	1.00		0.37	1.00	
Lane Grp Cap(c), veh/h	534	291	903	883	51	2274
V/C Ratio(X)	0.60	0.21	0.37	0.37	0.47	0.30
Avail Cap(c_a), veh/h	1421	698	903	883	224	2274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	15.2	6.5	6.5	20.9	3.5
Incr Delay (d2), s/veh	1.1	0.4	1.1	1.2	6.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.5	1.5	1.5	0.3	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.3	15.5	7.7	7.7	27.3	3.9
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	380		657			716
Approach Delay, s/veh	17.8		7.7			4.7
Approach LOS	B		A			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.8	26.7				32.5		11.3
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	5.5	18.0				28.0		18.0
Max Q Clear Time (g_c+I1), s	2.6	7.0				5.8		5.7
Green Ext Time (p_c), s	0.0	3.0				4.7		1.1

Intersection Summary			
HCM 6th Ctrl Delay			8.6
HCM 6th LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	170	60	163	110	77	103	105	294	33	65	328	151
Future Volume (veh/h)	170	60	163	110	77	103	105	294	33	65	328	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.87	1.00		0.88	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	187	66	179	126	89	118	114	320	36	71	360	166
Peak Hour Factor	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.92	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	516	538	160	160	213	145	986	109	97	662	298
Arrive On Green	0.13	0.28	0.28	0.09	0.24	0.24	0.08	0.31	0.31	0.05	0.28	0.28
Sat Flow, veh/h	1781	1870	1480	1781	670	888	1781	3175	352	1781	2333	1052
Grp Volume(v), veh/h	187	66	179	126	0	207	114	177	179	71	272	254
Grp Sat Flow(s),veh/h/ln	1781	1870	1480	1781	0	1558	1781	1777	1750	1781	1777	1608
Q Serve(g_s), s	6.9	1.8	5.9	4.6	0.0	7.8	4.2	5.1	5.3	2.6	8.7	9.0
Cycle Q Clear(g_c), s	6.9	1.8	5.9	4.6	0.0	7.8	4.2	5.1	5.3	2.6	8.7	9.0
Prop In Lane	1.00		1.00	1.00		0.57	1.00		0.20	1.00		0.65
Lane Grp Cap(c), veh/h	226	516	538	160	0	373	145	552	543	97	504	456
V/C Ratio(X)	0.83	0.13	0.33	0.79	0.00	0.56	0.78	0.32	0.33	0.73	0.54	0.56
Avail Cap(c_a), veh/h	226	525	545	205	0	419	173	552	543	146	504	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	18.2	15.7	29.9	0.0	22.4	30.2	17.7	17.7	31.2	20.3	20.4
Incr Delay (d2), s/veh	21.8	0.1	0.4	14.2	0.0	1.3	17.7	1.5	1.6	9.9	4.1	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.8	1.9	2.6	0.0	2.9	2.4	2.1	2.2	1.3	3.9	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	18.3	16.1	44.1	0.0	23.7	47.9	19.2	19.4	41.1	24.4	25.3
LnGrp LOS	D	B	B	D	A	C	D	B	B	D	C	C
Approach Vol, veh/h		432			333			470			597	
Approach Delay, s/veh		31.2			31.4			26.2			26.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	25.3	10.5	23.0	10.0	23.5	13.0	20.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	20.0	7.7	18.8	6.5	19.0	8.5	18.0
Max Q Clear Time (g_c+I1), s	4.6	7.3	6.6	7.9	6.2	11.0	8.9	9.8
Green Ext Time (p_c), s	0.0	1.6	0.0	0.7	0.0	2.0	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

APPENDIX D

EXISTING + CUMULATIVE PROJECTS PEAK HOUR INTERSECTION ANALYSIS SHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰↰	↑↱		↰↰	↑↱	
Traffic Volume (veh/h)	14	27	85	76	74	82	96	561	146	29	310	12
Future Volume (veh/h)	14	27	85	76	74	82	96	561	146	29	310	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	40	127	107	104	115	103	603	157	37	397	15
Peak Hour Factor	0.67	0.67	0.67	0.71	0.71	0.71	0.93	0.93	0.93	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	213	189	243	243	210	248	1054	274	135	1211	46
Arrive On Green	0.12	0.12	0.12	0.14	0.14	0.14	0.07	0.38	0.38	0.04	0.35	0.35
Sat Flow, veh/h	1781	1777	1581	1781	1777	1540	3456	2780	722	3456	3491	132
Grp Volume(v), veh/h	21	40	127	107	104	115	103	385	375	37	202	210
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1777	1540	1728	1777	1725	1728	1777	1846
Q Serve(g_s), s	0.6	1.1	4.3	3.1	3.0	3.9	1.6	9.5	9.5	0.6	4.6	4.7
Cycle Q Clear(g_c), s	0.6	1.1	4.3	3.1	3.0	3.9	1.6	9.5	9.5	0.6	4.6	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		0.07
Lane Grp Cap(c), veh/h	213	213	189	243	243	210	248	674	654	135	616	640
V/C Ratio(X)	0.10	0.19	0.67	0.44	0.43	0.55	0.42	0.57	0.57	0.27	0.33	0.33
Avail Cap(c_a), veh/h	579	578	514	579	578	501	362	674	654	312	648	674
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	21.9	23.3	22.0	21.9	22.3	24.6	13.6	13.6	25.8	13.3	13.3
Incr Delay (d2), s/veh	0.2	0.4	4.1	1.2	1.2	2.2	1.1	3.5	3.6	1.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.4	1.6	1.2	1.2	1.4	0.6	3.8	3.7	0.2	1.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.9	22.4	27.4	23.2	23.1	24.5	25.7	17.1	17.3	26.9	13.6	13.6
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		188			326			863			449	
Approach Delay, s/veh		25.7			23.6			18.2			14.7	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	25.5		11.1	8.5	23.7		12.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	21.0		18.0	5.8	20.2		18.0				
Max Q Clear Time (g_c+I1), s	2.6	11.5		6.3	3.6	6.7		5.9				
Green Ext Time (p_c), s	0.0	3.2		0.7	0.0	1.9		1.2				
Intersection Summary												
HCM 6th Ctrl Delay			19.1									
HCM 6th LOS			B									

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	166	48	420	210	27	217
Future Volume (veh/h)	166	48	420	210	27	217
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.95	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	272	79	488	244	30	241
Peak Hour Factor	0.61	0.61	0.86	0.86	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	487	279	1152	572	62	2311
Arrive On Green	0.14	0.14	0.51	0.51	0.04	0.65
Sat Flow, veh/h	3456	1585	2350	1120	1781	3647
Grp Volume(v), veh/h	272	79	384	348	30	241
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1600	1781	1777
Q Serve(g_s), s	3.2	1.9	5.8	5.9	0.7	1.1
Cycle Q Clear(g_c), s	3.2	1.9	5.8	5.9	0.7	1.1
Prop In Lane	1.00	1.00		0.70	1.00	
Lane Grp Cap(c), veh/h	487	279	907	817	62	2311
V/C Ratio(X)	0.56	0.28	0.42	0.43	0.48	0.10
Avail Cap(c_a), veh/h	1444	718	907	817	228	2311
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	15.4	6.6	6.6	20.4	2.8
Incr Delay (d2), s/veh	1.0	0.6	1.4	1.6	5.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.6	1.7	1.6	0.4	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.3	15.9	8.0	8.2	26.0	2.9
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	351		732			271
Approach Delay, s/veh	17.7		8.1			5.5
Approach LOS	B		A			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.0	26.5				32.5		10.6
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	5.5	18.0				28.0		18.0
Max Q Clear Time (g_c+I1), s	2.7	7.9				3.1		5.2
Green Ext Time (p_c), s	0.0	3.3				1.5		1.0

Intersection Summary			
HCM 6th Ctrl Delay			10.1
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	35	56	33	41	30	62	29	147	138	130	168	64
Future Volume (veh/h)	35	56	33	41	30	62	29	147	138	130	168	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	62	37	51	38	78	33	169	159	140	181	69
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.87	0.87	0.87	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	304	304	89	90	185	65	619	515	178	1048	385
Arrive On Green	0.04	0.16	0.16	0.05	0.17	0.17	0.04	0.35	0.35	0.10	0.41	0.41
Sat Flow, veh/h	1781	1870	1521	1781	527	1083	1781	1777	1478	1781	2542	935
Grp Volume(v), veh/h	39	62	37	51	0	116	33	169	159	140	125	125
Grp Sat Flow(s),veh/h/ln	1781	1870	1521	1781	0	1610	1781	1777	1478	1781	1777	1699
Q Serve(g_s), s	1.1	1.5	1.1	1.5	0.0	3.4	1.0	3.6	4.2	4.1	2.4	2.5
Cycle Q Clear(g_c), s	1.1	1.5	1.1	1.5	0.0	3.4	1.0	3.6	4.2	4.1	2.4	2.5
Prop In Lane	1.00		1.00	1.00		0.67	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	73	304	304	89	0	275	65	619	515	178	733	701
V/C Ratio(X)	0.53	0.20	0.12	0.57	0.00	0.42	0.51	0.27	0.31	0.79	0.17	0.18
Avail Cap(c_a), veh/h	168	634	573	168	0	546	185	619	515	185	733	701
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	19.3	17.5	24.7	0.0	19.6	25.1	12.4	12.6	23.3	9.9	9.9
Incr Delay (d2), s/veh	5.8	0.3	0.2	5.8	0.0	1.0	6.1	1.1	1.6	19.3	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.6	0.4	0.7	0.0	1.3	0.5	1.4	1.4	2.5	0.8	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	19.6	17.6	30.4	0.0	20.7	31.2	13.5	14.2	42.6	10.4	10.5
LnGrp LOS	C	B	B	C	A	C	C	B	B	D	B	B
Approach Vol, veh/h		138			167			361			390	
Approach Delay, s/veh		22.2			23.6			15.4			22.0	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	23.0	7.1	13.1	6.4	26.4	6.7	13.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.5	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	6.1	6.2	3.5	3.5	3.0	4.5	3.1	5.4
Green Ext Time (p_c), s	0.0	1.5	0.0	0.3	0.0	1.1	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	20.0
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰↰	↑↱		↰↰	↑↱	
Traffic Volume (veh/h)	31	81	330	256	89	96	203	447	42	102	672	37
Future Volume (veh/h)	31	81	330	256	89	96	203	447	42	102	672	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	89	363	275	96	103	221	486	46	117	772	43
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	373	372	329	324	323	286	297	1135	107	188	1076	60
Arrive On Green	0.21	0.21	0.21	0.18	0.18	0.18	0.09	0.35	0.35	0.05	0.31	0.31
Sat Flow, veh/h	1781	1777	1574	1781	1777	1572	3456	3275	309	3456	3418	190
Grp Volume(v), veh/h	34	89	363	275	96	103	221	263	269	117	401	414
Grp Sat Flow(s),veh/h/ln	1781	1777	1574	1781	1777	1572	1728	1777	1807	1728	1777	1831
Q Serve(g_s), s	1.3	3.6	18.1	12.9	4.0	5.0	5.4	9.8	9.9	2.9	17.3	17.3
Cycle Q Clear(g_c), s	1.3	3.6	18.1	12.9	4.0	5.0	5.4	9.8	9.9	2.9	17.3	17.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		0.10
Lane Grp Cap(c), veh/h	373	372	329	324	323	286	297	616	626	188	560	577
V/C Ratio(X)	0.09	0.24	1.10	0.85	0.30	0.36	0.74	0.43	0.43	0.62	0.72	0.72
Avail Cap(c_a), veh/h	373	372	329	377	376	332	339	616	626	224	560	577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	28.5	34.2	34.2	30.6	31.0	38.6	21.7	21.7	40.1	26.2	26.2
Incr Delay (d2), s/veh	0.1	0.3	80.1	14.8	0.5	0.8	7.4	2.2	2.1	3.9	4.4	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.5	13.8	6.6	1.7	1.9	2.5	4.3	4.4	1.3	7.6	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7	28.8	114.4	49.0	31.1	31.8	46.1	23.8	23.8	44.0	30.6	30.5
LnGrp LOS	C	C	F	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		486			474			753			932	
Approach Delay, s/veh		92.6			41.7			30.4			32.2	
Approach LOS		F			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	34.5		22.6	11.9	31.8		20.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.6	30.0		18.1	8.5	27.1		18.3				
Max Q Clear Time (g_c+I1), s	4.9	11.9		20.1	7.4	19.3		14.9				
Green Ext Time (p_c), s	0.0	2.9		0.0	0.1	3.0		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			44.5									
HCM 6th LOS			D									

2: Grossmont Center Dr & Healthcare Dr

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	224	47	495	98	20	647
Future Volume (veh/h)	224	47	495	98	20	647
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	264	55	538	107	22	696
Peak Hour Factor	0.85	0.85	0.92	0.92	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	470	258	1536	304	48	2324
Arrive On Green	0.14	0.14	0.52	0.52	0.03	0.65
Sat Flow, veh/h	3456	1585	3037	583	1781	3647
Grp Volume(v), veh/h	264	55	324	321	22	696
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1750	1781	1777
Q Serve(g_s), s	3.1	1.3	4.6	4.6	0.5	3.6
Cycle Q Clear(g_c), s	3.1	1.3	4.6	4.6	0.5	3.6
Prop In Lane	1.00	1.00		0.33	1.00	
Lane Grp Cap(c), veh/h	470	258	927	913	48	2324
V/C Ratio(X)	0.56	0.21	0.35	0.35	0.46	0.30
Avail Cap(c_a), veh/h	1453	709	927	913	229	2324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	15.5	6.0	6.0	20.5	3.2
Incr Delay (d2), s/veh	1.1	0.4	1.0	1.1	6.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.4	1.3	1.3	0.3	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.4	16.0	7.0	7.1	27.2	3.5
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	319		645			718
Approach Delay, s/veh	17.9		7.0			4.2
Approach LOS	B		A			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.7	26.8				32.5		10.3
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	5.5	18.0				28.0		18.0
Max Q Clear Time (g_c+I1), s	2.5	6.6				5.6		5.1
Green Ext Time (p_c), s	0.0	3.0				4.8		0.9

Intersection Summary			
HCM 6th Ctrl Delay			7.9
HCM 6th LOS			A

9: Grossmont Center Dr & Center Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	170	59	163	111	77	104	105	288	33	63	328	151
Future Volume (veh/h)	170	59	163	111	77	104	105	288	33	63	328	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.87	1.00		0.88	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	187	65	179	128	89	120	114	313	36	69	360	166
Peak Hour Factor	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.92	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	514	536	163	159	214	145	985	112	96	661	298
Arrive On Green	0.13	0.28	0.28	0.09	0.24	0.24	0.08	0.31	0.31	0.05	0.28	0.28
Sat Flow, veh/h	1781	1870	1479	1781	663	894	1781	3166	359	1781	2333	1052
Grp Volume(v), veh/h	187	65	179	128	0	209	114	174	175	69	272	254
Grp Sat Flow(s),veh/h/ln	1781	1870	1479	1781	0	1556	1781	1777	1748	1781	1777	1608
Q Serve(g_s), s	6.9	1.7	5.9	4.7	0.0	7.9	4.2	5.0	5.2	2.6	8.7	9.0
Cycle Q Clear(g_c), s	6.9	1.7	5.9	4.7	0.0	7.9	4.2	5.0	5.2	2.6	8.7	9.0
Prop In Lane	1.00		1.00	1.00		0.57	1.00		0.21	1.00		0.65
Lane Grp Cap(c), veh/h	226	514	536	163	0	373	145	553	544	96	504	456
V/C Ratio(X)	0.83	0.13	0.33	0.79	0.00	0.56	0.78	0.31	0.32	0.72	0.54	0.56
Avail Cap(c_a), veh/h	226	525	544	205	0	418	173	553	544	146	504	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	18.2	15.8	29.8	0.0	22.4	30.2	17.6	17.7	31.2	20.3	20.4
Incr Delay (d2), s/veh	21.8	0.1	0.4	14.6	0.0	1.3	17.7	1.5	1.6	9.6	4.1	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.7	1.9	2.6	0.0	2.9	2.4	2.1	2.1	1.3	3.9	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.4	18.4	16.1	44.4	0.0	23.7	47.9	19.1	19.2	40.8	24.4	25.3
LnGrp LOS	D	B	B	D	A	C	D	B	B	D	C	C
Approach Vol, veh/h		431			337			463			595	
Approach Delay, s/veh		31.3			31.6			26.3			26.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	25.4	10.6	22.9	10.0	23.5	13.0	20.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	20.0	7.7	18.8	6.5	19.0	8.5	18.0
Max Q Clear Time (g_c+I1), s	4.6	7.2	6.7	7.9	6.2	11.0	8.9	9.9
Green Ext Time (p_c), s	0.0	1.6	0.0	0.7	0.0	2.0	0.0	0.8

Intersection Summary			
HCM 6th Ctrl Delay			28.6
HCM 6th LOS			C

APPENDIX E

EXISTING + CUMULATIVE PROJECTS + PROJECT PEAK HOUR INTERSECTION ANALYSIS SHEETS

1: La Mesa Blvd/Grossmont Center Dr & Murray Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰↰	↑↱		↰↰	↑↱	
Traffic Volume (veh/h)	18	27	85	76	74	82	96	570	146	29	314	14
Future Volume (veh/h)	18	27	85	76	74	82	96	570	146	29	314	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	40	127	107	104	115	103	613	157	37	403	18
Peak Hour Factor	0.67	0.67	0.67	0.71	0.71	0.71	0.93	0.93	0.93	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	214	191	243	243	210	248	1057	270	135	1200	53
Arrive On Green	0.12	0.12	0.12	0.14	0.14	0.14	0.07	0.38	0.38	0.04	0.35	0.35
Sat Flow, veh/h	1781	1777	1581	1781	1777	1540	3456	2790	713	3456	3464	154
Grp Volume(v), veh/h	27	40	127	107	104	115	103	390	380	37	206	215
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1777	1540	1728	1777	1727	1728	1777	1842
Q Serve(g_s), s	0.8	1.1	4.3	3.1	3.0	3.9	1.6	9.7	9.7	0.6	4.8	4.8
Cycle Q Clear(g_c), s	0.8	1.1	4.3	3.1	3.0	3.9	1.6	9.7	9.7	0.6	4.8	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.08
Lane Grp Cap(c), veh/h	215	214	191	243	243	210	248	673	654	135	615	638
V/C Ratio(X)	0.13	0.19	0.67	0.44	0.43	0.55	0.42	0.58	0.58	0.27	0.34	0.34
Avail Cap(c_a), veh/h	579	577	514	579	577	500	362	673	654	312	648	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	21.9	23.3	22.0	21.9	22.3	24.6	13.7	13.7	25.9	13.4	13.4
Incr Delay (d2), s/veh	0.3	0.4	4.0	1.3	1.2	2.2	1.1	3.6	3.7	1.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.4	1.6	1.2	1.2	1.4	0.6	3.9	3.8	0.2	1.7	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	22.3	27.3	23.2	23.1	24.5	25.7	17.3	17.4	26.9	13.7	13.7
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		194			326			873			458	
Approach Delay, s/veh		25.5			23.7			18.4			14.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	25.5		11.2	8.5	23.7		12.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	21.0		18.0	5.8	20.2		18.0				
Max Q Clear Time (g_c+I1), s	2.6	11.7		6.3	3.6	6.8		5.9				
Green Ext Time (p_c), s	0.0	3.2		0.7	0.0	1.9		1.2				
Intersection Summary												
HCM 6th Ctrl Delay			19.2									
HCM 6th LOS			B									

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰↰	↱	↑↱		↰	↑↑
Traffic Volume (veh/h)	172	49	420	223	30	217
Future Volume (veh/h)	172	49	420	223	30	217
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.95	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	282	80	488	259	33	241
Peak Hour Factor	0.61	0.61	0.86	0.86	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	498	289	1115	588	67	2301
Arrive On Green	0.14	0.14	0.51	0.51	0.04	0.65
Sat Flow, veh/h	3456	1585	2298	1162	1781	3647
Grp Volume(v), veh/h	282	80	393	354	33	241
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1589	1781	1777
Q Serve(g_s), s	3.3	1.9	6.1	6.1	0.8	1.1
Cycle Q Clear(g_c), s	3.3	1.9	6.1	6.1	0.8	1.1
Prop In Lane	1.00	1.00		0.73	1.00	
Lane Grp Cap(c), veh/h	498	289	899	804	67	2301
V/C Ratio(X)	0.57	0.28	0.44	0.44	0.49	0.10
Avail Cap(c_a), veh/h	1439	720	899	804	227	2301
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	15.2	6.8	6.8	20.4	2.9
Incr Delay (d2), s/veh	1.0	0.5	1.5	1.8	5.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.6	1.8	1.7	0.4	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.3	15.7	8.3	8.5	25.8	3.0
LnGrp LOS	B	B	A	A	C	A
Approach Vol, veh/h	362		747			274
Approach Delay, s/veh	17.7		8.4			5.7
Approach LOS	B		A			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.1	26.4				32.5		10.7
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	5.5	18.0				28.0		18.0
Max Q Clear Time (g_c+I1), s	2.8	8.1				3.1		5.3
Green Ext Time (p_c), s	0.0	3.3				1.5		1.0

Intersection Summary			
HCM 6th Ctrl Delay			10.3
HCM 6th LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↱		↰	↑↱		↰	↑↱	
Traffic Volume (veh/h)	35	57	33	41	31	63	29	148	138	133	171	64
Future Volume (veh/h)	35	57	33	41	31	63	29	148	138	133	171	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.93	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	63	37	51	39	79	33	170	159	143	184	69
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.87	0.87	0.87	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	305	306	89	91	185	65	617	513	182	1055	382
Arrive On Green	0.04	0.16	0.16	0.05	0.17	0.17	0.04	0.35	0.35	0.10	0.41	0.41
Sat Flow, veh/h	1781	1870	1521	1781	532	1079	1781	1777	1478	1781	2554	925
Grp Volume(v), veh/h	39	63	37	51	0	118	33	170	159	143	126	127
Grp Sat Flow(s),veh/h/ln	1781	1870	1521	1781	0	1611	1781	1777	1478	1781	1777	1701
Q Serve(g_s), s	1.1	1.6	1.1	1.5	0.0	3.5	1.0	3.7	4.2	4.2	2.4	2.5
Cycle Q Clear(g_c), s	1.1	1.6	1.1	1.5	0.0	3.5	1.0	3.7	4.2	4.2	2.4	2.5
Prop In Lane	1.00		1.00	1.00		0.67	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	73	305	306	89	0	277	65	617	513	182	734	703
V/C Ratio(X)	0.53	0.21	0.12	0.58	0.00	0.43	0.51	0.28	0.31	0.79	0.17	0.18
Avail Cap(c_a), veh/h	167	632	571	167	0	544	184	617	513	184	734	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	19.3	17.5	24.8	0.0	19.7	25.2	12.5	12.7	23.4	9.9	9.9
Incr Delay (d2), s/veh	5.9	0.3	0.2	5.8	0.0	1.0	6.1	1.1	1.6	19.8	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.7	0.4	0.7	0.0	1.3	0.5	1.4	1.4	2.6	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.9	19.6	17.7	30.5	0.0	20.8	31.3	13.7	14.3	43.2	10.4	10.5
LnGrp LOS	C	B	B	C	A	C	C	B	B	D	B	B
Approach Vol, veh/h		139			169			362			396	
Approach Delay, s/veh		22.3			23.7			15.5			22.3	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	23.0	7.1	13.2	6.4	26.5	6.7	13.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.5	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	6.2	6.2	3.5	3.6	3.0	4.5	3.1	5.5
Green Ext Time (p_c), s	0.0	1.5	0.0	0.3	0.0	1.1	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

1: La Mesa Blvd/Grossmont Center Dr & Murray Dr

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰↰	↑↱		↰↰	↑↱	
Traffic Volume (veh/h)	34	81	330	256	89	96	203	453	42	102	682	42
Future Volume (veh/h)	34	81	330	256	89	96	203	453	42	102	682	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	89	363	275	96	103	221	492	46	117	784	48
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	373	372	329	324	323	286	297	1137	106	188	1070	65
Arrive On Green	0.21	0.21	0.21	0.18	0.18	0.18	0.09	0.35	0.35	0.05	0.31	0.31
Sat Flow, veh/h	1781	1777	1574	1781	1777	1572	3456	3279	305	3456	3397	208
Grp Volume(v), veh/h	37	89	363	275	96	103	221	266	272	117	410	422
Grp Sat Flow(s),veh/h/ln	1781	1777	1574	1781	1777	1572	1728	1777	1808	1728	1777	1828
Q Serve(g_s), s	1.5	3.6	18.1	12.9	4.0	5.0	5.4	9.9	10.0	2.9	17.8	17.8
Cycle Q Clear(g_c), s	1.5	3.6	18.1	12.9	4.0	5.0	5.4	9.9	10.0	2.9	17.8	17.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		0.11
Lane Grp Cap(c), veh/h	373	372	329	324	323	286	297	616	627	188	560	576
V/C Ratio(X)	0.10	0.24	1.10	0.85	0.30	0.36	0.74	0.43	0.43	0.62	0.73	0.73
Avail Cap(c_a), veh/h	373	372	329	377	376	332	339	616	627	224	560	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	28.5	34.2	34.2	30.6	31.0	38.6	21.7	21.7	40.1	26.4	26.4
Incr Delay (d2), s/veh	0.1	0.3	80.1	14.8	0.5	0.8	7.4	2.2	2.2	3.9	4.9	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.5	13.8	6.6	1.7	1.9	2.5	4.3	4.4	1.3	7.9	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	28.8	114.4	49.0	31.1	31.8	46.1	23.9	23.9	44.0	31.3	31.2
LnGrp LOS	C	C	F	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		489			474			759			949	
Approach Delay, s/veh		92.2			41.7			30.4			32.8	
Approach LOS		F			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.2	34.5		22.6	11.9	31.8		20.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	5.6	30.0		18.1	8.5	27.1		18.3
Max Q Clear Time (g_c+I1), s	4.9	12.0		20.1	7.4	19.8		14.9
Green Ext Time (p_c), s	0.0	2.9		0.0	0.1	2.9		0.7

Intersection Summary			
HCM 6th Ctrl Delay			44.6
HCM 6th LOS			D

2: Grossmont Center Dr & Healthcare Dr

05/19/2022

	↙	↖	↑	↗	↘	↓	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	↰↰	↱	↑↱		↰	↑↑	
Traffic Volume (veh/h)	239	49	495	107	22	647	
Future Volume (veh/h)	239	49	495	107	22	647	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	281	58	538	116	24	696	
Peak Hour Factor	0.85	0.85	0.92	0.92	0.93	0.93	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	491	271	1495	321	52	2307	
Arrive On Green	0.14	0.14	0.52	0.52	0.03	0.65	
Sat Flow, veh/h	3456	1585	2990	622	1781	3647	
Grp Volume(v), veh/h	281	58	329	325	24	696	
Grp Sat Flow(s),veh/h/ln	1728	1585	1777	1742	1781	1777	
Q Serve(g_s), s	3.3	1.4	4.7	4.8	0.6	3.7	
Cycle Q Clear(g_c), s	3.3	1.4	4.7	4.8	0.6	3.7	
Prop In Lane	1.00	1.00		0.36	1.00		
Lane Grp Cap(c), veh/h	491	271	917	899	52	2307	
V/C Ratio(X)	0.57	0.21	0.36	0.36	0.47	0.30	
Avail Cap(c_a), veh/h	1442	708	917	899	227	2307	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	17.3	15.4	6.2	6.2	20.6	3.3	
Incr Delay (d2), s/veh	1.1	0.4	1.1	1.1	6.4	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.2	0.5	1.4	1.4	0.3	0.6	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	18.3	15.8	7.3	7.3	27.0	3.6	
LnGrp LOS	B	B	A	A	C	A	
Approach Vol, veh/h	339		654			720	
Approach Delay, s/veh	17.9		7.3			4.4	
Approach LOS	B		A			A	
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	5.7	26.8				32.5	10.6
Change Period (Y+Rc), s	4.5	4.5				4.5	4.5
Max Green Setting (Gmax), s	5.5	18.0				28.0	18.0
Max Q Clear Time (g_c+I1), s	2.6	6.8				5.7	5.3
Green Ext Time (p_c), s	0.0	3.0				4.8	1.0
Intersection Summary							
HCM 6th Ctrl Delay			8.2				
HCM 6th LOS			A				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↱		↰	↑↑↱		↰	↑↑↱	
Traffic Volume (veh/h)	170	60	163	111	78	108	105	290	33	65	330	151
Future Volume (veh/h)	170	60	163	111	78	108	105	290	33	65	330	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.87	1.00		0.88	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	187	66	179	128	90	124	114	315	36	71	363	166
Peak Hour Factor	0.91	0.91	0.91	0.87	0.87	0.87	0.92	0.92	0.92	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	516	537	163	157	216	145	983	111	97	663	296
Arrive On Green	0.13	0.28	0.28	0.09	0.24	0.24	0.08	0.31	0.31	0.05	0.28	0.28
Sat Flow, veh/h	1781	1870	1480	1781	654	901	1781	3169	357	1781	2340	1046
Grp Volume(v), veh/h	187	66	179	128	0	214	114	175	176	71	274	255
Grp Sat Flow(s),veh/h/ln	1781	1870	1480	1781	0	1554	1781	1777	1749	1781	1777	1610
Q Serve(g_s), s	6.9	1.8	5.9	4.7	0.0	8.1	4.2	5.0	5.2	2.6	8.8	9.1
Cycle Q Clear(g_c), s	6.9	1.8	5.9	4.7	0.0	8.1	4.2	5.0	5.2	2.6	8.8	9.1
Prop In Lane	1.00		1.00	1.00		0.58	1.00		0.20	1.00		0.65
Lane Grp Cap(c), veh/h	226	516	537	163	0	374	145	551	542	97	503	456
V/C Ratio(X)	0.83	0.13	0.33	0.79	0.00	0.57	0.78	0.32	0.33	0.73	0.54	0.56
Avail Cap(c_a), veh/h	226	524	544	204	0	417	173	551	542	146	503	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	18.2	15.8	29.8	0.0	22.5	30.2	17.7	17.8	31.2	20.4	20.5
Incr Delay (d2), s/veh	22.0	0.1	0.4	14.7	0.0	1.5	17.8	1.5	1.6	9.9	4.2	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.8	1.9	2.6	0.0	3.0	2.4	2.1	2.2	1.3	3.9	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.6	18.4	16.1	44.5	0.0	24.0	48.0	19.2	19.4	41.2	24.6	25.4
LnGrp LOS	D	B	B	D	A	C	D	B	B	D	C	C
Approach Vol, veh/h		432			342			465			600	
Approach Delay, s/veh		31.4			31.7			26.3			26.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	25.3	10.6	23.0	10.0	23.5	13.0	20.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	20.0	7.7	18.8	6.5	19.0	8.5	18.0
Max Q Clear Time (g_c+I1), s	4.6	7.2	6.7	7.9	6.2	11.1	8.9	10.1
Green Ext Time (p_c), s	0.0	1.6	0.0	0.7	0.0	2.0	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C