PUBLIC REVIEW DRAFT

Initial Study/Mitigated Negative Declaration

160 N. Cactus Avenue Project

Master Case No. 2022-0059
Conditional Development Permit No. 2022-0031
Precise Plan of Design No. 2022-0056
Lot Line Adjustment No. 2022-0016
Variance No. 2023-0002
Environmental Assessment Review No. 2022-0054

AUGUST 2023

Prepared for:

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
ACM	Asbestos-containing materials
AFY	Acre-feet per year
A-P	Alquist-Priolo
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
BMPs	Best Management Practices
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalFIRE	California Department of Forestry and Fire Protection
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
City	City of Rialto
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide
dB	Decibel
dBA	Decibel level as measured with a sound-level meter using the A weighting network
DOC	California Department of Conservation
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Administration
FHSZs	Fire Hazard Severity Zones
FIRM	Flood Insurance Rate Map
FTA	Federal Transit Administration
GHGs	Greenhouse gases
I	Interstate
IS	Initial Study
LBP	Lead-based paint
L_{eq}	Time-averaged equivalent noise level
LID	Low Impact Development
LOS	Level of service
LST	Localized significance threshold
M-1	Light Manufacturing Zone
MBTA	Migratory Bird Treaty Act
mgd	Million gallons per day
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zone

MS4	Municipal Separate Storm Sewer System
MT CO_2e	Metric tons carbon dioxide-equivalent
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NO_2	Nitrogen dioxide
NO_X	Oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OPR	California Governor's Office of Planning and Research
PCC	Precipitated Calcium Carbonate
PCE	Passenger car equivalent
pCi/L	picoCuries per liter
PM_{10}	Particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	Particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
Project	160 North Cactus Avenue Project
PRC	Public Resources Code
REC	Recognized Environmental Conditions
RFD	Rialto Fire Department
RPD	Rialto Police Department
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RUSD	Rialto Unified School District
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBCFCD	San Bernardino County Flood Control District
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SO_2	Sulfur dioxide
SO_X	Sulfur oxides
SR	State Route
SRA	Source Receptor Area
SVP	Society of Vertebrate Paleontology
SWAT	Special Weapons and Tactics
TAC	Toxic air contaminant
TAZ	Traffic analysis zone
UWMP	Urban Water Management Plan
VMT	Vehicle-miles traveled
VOCs	Volatile organic compounds
WWTP	Wastewater Treatment Plant

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1 Introduction

1.1 Project Overview

The 160 N. Cactus Avenue Project (Project) would involve the construction of a 159,700-square-foot industrial warehouse building on approximately 8.15 acres of developed land. The 8.15 acres includes an approximate 0.34-acre City-owned parcel. The Project site is located at 160 North Cactus Avenue, on the northwest corner of Rialto Avenue and Cactus Avenue in the City of Rialto. The Project Applicant, LPC West, Inc, proposes to demolish existing structures and redevelop the site with the approval of Master Case No. 2022-0059, Variance No. 2023-0002, Conditional Development Permit No. 2022-0031, Lot Line Adjustment No. 2022-0016, Precise Plan of Design No. 2022-0056, and Environmental Assessment Review No. 2022-0054.

1.2 California Environmental Quality Act Compliance

The California Environmental Quality Act (CEQA) applies to proposed projects initiated by, funded by, or requiring discretionary approvals from state or local government agencies. The Project constitutes a project as defined by CEQA (California Public Resources Code [PRC] Section 21000 et seq.). CEQA Guidelines Section 15367 states that a "Lead Agency" is "the public agency which has the principal responsibility for carrying out or approving a project." Therefore, the City of Rialto (City) is the lead agency responsible for compliance with CEQA for the Project.

As lead agency for the Project, the City must complete an environmental review to determine if implementation of the Project would result in significant adverse environmental impacts. To fulfill the purpose of CEQA, an Initial Study (IS) has been prepared to assist in making that determination. Based on the nature and scope of the Project and the evaluation contained in the Initial Study environmental checklist (contained herein), the City, as the lead agency, concluded that a Mitigated Negative Declaration (MND) is the proper level of environmental documentation for this Project. The Initial Study shows that impacts caused by the Project are either less than significant or significant but mitigable with incorporation of appropriate mitigation measures as defined herein. This conclusion is supported by CEQA Guidelines Section 15070, which states that an MND can be prepared when "(a) the initial study shows that there is not substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or (b) the initial study identifies potentially significant effects, but (1) revisions in the project plans or proposals made by, or agreed to by the applicant, before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and (2) there is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment."

1.3 Public Review Process

In accordance with CEQA and the CEQA Guidelines, a public review period for this Draft IS/MND commenced on August 7, 2023 and will conclude on September 5, 2023. The Draft IS/MND has been distributed for review to interested and involved public agencies, responsible/trustee agencies, organizations, and private individuals that have requested in writing to be informed of the Project.

A hardcopy of the Draft IS/MND is also available for public review during regular business hours at:

City of Rialto
Community Development Department
150 South Palm Avenue
Rialto, California 92376

An electronic copy of the Draft IS/MND can be viewed at: https://www.yourrialto.com/314/Current-Projects

Comments on the Draft IS/MND may be made in writing before the end of the public review period. Following the close of the public comment period, the City will consider this Draft IS/MND and comments thereto in determining whether to approve the Project.

In accordance with CEQA Guidelines Section 15073, the Draft IS/MND will be available for public review for not less than 30 days. During the public review period, the public will have the opportunity to provide written comments on the information contained within this Draft IS/MND. The City's discretionary approval/refusal of the Project will also be based on the information contained in this document.

In reviewing the Draft IS/MND, interested members of the public should focus on the sufficiency of the document in identifying and analyzing potential Project impacts on the environment, as well as the sufficiency of any mitigation measures proposed to reduce potential impacts to a less-than-significant level. Comments on the Draft IS/MND should be submitted by the end of the public review period and must be postmarked by September 5, 2023. Please submit written comments by mail or via email with the subject line "160 N. Cactus Avenue Project" to the following address:

Daniel Rosas, MPA, Associate Planner
City of Rialto Community Development Department
150 South Palm Avenue
Rialto, California 92376
Email: drosas@rialtoca.gov

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2 Project Description

2.1 Project Location

The Project site is centrally located within the City, located at 160 North Cactus Avenue, situated northwest of the intersection of Cactus Avenue and Rialto Avenue. Regionally, the Project site is located within the west valley of San Bernardino County and bordered by the cities of Fontana to the west, Colton and San Bernardino to the east, and the unincorporated community of Bloomington to the south. Regional access to the Project site is available via Foothill Boulevard and State Route 210 (SR-210) to the north, and Interstate 10 (I-10) to the south. Locally, Cactus Avenue and Rialto Avenue provide direct access to the site. The Project site consists of the following parcels: Assessor's Parcel Numbers (APNs) 0128-141-70-0-000, 0128-141-49-0-000, 0128-141-63-0-000, and 0128-141-72-0-000. Figure 1, Regional and Local Vicinity, illustrates the Project's location and regional vicinity.

2.2 Environmental Setting

Project Site

Under existing conditions, the Project site consists of an 8.15-acre developed property, including six single-story buildings totaling approximately 77,900 square feet and a water utility facility. Figure 2, Existing Project Site, details the Project site's existing layout. Figure 3a through 3c, Existing Site Photos, illustrates the Project site's current conditions. The City currently owns a 0.33-acre portion of the Project site, within the southwestern portion of the site as detailed in Section 2.3, Project Characteristics, below, and two inactive groundwater wells on the property. As shown in Figures 3a through 3c, the Project site is surrounded by chain-link fencing on the eastern boundary and concrete masonry walls on the northern, southern, and western boundaries. In addition, the Project site is set back from the adjacent streets with a dirt path, concrete sidewalks, and palm trees lining the southern boundary.

Operations on-site include industrial buildings with warehouse activities and office space and storage container transfers/staging. The northern portion of the site is developed with an approximately 49,250-square-foot central warehouse and administrative office building and an approximately 28,500-square foot north warehouse that spans the northern boundary of the site. The southern portion of the site is developed with two trailers that house administrative offices and a break room, approximately 1,500 square feet in total, on the western side of the site and three metal containers that store miscellaneous equipment, each approximately 330 square feet. The eastern side of the southern portion of the site is used as a truck trailer and heavy machinery parking lot (Appendix F). Figures 3a and 3b demonstrate the Project site's current conditions with and without truck trailer storage on the southern portion of the site.

The San Bernardino County Flood Control District (SBCFCD) controls and maintains an approximately-0.6-acre easement on the eastern edge of the Project site. The Rialto Channel, a SBCFCD flood control facility, is located within this easement, parallel to the Project's eastern boundary, as shown on Figure 3c, Existing Site Photos. In the northern half of the easement, the Rialto Channel is an uncovered soft-bottom channel with rip-rap sides. In the middle of the Project site's eastern edge where the existing North Cactus Avenue driveway is located, the Rialto Channel transitions to an underground storm drain channel via a culvert that extends south through and beyond the Project site. According to SBCFCD, the portion of the reach at the Project site is characterized as a "non-system facility" (SBCFCD 2023). SBCFCD is currently processing the Rialto Channel Drainage Improvement Project, which

would involve undergrounding the uncovered portion of the Rialto Channel, including the portion within the Project site. SBCFCD is the lead agency for the Rialto Channel Drainage Improvement Project and is leading environmental review and permitting efforts for the project. Approval of the project, as well as its environmental review and permitting, is separate and unrelated to the proposed Project.

Access to the Project site is currently provided by a driveway on Cactus Avenue to the east. In addition, there are two driveways on Rialto Avenue; one of which provides access to the storage container staging area and the other driveway provides on-site access from the southwestern corner of the site. Regional access to the Project site is available from I-10 Freeway via Cedar Avenue interchange or to SR-210 Freeway via Alder Avenue.

General Plan and Zoning Designations

The City has a land use designation for the Project site as Light Industrial, as shown in Figure 4, Existing General Plan Designation. According to the City's General Plan, this land use designation allows for a maximum floor-area-ratio (FAR) of 1.0 (City of Rialto 2010). In addition, the allowed uses include light industrial activity such as processing, packaging, machinery repair, fabrication, distribution, warehousing and storage, research and development, and similar low impact uses.

The Project site is zoned Light Industrial (M-1) as shown in Figure 5, Existing Zoning (City of Rialto 2013). This zone allows for light manufacturing uses, including the processing or treatment of products, assembly of machine and appliances, among others listed under Section 18.38.020 of the City's Municipal Code (City of Rialto 2023a).

Surrounding Land Uses

The Project site is surrounded by a mix of land uses, including single-family residences and recreational uses to the north, office and industrial uses to the south and east, and educational uses to the west. Bob Murphy Community School is located immediately adjacent to the Project site's western boundary. This school serves as an alternative school placement for students in grades 7th through 12th and is operated by the San Bernardino City Unified School District (SBCUSD 2023). Single-family residences are located approximately 91 feet north of the Project site. The Pacific Electric Trail, an east-west recreational trail that runs from the City of Claremont to Rialto, boarders the Project's northern boundary (as shown in Figure 3c). The Project site is also adjacent to a Southern Pacific Railroad right-of-way to the north and a Burlington Northern Santa Fe Railroad-owned parcel to the east. Other easements exist on the Project site for public utilities (i.e., Southern California Edison [SCE]) and water services.

2.3 Project Characteristics

Proposed Industrial Building

The Project would involve the vacation of existing uses and demolition of all buildings on site. Project implementation would result in the construction of a 158,200-square-foot concrete tilt up industrial building with a 1,500 square-foot mezzanine for a total of approximately 159,700 square feet in size. The primary use of the building would be for warehousing. Within the 159,700-square foot building, a 6,750 square-foot office space is proposed to be located on the southwest corner of the building. As such, the proposed gross FAR would be 0.47.

As detailed under Section 2.4, Project Construction and Phasing, the Project's construction would be phased. Under Phase 1, the Project would not encroach upon the open portion of the SBCFCD's Rialto Channel, but would encroach upon the underground portion of the channel during Phase I. During Phase 1, a temporary fire lane would be

located within the northeastern portion of the Project site, as depicted in Figure 6a, Conceptual Site Plan Phase 1. Upon completion of the SBCFCD Rialto Channel Drainage Improvement Project (detailed in Section 2.2, Environmental Setting, above), Phase 2 of the Project would be implemented. It is anticipated that Phase 2 of the Project would occur 18 to 24 months after implementation of Phase 1, but the exact timing is subject to SBCFCD's project. Phase 2 of the Project would involve constructing 18 additional surface parking spaces and landscaped areas within the area that was previously occupied by the uncovered channel.

As a community benefit, the Project also proposes a lot line adjustment (Lot Line Adjustment No. 2022-0016) between APN 0128-141-72-0-000 and adjacent APNs 0128-141-49-0-000 and 0128-141-63-0-000 (a City-owned parcel, which is included as part of the Project site acreage, totaling 8.15 acres). The City-owned portion of the site is currently 0.33-acre, but will increase to 0.34-acre as a part of the lot line adjustment for the Project, as depicted in Figure 8. This action is proposed to facilitate to direct access to an inactive water quality monitoring well during Project implementation. After implementation of Lot Line Adjustment No. 2022-0016, the Project site would be 7.81 acres.

Site Access and Parking

The Project site would be supported by four driveways total on North Cactus Avenue and West Rialto Avenue, which would each have two driveways. Three sets of gates would restrict public access to the proposed loading docks; two gates facing North Cactus Avenue and one gate facing West Rialto Avenue. In compliance with the City's development standards, the Project site would support a fire lane for emergency vehicles to access all portions of the site. As detailed in the Traffic Analysis report prepared for the Project (Appendix J), the following improvements, as design features, will be completed with implementation of the Project. The Project will install stop control (i.e., a stop sign) on the southbound approach at Driveway 1 and will construct a southbound shared left-right turn lane. Left turn access into the Project site will be accommodated via the existing painted median. Driveway 1, the western driveway on W. Rialto Avenue, is the only full access driveway for the site and will serve both passenger cars and inbound trucks only (no turn restriction). Driveway 2, the eastern driveway on W. Rialto Avenue, is proposed to serve inbound trucks only, and the driveway will be restricted to right-in access only. At Driveway 3 (the northern driveway on N. Cactus Avenue), the Project will install stop control on the eastbound and will construct an eastbound right turn lane at Driveway 4. Driveway 3 will serve passenger cars only and will be restricted to right-in/right-out access only. Driveway 4, the southern driveway on N. Cactus Avenue, will serve outbound trucks only and will be restricted to right-out access only. For details, see Figure 9, Truck Circulation.

In addition, the Project Applicant will fulfill any potential obligations towards off-site intersections through fair share contributions that would be assigned to the future construction of any future local/regional improvement needs. These would be mandated through Conditions of Approval for the Project.

The Project proposes a total of 91 parking stalls for automobiles (four of which would meet the Americans with Disabilities Act [ADA] requirements) under Phase 1. In addition, the Project site would support 16 parking stalls for trailers. Upon implementation of Phase 2, the Project site would support a total of 109 automobile parking stalls (for a total of five to be ADA compliant). The number of trailer parking stalls would not change under Phase 2. Prior to implementation of Phase 2 of the Project, the Project site would have a shortfall of 17 automobile parking stalls. The inclusion of these auto stalls is necessary to meet the total off-street parking demand for the Project under the City's Zoning Code. As a result, the Project Applicant is requesting a variance to the City's off-street parking standards to allow for a temporary reduction in the number of passenger vehicle parking stalls required for the Project. Upon completion of SBCFCD's improvement project, the subject area of the Project site would be paved over and striped to provide for an additional 18 parking stalls (Phase 2) thereby eliminating the off-street parking

shortfall and basis for the requested variance and providing one additional vehicle parking stall. Therefore, the requested variance would be considered temporary and would terminate upon the completion of the County's construction of the Rialto Channel Drainage Improvement project adjacent Project site and subsequent completion of Phase 2 of the Project's construction. The parking and landscaping would be placed upon the covered SBCFCD channel, in accordance with SBCFCD requirements. Through implementation of Phase 2, the Project would install fencing on the eastern edge of the site. For details, see Figure 6b, Conceptual Site Plan Phase 2.

Seventeen proposed loading docks are planned along the southern side of the building away from the adjacent educational and residential uses. The building is proposed to have a maximum height of approximately 46 feet and 6 inches. The proposed building would be painted with accent walls consisting of neutral tones, as shown in Figure 7, Elevations.

Landscaping, Walls, and Fences

Landscaping is proposed to occur in phases (see Section 2.4, below, for more details). The Project would include landscaping surrounding the site, consisting of various trees and shrubs, such as Honey Locust (*Gleditsia triacanthos f. inermis*), Sweet Acacia (*Acacia smallii*) and Mesquite (*Prosopsis chilensis*). A 10-foot landscaped setback is proposed along the north and west sides of the property to screen the proposed parking surrounding the building and buffer the Project against adjacent uses. In addition, a 25-foot landscaped berm is proposed along the southern edge of the Project site to provide a setback between the loading dock and Rialto Avenue. An 8-foot-high screen wall would be located 15 feet behind the proposed property line in front of the water facility, located at the southwestern corner of the site. The 15-foot-deep setback along Rialto Avenue frontage shall be contiguous with the adjacent landscaped setback for the Project including a matching combination of trees, shrubs, and groundcover.

The Project would install a 14-foot screen wall north of the landscaped berm. As such, a total of 8 feet of the wall is anticipated to be within view from Rialto Avenue. In addition, a 6-foot wrought iron fence is proposed to be installed along the northern, eastern, and western property lines. Upon completion of each phase of the Project (i.e., Phase 1 and 2), the Project would install fencing on the eastern edge of the site. For details, see Figure 10a, Landscape Plan Phase 1, and Figure 10b, Landscape Plan Phase 2.

Utility Improvements

The Project site is located within an urbanized area of the City, and under existing conditions, the site is supported by existing utilities and service systems. Project implementation would require connection to and use of these existing services. Storm water would flow into an underground infiltration basin, proposed to be located within the proposed loading dock area. Storm water services would be provided by the San Bernardino County Department of Public Works. Water and sewer services would be provided by the City's Water Services department. Telecommunications are anticipated to be served by AT&T. In addition, electric and natural gas connections would be provided by SCE and the Southern California Gas Company on site.

Additionally, public utility easements exist along the western edge of the proposed building, including two SCE easements and two other City water service easements. The proposed lot line adjustment would reconfigure these easements (see Figure 8). One SCE easement and one City water service easement will be vacated as part of the Project, but the other two easements (i.e., SCE and City water easement) will remain to service the existing City wells.

The Project would install new fire hydrants throughout the site as well as water lines to support domestic and fire water supplies during operations. Similarly, a sewer line is proposed on site to connect to existing adjacent infrastructure.

A trash enclosure is proposed on the southern side of the proposed building, between the proposed office and loading docks.

Off-Site Improvements

The Project would construct new driveways on Rialto Avenue and Cactus Avenue, as described above. Existing off-site utility poles and streetlights are proposed to remain in place. However, three off-site streetlights are proposed to be installed along Rialto Avenue. As noted above, the Project Applicant will fulfill any potential obligations towards off-site intersections through fair share contributions that would be assigned to the future construction of any future local/regional improvement needs. These would be mandated through Conditions of Approval for the Project.

2.4 Project Construction and Phasing

The Project would be constructed in two phases: Phases 1 and 2. Phase 1 would include development of the industrial building and all associated development, except for surface parking and landscaping on the northeastern portion of the site where the uncovered Rialto Channel is located. A temporary fire lane would surround the proposed industrial building during Phase 1. During this first phase, the Project would not encroach into the limits of the open portion of the SBCFCD's Rialto Channel. An existing gate and fencing would separate the construction activities from the Rialto Channel during Phase 1.

It is anticipated that SBCFCD will implement the Rialto Channel Drainage Improvement Project after the proposed Project is completed. As part of the Rialto Channel Drainage Improvement Project, SBCFCD will remove and dispose of the existing, on-site portion of the channel that is currently uncovered (see Figure 3c for existing site photographs) within SBFCFCD's right-of-way. In its place, SBCFCD will construct a concrete box culvert, within its easement. The concrete box culvert would be level with the surrounding area.

After completion of construction on the channel, the Project would implement Phase 2. Phase 2 of the Project would involve constructing 18 additional surface parking spaces and landscaped areas within the area that was previously occupied by the uncovered channel. If the SBCFCD project is approved and permitted, and construction is ready to begin at the time that the proposed Project is ready to construct, then Phase 2 of the Project may occur concurrently with the SBCFCD project. For the purposes of the environmental analysis contained herein, it is assumed that construction of Phases 1 and 2 would occur concurrently, commencing in January 2024 for 13 months, ending in January 2025.[1] This assumption is conservative because it represents a worst-case scenario when the most pieces of construction equipment would be operating on site, and thus, air pollutant emissions would be most concentrated. Similarly, construction noise levels would be higher when multiple pieces of construction equipment

[1] Preliminary information from SBCFCD suggests that the design of the Rialto Channel Drainage Improvement project will be completed in 2023 and that SBCFCD will begin construction sometime thereafter once all required environmental clearances and rights-of-way have been secured. It is anticipated that the County will complete the portion located within the Project site approximately 18 to 24 months after the initial commencement of construction of the Rialto Channel Drainage Improvement project.

are operating simultaneously. Should Phase 2 occur after Phase 1 is completed, impacts would be less than the impacts discussed herein, due to less pieces of equipment needed for asphalt paving and landscaping.

Construction activities would include demolition of approximately 77,900 square feet of existing buildings, structures, and associated asphalt; site preparation; grading; building construction; paving; and architectural coating. In addition, as part of the construction activities proposed, the Project may include nighttime concrete pouring on site (Appendix I). The pouring of the concrete for the foundation and walls during the building construction phase may necessitate some nighttime construction work in the event of excessive daytime ambient temperatures. Since these activities would take place outside of the permitted construction hours regulated by the City, the Project Applicant would be required to obtain authorization for nighttime work through a written early work permit from the City Manager or his/her designee as required under Section 9.50.070(D)(2) of the Municipal Code.

2.5 Project Approvals

The Project would require discretionary permits and approvals from the City, listed below. These permits are subject to CEQA.

City Permits and Approvals

- Master Case No. 2022-0059
- Conditional Development Permit No. 2022-0031
- Precise Plan of Design No. 2022-0056
- Environmental Assessment Review No. 2022-0054
- Variance No. 2023-0002
- Lot Line Adjustment No. 2022-0016

Approvals and Review from Other Agencies

Approvals from other agencies may also be required and are listed below:

State Water Resources Control Board

- A National Pollutant Discharge Elimination System (NPDES) Construction General Permit may be required for stormwater discharges associated with construction and land disturbance activities and, if so, a stormwater pollution prevention plan (SWPPP) must be developed to comply with the NPDES permit

Santa Ana Regional Water Quality Control Board

- An NPDES General Permit may be required for discharges associated with clean or relatively pollutant-free wastewaters that pose little or no threat to the quality of waters of the United States

3 Initial Study Checklist

1. **Project title:**

   160 N. Cactus Avenue Project

2. **Lead agency name and address:**

   City of Rialto
   150 South Palm Avenue
   Rialto, California 92376

3. **Contact person:**

   Daniel Rosas, Associate Planner
   150 South Palm Avenue
   Rialto, California 92376
   Email: drosas@rialtoca.gov

4. **Project location:**

   160 North Cactus Avenue, Rialto, California 92376

5. **Project sponsor's name and address:**

   LPC West, Inc
   Stephen Lindgren, Development Manager
   915 Wilshire Boulevard, Suite 2050
   Los Angeles, California 90017

6. **General plan designation:**

   Light Industrial

7. **Zoning:**

   Light Industrial (M-1)

8. **Description of project:**

   The Project would demolish existing structures on site and construct a new industrial warehouse building totaling approximately 159,700 square feet (gross area). The building would include an office/mezzanine area, approximately 6,750 square feet in size. The Project would include landscaping, parking, and 17 loading docks. For more details, see Chapter 2, Project Description, of this IS/MND.

9. Surrounding land uses and setting:

The Project site is surrounded by single-family residences and recreational uses to the north, office and industrial uses to the south and east, and educational uses to the west. For more details, see Chapter 2, Project Description, of this IS/MND.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

State Water Resources Control Board, Santa Ana Regional Water Quality Control Board

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, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Yes, see Section 3.18, Tribal Cultural Resources, of this IS/MND, for more information.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact with mitigation incorporated, as indicated by the checklist on the following pages.

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

Determination

On the basis of this initial evaluation:

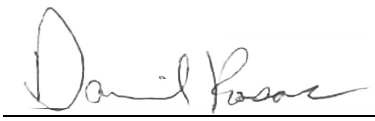
☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

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

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

☐ I find that the Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, 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 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.



Signature

8/3/2023

Date

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 where it is based on project-specific factors as well as general standards (e.g., the project would 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 off-site as well as on-site, 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, then 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 where the incorporation of mitigation measures has reduced an effect from "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.
5. Earlier analyses may be used where, pursuant to the 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 they 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 Measures Incorporated," describe the mitigation measures which 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, where 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 less than significance

3.1 Aesthetics

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**AESTHETICS** – 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 within a state 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 which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a) Would the project have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. Scenic vistas and other important visual resources are typically associated with natural landforms such as mountains, foothills, ridgelines, coastlines, and open space areas. The City of Rialto General Plan notes scenic vistas of the San Gabriel and San Bernardino Mountains and that the foothills of these mountains should be protected from certain parts of the City through the regulation of building heights, scale, and materials (City of Rialto 2010).

The Project site is approximately 10 miles southeast of the nearest mountain range, the San Gabriel Mountains. Views of these mountains are visible from Cactus Avenue, northwest of the Project site, as shown in Figure 3a looking northwest. Additionally, views of the San Bernardino Mountains are visible to the northeast from the southeast corner of the site (as shown in Figure 3a). However, due to the presence of existing intervening buildings within the Project site's vicinity, there are no direct unobstructed views of these scenic resources, as shown in Figures 3a and 3b. As part of the plan check and permitting process, consistency with the City's General Plan and Municipal Code would be ensured. For example, the General Plan outlines Goal 2-14 and Policies 2-14.1 through 2-14.3 for public realm interactions with scenic vistas. Goal 2-14 states, "Protect scenic vistas and scenic resources," Policy 2-14.1 states, "Protect views of the San Gabriel and San Bernardino Mountains by ensuring that building heights are consistent with the scale of surrounding, existing development," Policy 2-14.2 states, "Protect views of the La Loma Hills, Jurupa Hills, Box Spring Mountains, Moreno Valley, and Riverside by ensuring that building heights are consistent

with the scale of surrounding, existing development" and Policy 2-14.3 states, "Ensure use of building materials that do not produce glare, such as polished metals or reflective windows" (City of Rialto 2010). As discussed above, the Project would not conflict with the General Plan's goal and policies related to scenic vistas. Moreover, the Project's height, scale, and building materials would be in accordance with the City's Municipal Code for the site's designated M-1 zone. Therefore, the Project is not expected to substantially block views of scenic vistas. Impacts would be less than significant. No mitigation is required.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. A significant impact would occur in the event the Project site substantially damages scenic resources within an officially designated State scenic highway. The California Department of Transportation (Caltrans) California Scenic Highway Mapping System includes officially-designated and eligible State scenic highways within the Project site's vicinity (Caltrans 2023). The closest officially designated state scenic highway in San Bernardino County is a 16-mile portion of SR-38, approximately 32 miles northeast/east of the Project site. Given the distance, the Project site is not within the viewshed of this scenic highway. As such, the Project would not substantially damage scenic resources within the viewshed of SR-38. No impact would occur.

c) In non-urbanized areas, would the project 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. California Public Resources Code Section 21071 defines an "urbanized area" as "(a) an incorporated city that meets either of the following criteria: (1) Has a population of at least 100,000 persons, or (2) Has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons." As further discussed in Section 3.14, Population and Housing, 104,026 people were recorded in the 2020 Census (U.S. Census Bureau 2023). As such, the Project site is within an urbanized area. Therefore, a significant impact would occur in the event the Project conflicts with applicable zoning and other regulations governing scenic quality.

The City's General Plan and Municipal Code outline regulations related to scenic quality. For example, the Municipal Code sets building height limits at 75 feet (or up to six stories) for the M-1 zone. As shown in Figure 6, Elevations, the building is proposed to have a maximum height of approximately 46 feet and 6 inches, which would be well within the development potential for the Project site. Further, as previously mentioned in Section 3.1(a), the Project would not conflict with the General Plan's goal and policies related to scenic vistas based on the existing built environment surrounding the Project site (i.e., intervening structures). As such, the Project would not conflict with the City's zoning and regulations related to building height.

Additionally, the General Plan lists goals and policies related to signage, architectural and design quality, design standards for industrial development, parking lot design, and open space and landscaping. For example, Goal 2-9 states, "Protect residential, schools, parks, and other sensitive land uses from the impacts associated with industrial and trucking-related land uses, as well as commercial and retail areas" (City of Rialto 2010). Additionally, General Plan Policy 2-9.2 states, "Require all industrial development to

front on an improved street with appropriate front yard setbacks, landscaping, and façade and entrance treatments" (City of Rialto 2010). The Project is designed to meet the City's intent. For example, upon completion of Phase 2, the Project would be supported by a 10-foot landscaped setback on all sides with trees that surround the northern and western sides of the site. As such, the Project would provide design improvements to limit land use incompatibility from adjacent sensitive uses (e.g., Bob Murphy Community School and nearby single-family residences). Moreover, the Project site's frontage would include a landscaped berm, walls, and fencing along Rialto Avenue, thereby screening the proposed loading dock from public vantage points. In addition, views from the Pacific Electric Trail to the north would not be adversely affected by the implementation of the Project. Instead, the Project's proposed landscaping features would enhance existing conditions (as shown in Figure 3c) with the installation of trees, thereby, providing shading and visual character to the recreational trail.

Section 2.5 of this IS/MND lists the required approvals for Project implementation. The Project does not include a General Plan amendment from the site's existing land use designation of Light Industrial nor a zone change from the site's M-1 zoning. The Project would be required to comply with the provisions outlined in Chapter 18.61, Design Guidelines, for industrial buildings, of the Municipal Code, which includes regulations on site design, building design, materials and colors, fences, and walls, among others. In addition, the Project would adhere to the M-1 zone development standards related to signage, as outlined in Chapter 18.102, Regulation of Signs and Advertising Structures. Given this, as part of the plan check and permitting process, consistency with the City's General Plan and Municipal Code would be ensured prior to the Project's approval. Therefore, the Project would not conflict with the City's General Plan or Municipal Code, and impacts would be less than significant. No mitigation would be required.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. The Project site is located within a developed area as described in Chapter 2 of this IS/MND. As such, much of the surrounding area is currently exposed to numerous sources of lighting and glare, such as nighttime lighting from streetlights, windows, and headlights from vehicles. Additional lighting or lighting in new locations could result in potential effects if new sources of light trespass are introduced and if the light trespass affects light-sensitive receptors such that daytime and nighttime views would become adversely affected. Light-sensitive receptors are generally considered to be residential properties, and also may include hotel, hospital, or nursing home uses, where excessive light at night may impact the use of the property. Given this, the nearest light-sensitive receptor to the Project site is the single-family residential neighborhood approximately 91 feet to the north of the site.

New sources of light would be introduced during construction activities. Substantial sources of light would be limited by the City's Municipal Code, which limits construction activities to daytime hours through the City's noise regulations. For instance, from October 1 through April 30, Section 9.50.070 limits construction activities between 7:00 a.m. and 5:30 p.m. Monday through Friday, and between 8:00 a.m. and 5:00 p.m. on Saturday. From May 1 through September 30, construction is limited to 6:00 a.m. to 7:00 p.m. on Monday through Friday, and 8:00 a.m. to 5:00 p.m. on Saturday. Construction work is not permissible on Sunday or State holidays. Despite these limits, construction lighting is anticipated for nighttime use to provide security on the Project site. However, any nighttime lighting introduced would be limited in use and would be designed to prevent substantial light trespass onto nearby sensitive receptors.

Overall, the Project would be required to comply with Section 18.61.140, Lighting, of the Municipal Code, which regulates the style, material, and color of exterior lighting, limits spillover glare, and limits the level of lighting to not exceed one-half footcandle at any residential property line or one footcandle at any nonresidential property line. Once operational, the Project is required to provide illumination for security and safety, three streetlights, pedestrian paths, entrances, parking, and other work areas. All exterior lighting would be shielded/hooded to prevent light trespass onto nearby properties. Additionally, the proposed landscaping (including trees) installed along the Project site's boundaries would shield Project-related lighting. Furthermore, compliance with the City's lighting regulations would not result in substantial adverse effects.

Glare can also be produced during the daytime and is usually associated with reflective building materials, such as glass, stainless steel, aluminum, and photovoltaic panels. The Project would construct a painted concrete tilt-up industrial building. Although the Project would include some new reflective materials (i.e., windows), the Project as a whole would not result in a substantial new source of glare to the site's vicinity. Therefore, due to the Project's location, design, and compliance with applicable regulations, the Project would result in less than significant impacts related to new sources of substantial light or glare which adversely affect day or nighttime views in the area. No mitigation is required.

3.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to 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 Dept. Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to 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 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 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))?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 which, 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?	☐	☐	☐	☒

a) Would the project 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 located within urbanized area within the City of Rialto. According to the California Department of Conservation, the California Important Farmland Finder designates the Project site as "Urban and Built-up Land," which is defined as, "… occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel…" (DOC 2018). Given this, the Project site is not located on land identified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Further, Project implementation would not convert the aforementioned designated farmland to a non-agricultural use. No impact would occur.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. As discussed above in Section 2, Project Description, of this IS/MND, the Project site is zoned M-1 per the City's Zoning Map (City of Rialto 2013). The City's M-1 zoning designation allows for light manufacturing uses. Agricultural uses are not listed as a permitted use, according to Section 18.38.020 of the Municipal Code (City of Rialto 2023a). The Project would result in the construction of an industrial building on site. Implementation would not conflict with the existing zoning for agricultural use. In addition, according to the Williamson Act Contract Land Map, the Project site is designated as Urban and Built-Up Land, thus, no Williamson Act contract exists on site (DOC 2017). Thus, the Project would not conflict with an existing Williamson Act contract. No impact would occur.

c) Would the project 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 detailed in Section 3.2(b), the Project site is currently zoned M-1 and the City does not permit agricultural uses within this zoning designation. Similarly, the Project site's existing zoning also does not permit forest land, timberland, or Timberland Production (City of Rialto 2023a). Therefore, the Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned for Timberland Production. No impact would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The Project site and surrounding area consists of developed land uses under existing conditions. California Public Resources Code Section 12220(g) defines "Forest land" as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. "Timberland" is defined under Public Resources Code Section 4526 as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis. Given the existing conditions of the Project site, no forest land exists on site. Therefore, the Project would not result in the loss of forest land or the conversion of forest land to a non-forest use. No impact would occur.

e) Would the project involve other changes in the existing environment which, 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. No agricultural resources or forest land resources exist on site or within the Project site's vicinity. The Project would result in the redevelopment of the Project site into an industrial building. Implementation of the Project would not result in the conversion of Farmland to a non-agricultural use or the conversion of forest land to a non-forest use. No impact would occur.

3.3 Air Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY – 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 non-attainment under 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?	☐	☐	☒	☐

The following discussion and analysis are based on the findings included in the 160 N. Cactus Avenue Air Quality Impact Analysis report, included as Appendix A to this IS/MND, as well as the Mobile Source Health Risk Assessment, included as Appendix B.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The Project site is located within the South Coast Air Basin (SCAB), which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties and all of Orange County, and is within the jurisdictional boundaries of South Coast Air Quality Management District (SCAQMD).

The SCAQMD administers the Air Quality Management Plan (AQMP) for the SCAB, which is a comprehensive document outlining an air pollution control program for attaining all California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). The most recent adopted AQMP is the 2022 AQMP, which was adopted by the SCAQMD Governing Board in December 2022 (SCAQMD 2022). The 2022 AQMP has been prepared by SCAQMD to address the EPA's strengthened ozone standard.

The purpose of a consistency finding is to determine if a project is inconsistent with the assumptions and objectives of the regional air quality plans, and thus, if it would interfere with the region's ability to comply with federal and state air quality standards. The SCAQMD has established criteria for determining consistency with the currently applicable AQMP in Chapter 12, Sections 12.2 and 12.3, in the SCAQMD CEQA Air Quality Handbook. The criteria are as follows:

- Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the ambient air quality standards or interim emission reductions in the AQMP.
- Whether the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

To address the first criterion regarding the Project's potential to result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the ambient air quality standards or interim emission reductions in the AQMP, Project-generated criteria air pollutant emissions were estimated and analyzed for significance and are addressed under Section 3.3(b) of this IS/MND. Detailed results of this analysis are included in Appendix A. As presented in Section 3.3(b), construction and operation of the Project would not generate criteria air pollutant emissions that would exceed the mass daily regional SCAQMD thresholds. The Project would not conflict with the first criterion.

The second criterion regarding the Project's potential to exceed the assumptions in the AQMP or increments based on the year of Project buildout and phase is primarily assessed by determining consistency between the Project's land use designations and potential to generate population growth. In general, projects are considered consistent with, and would not conflict with or obstruct implementation of the AQMP if the growth in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook). The SCAQMD primarily uses demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by the Southern California Association of Governments (SCAG) for its

Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), which is based on general plans for cities and counties in the SCAB, for the development of the AQMP emissions inventory. The SCAG 2020-2045 RTP/SCS, and associated Regional Growth Forecast, are generally consistent with the local plans, and therefore, the 2022 AQMP is generally consistent with local government plans (Appendix A).

The Project site is zoned M-1, which is intended for the development of light industrial uses. Warehouse buildings are conditionally permitted within the M-1 zone. Further, the Project would not require a General Plan amendment or zone change; thus, the Project would be consistent with the land use assumed in the SCAG RTP/SCS forecasts and used in the SCAQMD AQMP development, and the Project would not conflict with the second criterion.

In summary, based on the considerations presented for the two criteria, impacts relating to the Project's potential to conflict with, or obstruct implementation of, the applicable AQMP would be less than significant. No mitigation is required.

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact. Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.

A quantitative analysis was conducted to determine whether the Project would result in a cumulatively considerable net increase in emissions of criteria air pollutants for which the SCAB is designated as nonattainment under the NAAQS or CAAQS. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}; course particulate matter), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$; fine particulate matter), and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) and oxides of nitrogen (NO_X), which are important because they are precursors to O_3, as well as CO, sulfur oxides (SO_X), PM_{10}, and $PM_{2.5}$.

Regarding NAAQS and CAAQS attainment status,[2] the SCAB is designated as a nonattainment area for federal and state O_3 and $PM_{2.5}$ standards (Appendix A). The SCAB is also designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. SCAB is designated as an attainment area for federal and state CO and NO_2 standards, as well as for state SO_2 standards. Although the SCAB has been designated as nonattainment for the

[2] An area is designated as in attainment when it is in compliance with the NAAQS and/or the CAAQS. These standards for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare are set by the U.S. Environmental Protection Agency and CARB, respectively. Attainment = meets the standards; attainment/maintenance = achieves the standards after a nonattainment designation; nonattainment = does not meet the standards.

federal rolling 3-month average lead standard, it is designated attainment for the state lead standard (Appendix A).[3]

The Project would result in emissions of criteria air pollutants for which the CARB and U.S. EPA have adopted ambient air quality standards (i.e., the NAAQS and CAAQS). Projects that emit these pollutants have the potential to cause, or contribute to, violations of these standards. The SCAQMD CEQA Air Quality Significance Thresholds, as revised in April 2019, set forth quantitative emission significance thresholds for criteria air pollutants, which, if exceeded, would indicate the potential for a project to contribute to violations of the NAAQS or CAAQS. Table 3.3-1 lists the revised SCAQMD Air Quality Significance Thresholds (Appendix A).

Table 3.3-1. SCAQMD Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	**Construction (Pounds per Day)**	**Operation (Pounds per Day)**
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3

Source: Appendix A.
Notes: SCAQMD = South Coast Air Quality Management District; VOCs = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; NO_2 = nitrogen dioxide; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the Project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

Construction Emissions

Proposed construction activities would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road vendor trucks, haul trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity; the specific type of operation; and, for particulate matter, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated.

The California Emissions Estimator Model (CalEEMod) Version 2022.1 was used to estimate emissions from construction of the Project. Internal combustion engines used by construction equipment, trucks, and worker vehicles would result in emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions would also be generated by entrained dust, which results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil. The Project would be required to comply with SCAQMD Rule 403 to control dust emissions generated during any dust-generating activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active dust

[3] The phase-out of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.

areas two times per day, with additional watering depending on weather conditions. The CalEEMod default assumptions were used for estimating fugitive dust emissions from grading on site. The Project would involve application of architectural coating (e.g., paint and other finishes) for painting the interior and exterior of the building as well as parking lot striping. Table 3.3-2 presents the estimated maximum daily construction emissions generated during construction of the project. Details of the emission calculations are provided in Appendix A.

As detailed in Section 2.4, Project Construction and Phasing, for the purposes of the environmental analysis contained herein, it is assumed that construction of Phase 1 and 2 would occur concurrently, commencing in January 2024 for 13 months, ending in January 2025. [4] This assumption is conservative because it represents a worst-case scenario when the most pieces of construction equipment would be operating on site, and thus, air pollutant emissions would be most concentrated. Should Phase 2 occur after Phase 1 is completed, impacts would be less than the impacts discussed herein, due to less pieces of equipment needed for asphalt paving and landscaping.

Table 3.3-2. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
	pounds per day					
Summer						
Year 1	5.00	47.20	39.60	0.06	8.44	5.07
Year 2	34.80	13.10	20.20	0.03	1.56	0.75
Winter						
Year 1	2.84	25.60	22.70	0.03	3.96	2.36
Year 2	1.64	13.20	18.80	0.03	1.56	0.75
Maximum Daily Emissions	**34.80**	**47.20**	**39.60**	**0.06**	**8.44**	**5.07**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix A
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
Emissions include compliance with SCAQMD Rules 403 and use of low-VOC architectural coatings (i.e., no more than 50 grams per liter VOC content) for building interiors and exteriors.
See Appendix A for complete results.

As shown in Table 3.3-2, Project construction would not exceed SCAQMD's daily thresholds during construction. Therefore, construction impacts associated with criteria air pollutant emissions would be less than significant.

Operational Emissions

Emissions from the operational phase of the Project and existing land uses were estimated using CalEEMod. Table 3.3-3 presents the net change maximum daily area, energy, mobile, and off-road source

[4] The technical report prepared for this IS/MND assumed a construction start date of August 2023 for a duration of 13 months. In practice, construction is anticipated to begin at a later date (i.e., January 2024). However, using an earlier start date for construction represents the worst-case scenario construction impacts because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

emissions associated with operation of the Project and operation of the existing land uses and the estimated net change in emissions (project minus the existing scenario). The values shown are the maximum summer or winter daily emissions (i.e., worst-case) results from CalEEMod. Details of the emission calculations are provided in Appendix A.

Table 3.3-3. Estimated Maximum Daily Operation Criteria Air Pollutant Emissions

Emissions Source	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer						
Mobile	0.78	12.00	10.70	0.11	2.06	0.58
Area	4.79	0.06	6.94	<0.01	0.01	0.01
Energy	0.04	0.82	0.68	<0.01	0.06	0.06
On-Site Equipment	0.12	0.38	16.44	0.00	0.03	0.03
Project Maximum Daily Emissions	**5.73**	**13.26**	**34.76**	**0.11**	**2.16**	**0.68**
Existing Emissions	3.22	5.92	27.99	0.04	1.15	0.36
Total Maximum Daily Emissions	**2.51**	**7.34**	**6.77**	**0.07**	**1.01**	**0.32**
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Winter						
Mobile	0.74	12.50	10.10	0.11	2.06	0.58
Area	3.65	0.00	0.00	0.00	0.00	0.00
Energy	0.04	0.82	0.68	<0.01	0.06	0.06
On-Site Equipment	0.12	0.38	16.44	0.00	0.03	0.03
Project Maximum Daily Emissions	**4.55**	**13.70**	**27.22**	**0.11**	**2.15**	**0.67**
Existing Emissions	2.63	6.13	23.90	0.04	1.15	0.35
Total Maximum Daily Emissions	**1.92**	**7.57**	**3.32**	**0.07**	**1.00**	**0.32**
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix A
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
See Appendix A for complete results. Columns may not add due to rounding. Values of "<0.01" indicate that the estimated emissions are less than two decimals.

As shown in Table 3.3-3, the net increase in criteria air pollutant emissions associated with Project operations would not exceed SCAQMD's operational significance thresholds and, therefore, operational impacts associated with criteria air pollutant emissions would be less than significant.

In considering cumulative impacts from a project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SCAB is designated as nonattainment for the CAAQS and NAAQS. If a project's emissions would exceed SCAQMD's significance thresholds, it would be considered to have a cumulatively considerable contribution to nonattainment status in the SCAB. If a project does not exceed thresholds and is determined to have less than significant project-specific impacts, it may still contribute to a significant cumulative impact on air quality. The basis for analyzing the Project's cumulatively considerable contribution is if the Project's contribution accounts for a significant

proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact) and consistency with SCAQMD's 2022 AQMP, which addresses cumulative emissions in the SCAB.

The SCAB has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$ and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. Construction of the Project would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. As indicated in Tables 3.3-2 and 3.3-3, Project-generated construction and operational emissions would not exceed SCAQMD's emission-based significance thresholds for VOC, NO_x, CO, SO_2, PM_{10}, or $PM_{2.5}$.

Cumulative localized impacts would potentially occur if a construction project were to occur concurrently with another off-site project. Construction schedules for potential future projects near the Project site are currently unknown; therefore, potential construction impacts associated with two or more simultaneous projects would be speculative.[5] However, future projects would be subject to CEQA and would require an air quality analysis and, where necessary, mitigation if the project would exceed SCAQMD's significance thresholds. Criteria air pollutant emissions associated with construction activity of future proposed projects would be reduced through implementation of control measures required by SCAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all construction sites in the SCAQMD.

Based on the previous considerations, the Project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants, and cumulative impacts would be less than significant.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Localized Project impacts associated with construction criteria air pollutant emissions are assessed below.

Localized Significance Thresholds

The SCAQMD recommends a localized significance threshold (LST) analysis to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of a project site as a result of construction activities. In addition to the mass-daily emission-based thresholds listed in Table 3.3-1, SCAQMD also recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the Project as a result of construction and operational activities. Sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest sensitive-receptor is the existing residence, located at 189 N. Fillmore Avenue, approximately 91 feet north of from the Project site.

[5] The CEQA Guidelines state that if a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact (14 CCR 15145). This discussion is nonetheless provided in an effort to show good-faith analysis and to comply with CEQA's information disclosure requirements.

The Project site is located in Source Receptor Area (SRA) 34 (Central San Bernardino Valley). Based on the SCAQMD's LST Methodology, emissions for concern during construction activities are on-site NO_x, CO, PM_{10}, and $PM_{2.5}$. The LST Methodology clearly states that "off-site mobile emissions from the Project should not be included in the emissions compared to LSTs" (Appendix A). As such, only on-site construction emissions are considered. According to Appendix A, the Project's construction activities could actively disturb approximately 1.0 acre per day during demolition, 3.5 acres per day during site preparation, and 2.5 acres per day during grading activities. The analysis conservatively assumes that 5 acres can be disturbed during grading activities (Appendix A). Since the total acreage disturbed is less than five acres per day for demolition/crushing, site preparation, and grading activities, the SCAQMD's screening look-up tables are utilized in determining impacts (Appendix A).

Table 3.3-4 identifies the localized impacts at the nearest receptor location in the vicinity of the Project site. As shown, localized construction emissions would not exceed the applicable SCAQMD LSTs for emissions of any criterial pollutant. Therefore, impacts would be less than significant. No mitigation is required.

Table 3.3-4. Localized Construction-Source Emissions

Construction Activity	Scenario	NOx	CO	PM_{10}	$PM_{2.5}$
		Pounds per Day			
Demolition (Year 1)	Maximum Daily Emissions	27.30	23.50	4.47	1.60
	SCAQMD Localized Threshold	118	667	5	3
	Threshold Exceeded?	**No**	**No**	**No**	**No**
Site Preparation (Year 1)	Maximum Daily Emissions	47.00	38.00	8.19	5.02
	SCAQMD Localized Threshold	220	1,359	13	6
	Threshold Exceeded?	**No**	**No**	**No**	**No**
Grading (Year 1)	Maximum Daily Emissions	25.40	21.60	3.75	2.31
	SCAQMD Localized Threshold	187	1,101	10	5
	Threshold Exceeded?	**No**	**No**	**No**	**No**

Source: Appendix A
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
See Appendix A for complete results.

The Project site is approximately 8.15 acres in size. For projects that exceed five acres, the 5-acre LST look-up tables can be used as a screening tool to determine whether pollutants require additional detailed analysis; thus, this analysis assumes the most conservative approach for all on-site emission associated with Project operations. The LST analysis generally includes on-site source (area, energy, mobile, and on-site cargo handling equipment). Table 3.3-5 reveals operational emissions would not exceed the LSTs for the nearest sensitive receptor. Therefore, the Project would have a less than significant localized impact during operational activity. No mitigation is required.

Table 3.3-5. Localized Significance Summary of Operations

Scenario	NOx	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day			
Summer	2.64	26.21	0.12	0.11
Winter	2.64	19.48	0.11	0.10
Maximum Daily Emissions	**2.64**	**26.21**	**0.12**	**0.11**
SCAQMD Localized Threshold	270	1,746	5	2
Threshold Exceeded?	**No**	**No**	**No**	**No**

Source: Appendix A
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
See Appendix A for complete results.

CO Hotspots

Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state standards for CO are termed CO "hotspots." CO transport is extremely limited and disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels affecting sensitive receptors. Typically, high CO concentrations are associated with severely congested intersections operating at an unacceptable level of service (LOS) (LOS E or worse is unacceptable). Projects contributing to adverse traffic impacts may result in the formation of a CO hotspot. Additional analysis of CO hotspot impacts would be conducted if a project would result in a significant impact or contribute to an adverse traffic impact at a signalized intersection that would potentially subject sensitive receptors to CO hotspots.

Title 40 of the Code of Federal Regulations, Section 93.123(c)(5), Procedures for Determining Localized CO, PM_{10}, and $PM_{2.5}$ Concentrations (Hot-Spot Analysis), states that "CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities, which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site" (40 CFR 93.123). While Project construction would involve on-road vehicle trips from trucks and workers during construction, construction activities would last approximately 12 months and would not require a project-level construction hotspot analysis.

For long-term operations, as provided in Appendix J of this IS/MND, the Project screened out of focused analysis for vehicle-miles traveled (VMT) and LOS because it would result in a net 93 vehicle trips (Appendix J). Based on these considerations, the Project would not generate traffic that would contribute to potential adverse impacts that may result in the formation of CO hotspots. Therefore, impacts would be less than significant. No mitigation is required.

Toxic Air Contaminants

A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute (immediate) and/or chronic (cumulative) non-cancer health effects. A toxic substance released into the air is considered a toxic air contaminant (TAC). Adverse

health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

TACs are identified by federal and state agencies based on a review of available scientific evidence. In California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills.

Project construction would result in emissions of diesel particulate from heavy construction equipment and trucks accessing the site. Diesel particulate is characterized as a TAC by the State of California. The Office of Environmental Health Hazard Assessment (OEHHA) has identified carcinogenic and chronic noncarcinogenic effects from long-term exposure, but has not identified health effects due to short-term exposure to diesel exhaust. According to the OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period/duration of activities associated with the project (OEHHA 2015). Thus, the duration of the proposed construction activities would only constitute a small percentage of the total 30-year exposure period. Due to this relatively short period of exposure (12 months) and minimal localized particulate emissions on site (as identified in Table 3.3-4 above), TACs generated by the Project would not result in concentrations causing significant health risks. Overall, the Project would not result in substantial TAC exposure to sensitive receptors in the vicinity of the Project site, and impacts would be less than significant. No mitigation is required.

Health Risk Assessment

The health risk assessment prepared for the Project (Appendix B) evaluated the potential mobile source health risk impacts to sensitive receptors (residents and schools) and adjacent workers associated with the development of the Project. Specifically, the report analyzed health risk impacts from exposure to diesel particulate matter (DPM) as a result of heavy-duty diesel trucks accessing the Project site.

Residential Exposure Scenario

Construction. The land use with the greatest potential exposure to Project-related DPM-source emissions is an existing residence located approximately 91 feet north of the Project site. At the maximally exposed individual receptor, the maximum incremental cancer risk attributable to Project DPM-source emissions is estimated at 6.30 in 1 million, which is less than the SCAQMD significance threshold of 10 in 1 million. At this same location, non-cancer risks were estimated to be <0.01, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent residences (Appendix B).

Operation. The land use with the greatest potential exposure to Project-related DPM-source emissions during operations is an existing residence located approximately 91 feet north of the Project site. At the maximally exposed individual receptor, the maximum incremental cancer risk attributable to Project DPM-source emissions is estimated at 0.12 in 1 million, which is less than the SCAQMD significance threshold of 10 in 1 million. At this same location, non-cancer risks were estimated to be <0.01, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent residences (Appendix B).

Worker Exposure Scenario

The worker receptor land use with the greatest potential exposure to Project-related DPM-source emissions is located approximately 33 feet west of the Project site at Bob Murphy Community School. At the maximally exposed individual worker, the maximum incremental cancer risk impact at this location is 0.05 in 1 million, which is less than the threshold of 10 in 1 million. Maximum non-cancer risks at this same location were estimated to be <0.01, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent workers (Appendix B).

School Child Exposure Scenario

The nearest school is Bob Murphy Community School, which is located approximately 33 feet west of the Project site. At the maximally exposed individual worker, the maximum incremental cancer risk impact at this location is 0.11 in 1 million, which is less than the threshold of 10 in 1 million. Maximum non-cancer risks at this same location were estimated to be <0.01, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to nearby school children (Appendix B).

Health Impacts of Criteria Air Pollutants

Construction of the Project would generate criteria air pollutant emissions; however, the Project would not exceed the SCAQMD mass-emission thresholds.

The SCAB is designated as nonattainment for O_3 for the NAAQS and CAAQS. Thus, existing O_3 levels in the SCAB are at unhealthy levels during certain periods. The health effects associated with O_3 generally relate to reduced lung function. Because the Project would not involve construction activities that would result in O_3 precursor emissions (VOC or NO_x) that would exceed the SCAQMD thresholds, the Project is not anticipated to substantially contribute to regional O_3 concentrations and associated health impacts. Similar to construction, no SCAQMD threshold would be exceeded during operation.

In addition to O_3, NO_x emissions contribute to potential exceedances of the NAAQS and CAAQS for NO_2 (since NO_2 is a constituent of NO_x). Exposure to NO_2 can cause lung irritation, bronchitis, and pneumonia, and lower resistance to respiratory infections. As depicted in Table 3.3-4, Project construction and operation would not exceed the SCAQMD localized thresholds for NO_2. Thus, construction and operation of the Project are not expected to exceed the NO_2 standards or contribute to associated health effects.

CO tends to be a localized impact associated with congested intersections. CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. CO

hotspots were discussed previously as a less than significant impact. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

The SCAB is designated as nonattainment for PM_{10} under the CAAQS and nonattainment for $PM_{2.5}$ under the NAAQS and CAAQS. Particulate matter contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. As with O_3 and NO_x, the Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed SCAQMD's LSTs. Accordingly, the Project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, the Project would not result in any potentially significant contribution to local or regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be less than significant. No mitigation is required.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the Project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and asphalt pavement application. Such odors would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people. During the Project's long-term operations, the temporary storage of typical solid waste (refuse) would be stored in covered containers and removed at regular intervals in compliance with current solid waste regulations. The Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances.

SCAQMD provides a list of land uses associated with odor concerns, which include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (Appendix A). The Project would replace existing industrial uses with a new warehouse building and would not create any new sources of odor during operation. Therefore, Project operations would result in an odor impact that is less than significant. No mitigation is required.

3.4 Biological Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – 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, 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, marsh, vernal pool, coastal, 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?	☐	☐	☐	☒

a) Would the project 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 Impact With Mitigation Incorporated. A significant impact would occur of a project were to remove or modify habitat for any species identified or designated as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the state or federal regulatory agencies cited above. The Project site is located in a developed area of the City and currently consists of

industrial uses. The Project site is surrounded by development primarily consisting of a residential, educational, and industrial land uses. Due to the built environment, it is unlikely that special-status plants or animals would occur on or near the Project site.

Based on desktop research of the Project site and area, which included a review of the latest aerial and street view imagery (Google 2022) and expertise in the Project vicinity, no native habitat is located on the Project site or on the adjacent properties. As such, no special-status species, including listed or rare species, are expected to occur on the Project site, due to the absence of suitable habitat. However, the Project site supports ornamental, non-native trees (i.e., palm trees), and shrubs that could provide nesting habitat for common birds and raptors protected under the Migratory Bird Treaty Act (MBTA) (16 USC 703–712) and California Fish and Game Code Sections 3503, 3503.5, and 3513. Vegetation removal and other construction activities could negatively affect individual birds or raptors that are nesting on or within the vicinity of the Project site. Vegetation removal could adversely affect or kill a nesting bird or raptor, and construction activities would also elevate noise levels and could cause disturbance to protected bird/raptor species nesting on site or adjacent to the construction areas. Construction could potentially occur during breeding, reproduction, and juvenile rearing periods for nesting birds and raptors (i.e., between February 15–August 31). Thus, there is potential for construction activities and construction noise to negatively affect breeding or reproduction of bird and/or raptor species on or adjacent to Project site. As such, Mitigation Measure (MM)-BIO-1 is incorporated, which would ensure compliance with the MBTA and California Fish and Game Code to reduce potentially significant impacts. Once the Project has been constructed, construction-related disturbances would not occur, and landscaping trees would be planted throughout the Project site. As such, the Project site would continue to provide potential nesting sites in an urban environment, consistent with existing conditions. Therefore, long-term impacts to nesting and migratory birds would not be significant.

Given the above, impacts to special-status plants or wildlife would be less than significant with mitigation incorporated. No additional mitigation is required.

MM-BIO-1 Nesting Birds. Initiation of construction activities (i.e., initial vegetation clearing) should avoid the migratory bird nesting season (February 15 through August 31), to reduce any potential significant impact to birds that may be nesting on the Project site. If construction activities must be initiated during the migratory bird-nesting season, an avian nesting survey must be conducted for protected migratory birds, raptors, and active nests. A qualified biologist shall survey the construction zone and a 250-foot radius surrounding the construction zone in areas that are accessible visually. The avian nesting survey shall be performed by a qualified wildlife biologist within 72 hours prior to the start of construction in accordance with the Migratory Bird Treaty Act and California Fish and Game Code.

If an active bird nest is found, the nest shall be flagged and mapped on the construction plans along with an appropriate no disturbance buffer, which will be determined by the biologist based on the species' sensitivity to disturbance (typically 50 feet for common, urban-adapted species, 300 feet for other passerine species, and 500 feet for raptors and special-status species). The nest area shall be avoided until the nest is vacated and the juveniles have fledged. The nest area shall be demarcated in the field with flagging and stakes or construction fencing. A qualified biologist (with the ability to stop work) shall serve

as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests occur.

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

Less Than Significant Impact. A significant impact would occur if riparian habitat or any other sensitive natural community identified locally, regionally, or by the State and federal regulatory agencies cited would be adversely modified by a project. The Project site is located in a developed area and consists of industrial uses. There are no riparian or wetland areas on the Project site. Given this, the Project would not adversely affect any riparian habitat or other sensitive natural communities, since no such resources are present on the Project site or in the vicinity of the Project site. Less than significant impacts would occur. No mitigation is required.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant. The Project site is located in an entirely developed area and consists of existing, on-site, industrial uses. Additionally, no National Wetlands Inventory (NWI)-mapped 'blue line' wetlands are mapped on the Project site (USFWS 2018). An existing portion of a rip-rap-lined flood control channel with no direct on-site connectivity is located on the northeastern side of the Project site. During construction activities, Phase 1 of the proposed impact area for the Project would be located within existing developed areas west of the flood control channel, and construction work would occur within the existing fencing separating the construction staging area from the reach. No direct impacts would occur to this drainage during Phase 1 construction activities. Due to proximity of the reach to the Project site there is potential for indirect impacts to occur related to erosion, runoff, and dust. Because the Project would involve construction on an area greater than 1 acre, it would require compliance with the General Construction Activity NPDES Permit (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, NPDES No. CAS000002), which requires the preparation of and compliance with a SWPPP. The SWPPP must include erosion control measures such as covering exposed soil stockpiles, protecting the perimeter of the construction site with sediment barriers, and protecting storm drain inlets. Additionally, the Project would be required to comply with SCAQMD Rule 403, for fugitive dust. Compliance with these requirements would ensure that indirect impacts during Phase 1 of the Project would be less than significant.

Phase 2 of the Project would occur after completion of the SBCFCD project at the site (as detailed in Section 2.4, above). The existing rip-rap channel would be reconstructed into an underground drainage, which would match the conditions of the existing, on-site portion of the reach south of the currently-exposed reach. Upon completion of the SBCFCD project, the reach would be covered on-site. At this point, Phase 2 of the Project would be implemented. If the SBCFCD project is approved and permitted, and construction is ready to begin at the time that the proposed Project is ready to construct, then Phase 2 of the Project may occur concurrently with the SBCFCD project. For the purposes of the environmental analysis contained herein, it is assumed that construction of Phases 1 and 2 would occur concurrently, commencing in January 2024

for 13 months, ending in January 2025.[6] Phase 2 would include landscaping and asphalt paving over the reach, which would be covered and able to withstand paving and landscaping. The Project Applicant would be required to comply with all SBCFCD requirements for paving and landscaping over the reach, and this would ensure less than significant impacts on state or federally protected wetlands or waters. As such, there would be less than significant impacts and no mitigation is required.

d) Would the project 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 With Mitigation Incorporated. A significant impact would occur if a project were to interfere or remove access to a migratory wildlife corridor or impede the use of native wildlife nursery sites. The Project site is located in a developed area and consists of industrial uses. The Project site's vicinity consists of similar land uses, including residential, educational, and industrial development as well as roadways. There are no migratory wildlife corridors or native wildlife nursery sites on or near the Project site to support wildlife species. As mentioned in Section 3.4(a), there are trees on and adjacent to the Project site that would have the potential to provide potential nesting sites for birds and raptors that are protected under the MBTA (16 USC 703–712) and California Fish and Game Code Sections 3503, 3503.5, and 3513. Construction could potentially occur during breeding, reproduction, and juvenile rearing periods for nesting birds and raptors (i.e., between February 15–August 31). Thus, there is potential for construction activities and construction noise to negatively affect breeding or reproduction of bird and/or raptor species on or adjacent to Project site. Incorporation of MM-BIO-1 would ensure compliance with the MBTA and California Fish and Game Code, and thus, would reduce this impact to be less than significant. Once the Project has been constructed, construction-related disturbances would not occur, and landscaping trees would be planted throughout the Project site.

Additionally, as discussed in Section 3.4(c), above, the Project site includes an existing flood control channel on the northeastern side of the site. During construction activities, Phase 1 of the Project would occur within existing developed areas west of the flood control channel, and construction work would occur within the existing fencing separating the construction staging area from the reach. No direct impacts would occur to this drainage during Phase 1 construction activities. Due to the proximity of the channel to construction activities, there is potential for indirect impacts to occur related to erosion, runoff, and dust onto native resident or migratory fish. Compliance with the General Construction Activity NPDES Permit (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, NPDES No. CAS000002), would require the preparation of and compliance with a SWPPP, which includes erosion control measures to protect the perimeter of the construction site with sediment barriers, and protecting storm drain inlets. Compliance with these requirements would ensure that indirect impacts during Phase 1 of the Project would be less than significant.

Given the above discussion, the Project site would continue to provide potential nesting sites in an urban environment, consistent with existing conditions. Therefore, long-term impacts to nesting and migratory birds would not be significant. In addition, the Project would protect the movement of any native resident

[6] Preliminary information from SBCFCD suggests that the design of the Rialto Channel Drainage Improvement project will be completed in 2023 and that SBCFCD will begin construction sometime thereafter once all required environmental clearances and rights-of-way have been secured. It is anticipated that the County will complete the portion located within the Project site approximately 18 to 24 months after the initial commencement of construction of the Rialto Channel Drainage Improvement project. See Section 2.4, Project Construction and Phasing, for more details.

or migratory fish from indirect impacts associated with the Project's construction activities with the compliance of existing regulations. Impacts would be less than significant with mitigation incorporated. No mitigation is required.

e) ***Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?***

No Impact. A project-related significant adverse effect could occur if a project were to cause an impact that is inconsistent with local regulations pertaining to biological resources, such as the provisions outlined in Chapter 11.08, Street Trees – Vegetation, of the Municipal Code. The City regulates the relocation and replacement of public trees. However, as mentioned previously, the Project site contains limited existing trees on site, which would be removed for the development of the Project. Moreover, there is no applicable tree preservation policy within the City's regulations for the Project, as the Project site's limited vegetation is on private property. Given this, the Project would result in no impact related to consistency with local policies or ordinances protecting biological resources.

f) ***Would the project 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. A significant impact would occur if a project were inconsistent with policies in any draft or adopted conservation plan. The Project site is located in an urbanized area of the City. The City's General Plan does not designate the Project site as being within a habitat conservation plan (City of Rialto 2010). Furthermore, the Project area is not within any of the regional conservation plans designated by the State (CDFW 2019). Therefore, no impact related to conflicts with an adopted plan would result with implementation of the Project.

3.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – 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 formal cemeteries?	☐	☐	☒	☐

The following discussion and analysis are based on the findings included in the Cultural Resources Search Results for the 160 North Cactus Avenue Project, Rialto, San Bernardino County, California (BCR Consulting Project No. LPC2201), included as Appendix C to this IS/MND.

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

No Impact. Based on the findings included in the Cultural Resources Record Search Results (Appendix C), nine previous studies have been completed within one-half mile of the Project site and no cultural resources were recorded. In addition, the Project site has not been subject to a previous cultural resources assessment and no cultural resources have been previously recorded within its boundaries.

A resource is generally considered "historically significant" if the resource meets at least one of the four criteria for listing on the CRHR (California Public Resources Code Section 5024.1[a]). The CRHR is used as a guide by state and local agencies, private groups, and citizens to identify the state historical resources and to include which properties are to be protected, to the extent prudent and feasible, from substantial adverse change. The CRHR evaluation criteria are similar to the NRHP criteria but focus on resources of importance to California history and prehistory. For a property to be eligible for inclusion in the CRHR, it must meet one or more of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of California history and cultural heritage;
2. It is associated with the lives of persons important in our past;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. It has yielded, or may be likely to yield, important information in prehistory or history.

The CRHR may also include various other types of historical resources that meet the criteria for eligibility, including the following:

1. Individual historic resources
2. Resources that contribute to a historic district
3. Resources identified as significant in historic resource surveys
4. Resources with a significance rating of Category 3 through Category 5 in the State Inventory (Categories 3 and 4 refer to potential eligibility for the NRHP; Category 5 indicates a property with local significance)

Although the NRHP standard includes the evaluation of resources that are 50 years old or older, the California Office of Historic Preservation endorses recording and evaluating resources over 45 years of age to accommodate the 5-year lag in the planning process.

The Project site appears to have been developed and paved since 1994 (Appendix C) and previously used for industrial purposes in 1989 and as farmland from 1949 to 1968 (Appendix F). There are no buildings on-site older than 45 years old. Results of the Cultural Resources Record Search Results and historical imagery indicated that the Project site does not contain any nor has it contained any known historical properties as defined by CEQA (Appendix C, Appendix F). Further, the subject property is not located within a historic district, nor is it a contributor to a potential district of similar properties, which individually may lack significance; therefore, no impact associated with historical resources would occur.

As such, the Project's proposed activities are unlikely to encounter significant undisturbed cultural deposits. Due to the fact that no historical resources are present within the Project site, the Project would have a no impact on historical resources. No mitigation is required.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less Than Significant Impact With Mitigation Incorporated. Similar to the finding discussed in Section 3.5(a), above, the Project site has not been subject to a previous cultural resources assessment and no cultural resources have been previously recorded within its boundaries. In addition, nine previous studies have been completed within one-half mile of the Project site and no cultural resources were recorded (Appendix C). Although the Project site is not anticipated to be sensitive for cultural resources (i.e., archaeological resources), ground disturbing activities have the potential to reveal buried deposits not observed on the surface during previous surveys. According to the Geotechnical Engineering Investigation (Appendix D), grading is estimated to consist of evacuations approximately 5 feet in depth for the recommended removal and recompaction of existing unsuitable soils.

In the event that unanticipated archaeological resources are encountered during Project implementation, impacts to these resources could be potentially significant. However, incorporation of MM-CUL-1 would ensure that potential impacts would be reduced to less than significant. MM-CUL-1 requires an inadvertent discovery clause, written by an archaeologist, to be added to all construction plans associated with ground disturbing activities. In addition, MM-CUL-1 would require that a qualified archaeologist is retained to be on-call to respond to inadvertent discoveries during Project construction, and requires that all construction work occurring within 50 feet of any find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Qualification Standards for Archaeology, can evaluate the significance of the find. Thus, potentially significant impacts to archaeological resources would be reduced to less-than-significant levels with MM-CUL-1 incorporated. No additional mitigation is required.

MM-CUL-1 Inadvertent Discovery. Prior to commencement of construction activities, an inadvertent discovery clause, written by an archaeologist, shall be added to all construction plans associated with ground disturbing activities and the Project Applicant shall retain a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for Archaeology. If potential archaeological resources (i.e., sites, features, or artifacts) are exposed during construction activities for the Project, the City of Rialto shall be notified and all construction work occurring within 50 feet of the find shall immediately stop until a qualified archaeologist can evaluate the significance of the find and determine whether or not additional study is warranted. The archaeologist shall be empowered to temporarily stop or redirect grading activities to allow removal of abundant or large artifacts. Construction activities may continue in other areas outside of the designated protection zone, which shall be delineated with cones, flagging, or fencing. The archaeologist shall evaluate the significance of the find and determine whether the resource uncovered is a "Tribal Cultural Resources" pursuant to Section 21074 of the California Public Resources Code, or a "unique archaeological resource" pursuant to Section 21083.2(g) of the California Public Resources Code or a "historical resource" pursuant to Section 15064.5(a) of the State CEQA Guidelines. Depending upon the significance of the find under the California Environmental Quality Act (CEQA) (14 CCR 15064.5[f]; PRC, Section 21082), the archaeologist may simply record the find and allow

work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan and data recovery, may be warranted. The archaeologist shall also be required to curate any discovered specimens in a repository with permanent retrievable storage and submit a written report to the City of Rialto for review and approval prior to occupancy of the first building on the site. Once approved, the final report shall be filed with the South Central Coastal Information Center (SCCIC).

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less Than Significant Impact. There is no indication that human remains are present within the Project site (Appendix C). However, in the unlikely event that excavation activities inadvertently discover buried human remains, recovery activities must be conducted in accordance with Section 7050.5 of the California Health and Safety Code regarding the potential discovery of human remains. In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the San Bernardino County Coroner must be notified within 24 hours of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains may occur until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, s/he must notify the Native American Heritage Commission (NAHC) in Sacramento within 48 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the Most Likely Descendant of the deceased Native American. The Most Likely Descendant must complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the proper treatment of the human remains. Additionally, although not required to reduce impacts to human remains to less than significant, the Project would also comply with MM-TCR-1 and MM-TCR-5, as included in Section 3.18, Tribal Cultural Resources. Therefore, compliance with state law (California Public Resources Code and Health and Safety Code) would ensure that potential impacts related to the disturbance of any human remains would be less than significant, and no mitigation is required.

3.6 Energy

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Energy – 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?	☐	☐	☒	☐

The following discussion and analysis are primarily based on the findings included in the 160 N. Cactus Avenue Greenhouse Gas Analysis report, included as Appendix E to this IS/MND. Information from the CalEEMod 2022.1 outputs for the Project were utilized in this analysis, detailing Project-related construction equipment, transportation energy demands, and facility energy demands, from Appendix E.

a) Would the project 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. The electricity used for construction of the Project would be temporary (on the order of months), would be less than that required for Project operation, and would have a negligible contribution to the Project's overall energy consumption. The Project would not use natural gas during construction activities. Although the Project would see an increase in petroleum use during construction and operation, vehicles would use less petroleum due to advances in fuel economy and potential reduction in vehicle miles traveled over time.

Construction

Electricity

Temporary electric power for as-necessary lighting and electronic equipment (such as computers inside temporary construction trailers) would be provided by Southern California Edison. The electricity used for such activities would be temporary (on the order of months), would be less than that required for Project operation, and would have a negligible contribution to the Project's overall energy consumption.

Natural Gas

Natural gas is not anticipated to be required during construction of the Project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the Petroleum subsection. Any minor amounts of natural gas that may be consumed as a result of Project construction would be substantially less than that required for Project operation and would have a negligible contribution to the Project's overall energy consumption.

Petroleum

Heavy-duty construction equipment associated with construction activities would rely on diesel fuel. Construction workers would travel to and from the Project site throughout the duration of construction. Heavy-duty construction equipment of various types would be used during each phase of Project construction. Appendix E lists the assumed equipment usage for each phase of construction.

Fuel consumption from construction equipment was estimated by converting the total CO_2 emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Construction is estimated to occur in 2023 and 2024 based on the construction phasing schedule. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton of CO_2 per gallon (The Climate Registry 2020). The estimated diesel fuel usage from construction equipment is shown in Table 3.6-1, Construction Equipment Diesel Demand.

Table 3.6-1. Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)	kg/CO_2/Gallon	Gallons
Demolition	6	23.3	10.21	2,282.1
Site Preparation	7	37.6	10.21	3,682.7
Grading	6	32.7	10.21	3,202.7
Building Construction	9	197.2	10.21	19,314.4
Paving	8	20.9	10.21	2,047.0
Architectural Coating	5	8.0	10.21	783.5
			Total Diesel Demand from Construction Equipment	**31,312.4**

Sources: Pieces of equipment and equipment CO_2 (Appendix E); kg/CO_2/Gallon (The Climate Registry 2020).
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.

Fuel consumption from worker and vendor trips is estimated by converting the total CO_2 emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are assumed to use gasoline and vendor vehicles are assumed to use diesel fuel. The Project also includes haul truck trips for the export of demolition materials. Calculations for total worker, vendor truck and haul truck fuel consumption are provided in Table 3.6-2.

Table 3.6-2. Construction Worker and Vendor Gasoline and Diesel Demand

Phase	No. of One-Way Trips per Day	Vehicle MT CO_2	kg/CO_2/Gallon	Gallons
Worker (Gasoline)				
Demolition	15	1.39	8.78	158.31
Site Preparation	17.5	1.63	8.78	185.65
Grading	15	2.14	8.78	243.74
Building Construction	67.1	67.5	8.78	7,687.93
Paving	20	2.67	8.78	304.10
Architectural Coating	13.4	1.87	8.78	212.98
			Subtotal	*8,792.71*
Vendor (Diesel)				
Demolition	1.48	0.32	10.21	31.34
Site Preparation	1.48	0.32	10.21	31.34
Grading	2.27	0.75	10.21	73.46
Building Construction	16.3	38.38	10.21	3,759.06
Paving	2.17	0.68	10.21	66.60
Architectural Coating	2.27	0.74	10.21	72.48
			Subtotal	*4,034.28*
Hauling (Diesel)				
Demolition	59.7	29	10.21	2,840.35
Site Preparation	0	0	10.21	0

Grading	0	0	10.21	0
Building Construction	0	0	10.21	0
Paving	0	0	10.21	0
Architectural Coating	0	0	10.21	0
			Subtotal	*2,840.35*
			Total Gasoline Consumption from Worker Vehicles	**8,792.71**
			Total Diesel Consumption from Vendor Vehicles	**6,874.63**

Sources: Trips and vehicle CO_2 (Appendix E); kg/CO_2/Gallon (The Climate Registry 2020).
Notes: MT = metric ton; CO2 = carbon dioxide; kg = kilogram.

In summary, construction of the Project is anticipated to consume approximately 8,793 gallons of gasoline and approximately 38,187 gallons of diesel (including construction equipment diesel demand from Table 3.6-1) over the course of 13 months. The Project will be subject to CARB's In-Use Off-Road Diesel Vehicle Regulation that applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation (1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; (2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; (3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and (4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The fleet must either show that its fleet average index was less than or equal to the calculated fleet average target rate, or that the fleet has met the Best Achievable Control Technology requirements. The Project is also located in an urban area and worker, vendor, and haul truck trip lengths would be shorter compared to a suburban project location, resulting in less energy use. Therefore, impacts to energy resources during construction would be less than significant.

Operation

Electricity

Operation of the Project would require electricity for multiple purposes, including cooling, lighting, and appliances. Additionally, the supply, conveyance, treatment, and distribution of water would indirectly result in electricity usage. Electricity consumption associated with Project operation is based on the CalEEMod outputs and spreadsheet calculations for water and wastewater presented in Appendix E.

CalEEMod default values for energy consumption for each land use were applied for the Project analysis. The energy use from non-residential land uses is calculated in CalEEMod based on the California Commercial End-Use Survey database. Energy use in buildings is divided by the program into end use categories subject to Title 24 requirements (end uses associated with the building envelope, such as the heating, ventilation, and air conditioning [HVAC] system; water heating system; and integrated lighting) and those not subject to Title 24 requirements (such as appliances, electronics, and miscellaneous "plug-in" uses).

Title 24 of the California Code of Regulations serves to enhance and regulate California's building standards. The most recent amendments to Title 24, Part 6, referred to as the 2022 standards, became effective on January 1, 2023. According to these estimations, the Project would consume approximately 852 megawatt-hours (MWh) per year during operation (Appendix E). The existing development on the Project site would consume approximately 394 MWh per year during operation; therefore, the net increase

in electricity consumption due to the Project is approximately 457 MWh per year. Therefore, although electricity usage would increase due to the implementation of the Project, the applicable Title 24 standards would ensure that the energy demands would not be inefficient, wasteful, or otherwise unnecessary. For context, for the 2020 fiscal year, SCE had an annual electric sale to customers of approximately 85,399,000 MWh (SCE 2021). The Project represents approximately 0.001% of the SCE network sales for 2020. Therefore, impacts to energy resources during operation would be less than significant.

Natural Gas

Project operation would require natural gas for various purposes, including water heating and natural gas appliances. Natural gas consumption associated with operation is based on the CalEEMod outputs in Appendix E.

CalEEMod default values for energy consumption for each land use were applied for the Project analysis. The energy use from non-residential land uses is calculated in CalEEMod based on the California Commercial End-Use Survey database. Energy use in buildings (both natural gas and electricity) is divided by the program into end use categories subject to Title 24 requirements (end uses associated with the building envelope, such as the HVAC system, water heating system, and integrated lighting) and those not subject to Title 24 requirements (such as appliances, electronics, and miscellaneous "plug-in" uses).

According to these estimations, the Project would consume approximately 3,035,625 thousand British thermal units (kBTUs) per year. The existing development on the Project site would consume approximately 1,480,932 kBTUs per year; therefore, the net increase in natural gas consumption due to the Project is approximately 1,554,693 kBTUs per year. The applicable Title 24 standards would ensure that the energy demands would not be inefficient, wasteful, or otherwise unnecessary. Thus, the natural gas consumption related to development facilitated by the Project would not be considered inefficient or wasteful, and impacts would be less than significant.

Petroleum

During operations, the majority of fuel consumption resulting from the Project would involve the use of motor vehicles traveling to and from the Project site.

Petroleum fuel consumption associated with motor vehicles traveling to and from the Project site is a function of VMT as a result of Project operation. As shown in Appendix E, the annual VMT attributable to the Project is expected to be 303,044 miles for passenger vehicles and 939,670 miles for trucks. The VMT attributable to the existing development on the Project site is expected to be 337,003 miles for passenger vehicles and 543,633 miles for trucks. Similar to the construction worker and vendor trips, fuel consumption from worker and truck trips are estimated by converting the total CO_2 emissions from operation of the project to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Mobile source emissions were estimated using CalEEMod. Calculations for annual mobile source fuel consumption are provided in Table 3.6-3.

Table 3.6-3. Operational Annual Mobile Source Petroleum Demand

Fuel	Source	Vehicle MT CO_2	kg/CO_2/Gallon	Gallons
Project				
Gasoline	Passenger Vehicles	98.1	8.78	11,173
Diesel	Trucks	1,348	10.21	132,027
			Total	*143,201*
Existing				
Gasoline	Passenger Vehicles	112	8.78	12,756
Diesel	Trucks	580	10.21	56,807
			Subtotal	*69,563*
			Net Total	**73,637**

Sources: Trips and vehicle CO_2 (Appendix E); kg/CO_2/Gallon (The Climate Registry 2020).
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram

As shown in Table 3.6-3, total petroleum consumption for the Project annually is estimated to be 143,201 gallons, including diesel and gasoline fuel. Deducting the petroleum consumption for the existing development of 69,563 gallons, the net increase in petroleum consumption for the Project is estimated to be 73,637 gallons. For context, California is expected to consume approximately 18.5 billion gallons of petroleum per year by 2024 (CARB 2021). Countywide total petroleum use by vehicles is expected to be 1.221 billion gallons per year by 2024 (CARB 2021). The Project would represent approximately 0.006% of the County's anticipated petroleum usage in 2024.

Over the lifetime of the project, the fuel efficiency of the vehicles being used by the visitors and employees of the project is expected to increase. As such, the amount of gasoline consumed as a result of vehicular trips to and from the Project site during operation would decrease over time. There are numerous regulations in place that require and encourage increased fuel efficiency. For example, CARB has adopted the Advanced Clean Cars and Advanced Clean Trucks programs to accelerate the market for zero-emission vehicles in both the passenger car and medium/heavy-duty truck sectors (CARB 2022). As such, operation of the Project is expected to use decreasing amounts of petroleum over time, due to advances in fuel economy. Therefore, the Project would result in a less than significant impact due to wasteful, inefficient, or unnecessary consumption of petroleum resources during Project operation.

Summary

In summary, implementation of the Project would increase the demand for electricity and natural gas at the Project site and petroleum consumption in the region during construction and operation. However, as the Project would be consistent with current regulations and policies, the Project would not be wasteful, inefficient, and would not result in unnecessary energy resource consumption. The Project's energy consumption demands during construction and operation would conform to the State's Title 24 standards such that the Project would not be expected to wastefully use gas and electricity. Since the proposed project would comply with Title 24 conservation standards, the Project would not directly require the construction of new energy generation or supply facilities or result in wasteful, inefficient, or unnecessary consumption of energy. Moreover, vehicle usage associated with the project would use less petroleum due to advances in fuel economy and potential reduction in VMT over time. Therefore, the Project would result in a less than

significant impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. The Project would be subject to and would comply with, at a minimum, the California Building Energy Efficiency Standards (24 CCR, Part 6). Part 6 of Title 24 establishes energy efficiency standards for non-residential buildings constructed in California to reduce energy demand and consumption. As such, the Project would comply with the California code requirements for energy efficiency.

Part 11 of Title 24 sets forth voluntary and mandatory energy measures that are applicable to the Project under the California Green Building Standards. The California Green Building Standards institute mandatory minimum environmental performance standards for all ground-up, new construction. On this basis, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, impacts would be less than significant.

3.7 Geology and Soils

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS – Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) 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.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) 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 on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The following discussion and analysis are primarily based on the findings included in the Geotechnical Engineering Investigation (Appendix D of this IS/MND), Phase I Environmental Site Assessment (Appendix F), and the Cultural Resources Search Results (Appendix C).

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) 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 Alquist–Priolo Earthquake Zoning Act (Alquist–Priolo Act) requires the delineation of fault zones along active faults in California. The purpose of the Alquist–Priolo Act is to regulate development on or near active fault traces to reduce hazards associated with fault rupture. The Alquist–Priolo Earthquake Fault Zones are the regulatory zones that include surface traces of active faults. According to the California Department of Conservation, the nearest Alquist-Priolo (A-P) Earthquake Fault Zone is located approximately 3 miles east of the Project site (DOC 2022). As such, the Project is not located within an A-P Earthquake Fault Zone. Based on review of California Geological Survey and the City's General Plan, the Rialto-Colton Fault terminates approximately 0.3 mile southeast of the Project site (Appendix D). This fault is characterized as a "Late Quaternary" Fault, which infers the fault is poorly constrained. Further, no Special Studies Zones have been delineated by the State along any part of this fault. In addition, the General Plan notes a groundwater barrier, caused by the Rialto-Colton Fault, extends beyond the fault trace and transverses the Project site (Appendix D).

The primary geologic hazard at the Project site is moderate to strong ground motion (acceleration) caused by an earthquake on any of the local or regional faults. These No Holocene-active or Pre-Holocene faults underlie the Project site, and as the Project is not located within an A-P Earthquake Fault Zone, the potential for surface ground rupture at the Project site would be low (Appendix D). Impacts would be less than significant. No mitigation is required.

ii) Strong seismic ground shaking?

Less Than Significant Impact. As described above in Section 3.7(a)(i), the Project site is located nearby the Rialto-Colton Fault (Appendix D). As with most of Southern California, the Project site could be subject to seismic ground shaking. Seismically-induced settlement or compaction of dry or moist, cohesionless soils can be an effect related to earthquake ground motion. Such settlements are typically most damaging when the settlements are differential in nature across the length of structures. Some seismically-induced settlement of the proposed structures should be expected as a result of strong ground shaking. However, due to the uniform nature of the underlying geologic materials, and the density of these materials, excessive differential settlements are not expected to occur (Appendix D).

Generally, adequate engineering and construction techniques have been developed to reduce the risk of damage to structures from ground shaking to the extent feasible. The Project would be required to be designed to resist seismic forces in accordance with the criteria contained in the California Building Code. The Project Applicant would be required to obtain a building permit from the City, and the City's plan check process would ensure that Project plans and specifications are in compliance with the California Building Code and local ordinances. Furthermore, the Project would be designed and built in accordance with the applicable recommendations provided in Appendix D. Since there are no other conditions present on-site that would amplify or otherwise worsen the effects of ground shaking (e.g., unstable slopes), design and construction of the project in accordance with the California Building Code, local requirements, and the recommendations in the site-specific geotechnical report would minimize hazards associated with seismic ground shaking to the extent practicable. Furthermore, implementation of the Project would not increase the probability or exacerbate the potential for strong seismic ground shaking to occur. The impact would be less than significant. No mitigation is required.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. Liquefaction is a phenomenon in which saturated silty to cohesionless soils below the groundwater table are subject to a temporary loss of strength due to the buildup of excess pore pressure during cyclic loading conditions such as those induced by an earthquake. Liquefaction-related effects include loss of bearing strength, amplified ground oscillations, lateral spreading, and flow failures (Appendix D). Other types of seismic-related ground failure include shallow ground cracking and settlement. The potential for shallow ground cracking to occur during an earthquake is a possibility across Southern California and would not pose a significant hazard to site development. Furthermore, the potential for seismically induced settlement to occur is considered to be limited for the Project site (Appendix D). Landslides are discussed below under Section 3.7(a)(iv).

The field exploration did not encounter groundwater at a depth of 50 feet below the existing site grade (Appendix D). Instead, based on research provided by the Geotechnical Investigation, the depth of groundwater is estimated to be approximately 300 feet below the ground surface for the Project site's local vicinity. Due to the depth of groundwater, the density of native soils, and the soils underlying the site, the Project site is not considered susceptible to liquefaction during an earthquake event.

Design and construction of the Project in accordance with the California Building Code, local requirements, and the recommendations in the site-specific geotechnical report would minimize hazards associated with liquefaction and settlement to the extent practicable. Furthermore, implementation of the Project would

not increase the probability or exacerbate the potential for seismic-related ground failure to occur. Impacts would be less than significant. No mitigation is required.

iv) Landslides?

No Impact. The Project site is relatively level. Furthermore, the site's local vicinity is located within an urbanized area without significant slopes. As such, the Project site would not be susceptible to static slope instability or seismically induced landslides (Appendix D). No impact would occur.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. Construction of the Project would result in ground surface disruption during grading and excavation that could create the potential for erosion to occur. Implementation of the Project would be required to comply with Chapter 17.40, Grading and Erosion Control, of the City's Municipal Code. The code specifies conditions of approval, including the prevention of sedimentation or damage to off-site property.

During operation, the developed portion of the Project site would be covered with buildings, hardscape, and landscaping, which would preclude erosion. Adherence to existing regulations and implementation of standard construction practices would ensure that soil erosion impacts are less than significant. No mitigation is required.

c) Would the project 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 on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant Impact. As described under Sections 3.7(a)(iii) and 3.7(a)(iv), the Project site is not known to be susceptible to liquefaction hazards or landslide hazards. According to the Geotechnical Investigation, fill materials were encountered at depths ranging between three and five feet below the existing grade. The fill consisted of a mixture of silty sand, and sand, which was recorded as moist, medium dense, and fine grained, with few cobbles (Appendix D). The fill is underlain with native alluvial soils, consisting of primarily of sands and silty sands. Based on the findings of the geotechnical report, the existing fill materials are not suitable for support of the proposed foundations and interior slabs-on-grade (Appendix D). The Project may be supported by conventional foundations bearing in a uniform compacted fill pad. For the construction of a uniform compacted fill pad, all existing fill materials and upper alluvial soils are recommended to be removed and recompacted to a minimum depth of five feet below the proposed grade, or three feet below the bottom of the proposed foundations, whichever is deeper (Appendix D). In addition, the compacted fill is recommended to extend horizontally a minimum of three feet beyond the edge of the foundations or for a distance equal to the depth of fill below the foundation, whichever is greater (Appendix D).

The Project would be designed in accordance with all applicable provisions established in the current California Building Code, which sets forth engineering requirements to ensure structural integrity, regardless of the characteristics of underlying soils. The Project would be designed consistent with the specific design recommendations of the geotechnical report (Appendix D). Compliance with the requirements of the California Building Code would further reduce the potential risk to people and

structures with respect to a variety of geotechnical constraints; therefore, impacts associated with unstable geologic units/soils would be less than significant. No mitigation is required.

d) Would the project 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 characterized by their potential shrink/swell behavior. Shrink/swell is the change in volume (expansion and contraction) that occurs in certain fine-grained clay sediments from the cycle of wetting and drying. The volume change is influenced by the amount of moisture and the amount of clay in the soil. The on-site geologic materials are considered to have a very low expansion range (Appendix D). Further, compliance with California Building Code requirements would reduce the potential risk to people and structures due to unstable and expansive soils; therefore, impacts associated with expansive soils would be less than significant. No mitigation is required.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. According to the Phase I Environmental Site Assessment (Appendix F) for the Project site, no septic systems or cesspools are present under existing conditions. The Project does not propose the use of septic tanks or alternative waste water disposal systems on site. Moreover, the Project site is supported by existing sewer system surrounding the Project site (see Section 3.19, Utilities and Service Systems, of this IS/MND for more discussion). Therefore, no impact would occur.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact With Mitigation Incorporated. A records search was conducted for the Project site. As described in Appendix C, the geologic units underlying the Project site are mapped primarily as alluvial fan deposits from the Holocene and late Pleistocene epoch, which are considered to be highly paleontologically sensitive (Appendix C). Although the Western Science Center does not have records of fossil localities within a one-mile radius of the Project site, it is anticipated that any fossil specimen found during Project implementation could inadvertently be destroyed during construction of the Project. As such, the Project would implement MM-GEO-1, which would require that, in the event that paleontological resources are exposed during construction, all construction work within 50 feet of the find shall immediately stop, until a qualified paleontologist can assess the find. Incorporation of MM-GEO-1 would reduce impacts to less-than-significant levels. No additional mitigation is required.

MM-GEO-1 In the event that paleontological resources (i.e., fossil remains) are exposed during construction activities for the Project, all construction work occurring within 50 feet of the find shall immediately stop until a qualified paleontologist, as defined by the Society of Vertebrate Paleontology's 2010 guidelines (SVP 2010), can assess the nature and importance of the find. Depending on the significance of the find, the qualified paleontologist may record the find and allow work to continue or may recommend salvage and recovery of the resource. All recommendations will be made in accordance with the Society of Vertebrate Paleontology's 2010 guidelines and shall be subject to review and approval by the City of Rialto. Work in the area of the find may only resume upon approval of a qualified paleontologist.

3.8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS – 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?	☐	☐	☒	☐

The following discussion and analysis are primarily based on the findings included in the 160 N. Cactus Avenue Greenhouse Gas Analysis, included as Appendix E to this IS/MND.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact. The SCAQMD's adopted numerical threshold of 10,000 metric tons carbon dioxide-equivalent (MT CO_2e) per-year for industrial stationary source emissions is typically selected as the significance criterion. However, the City has determined that the SCAQMD's draft threshold of 3,000 MT CO_2e per year is more conservative and appropriate for industrial and warehouse land use development projects. The 3,000 MT CO_2e per year threshold is based on the SCAQMD staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD Interim Thresholds. The SCAQMD Interim Threshold identifies a screening threshold to determine whether additional analysis is required (Appendix E).

Construction Emissions

Construction of the Project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles. CalEEMod version 2022.1 was used to estimate GHG emissions during construction. Construction of the project is anticipated to last up to 12 months. Table 3.8-1 presents construction GHG emissions for the Project.

Table 3.8-1. Amortized Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	Refrigerants	Total CO_2e
	Metric Tons				
Year 1	199.00	0.01	0.01	0.08	202.00
Year 2	268.00	0.01	0.01	0.14	271.00
Total	**467.00**	**0.02**	**0.02**	**0.22**	**473.00**
Amortized Construction Emissions	**15.57**	**0.00**	**0.00**	**0.01**	**15.77**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; GHG = greenhouse gas.
See Appendix E for complete results. Values of "<0.01" indicate that the estimated emissions are less than two decimals.

As shown in Table 3.8-1, the estimated total GHG emissions during construction would be approximately 473 MT CO_2e. Estimated Project-generated construction emissions amortized over 30 years would be approximately 16 MT CO_2e per year.

Operational Emissions

CalEEMod was used to estimate potential operational GHG emissions from area sources, energy sources (natural gas and electricity), mobile sources, on-site cargo handling equipment emissions, refrigerants, solid waste, and water supply and wastewater treatment for the Project and the existing land uses. As the Project site is currently occupied, GHG emissions from the existing development were calculated and are netted from the Project emissions. Table 3.8-2 presents the net increase in GHG emissions from the Project.

Table 3.8-2. Estimated Annual Operation GHG Emissions

Emissions Source	CO_2	CH_4	N_2O	Refrigerants	Total CO_2e
	Metric Tons per Year				
Amortized Construction Emissions	15.57	<0.01	<0.01	<0.01	15.77
Mobile Source	1,447.00	0.12	0.21	1.62	1,514.00
Area Source	3.24	<0.01	<0.01	0.00	3.25
Energy Source	285.00	0.03	<0.01	0.00	286.00
Water Usage	51.50	1.21	0.03	0.00	90.30
Waste	13.40	1.34	0.00	0.00	46.90
Refrigerants	0.00	0.00	0.00	26.90	26.90
On-Site Equipment	--				47.37
Total CO_2e (All Sources)	**2,030.48**				
Existing Emissions	*983.00*				
Total Net CO_2e (All Sources)	**1,047.49**				

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix E for complete results. Values of "<0.01" indicate that the estimated emissions are less than two decimals.

As shown in Table 3.8-2, the estimated net increase in GHG emissions from operation of the Project would be approximately 1,047 MT CO_2e per year, including amortized construction emissions. Annual operational

GHG emissions with amortized construction emissions would not exceed the SCAQMD recommended threshold of 3,000 MT CO_2e per year. This impact would be less than significant. No mitigation is required.

b) Would the project generate conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. The Project's consistency with applicable plans is described below.

Consistency with the CARB Scoping Plan

Pursuant to 15604.4 of the CEQA Guidelines, a lead agency may rely on qualitative analysis or performance-based standards to determine the significance of impacts from GHG emissions. In November 2022, CARB released the Final 2022 Scoping Plan Update, which identifies the State's progress towards the statutory 2030 target, while providing a path towards carbon neutrality and reduce greenhouse gases emissions by 85% below 1990 levels by 2045. Recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40% below 1990 levels by 2030. The Project would not conflict with any of the 2022 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Project (Appendix E).

Finally, the Project is consistent with the General Plan land use designation, density, building intensity, and applicable policies specified for the Project area in SCAG's RTP/SCS, which pursuant to SB 375 calls for the integration of transportation, land-use and housing policies to plan for achievement of the GHG-emissions target for the region. Thus, a less than significant impact related to GHG emissions from Project construction and operation would occur and no mitigation is required.

Consistency with the City's Draft Climate Adaptation Plan

The Project would comply with and would implement state and regional regulations and strategies that would minimize and control GHG emissions, and in this regard supports the City's Climate Adaptation Plan. The Project does not propose or require elements or operations that would obstruct or conflict with the Climate Adaptation Plan. Moreover, the analysis presented here substantiates that the Project would not have the potential to generate direct or indirect GHG emissions that would result in a significant impact on the environment (Appendix E).

Based on the above discussion, the potential for the Project to conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs is considered less than significant. No mitigation is required.

3.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS – 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 handle 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) For a project located within 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, would the project 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?	☐	☐	☒	☐

The following discussion and analysis are primarily based on the findings included in the Phase I Environmental Site Assessment, referred to as Appendix F to this IS/MND.

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. Relatively small amounts of commonly used hazardous substances, such as gasoline, diesel fuel, lubricating oil, grease, and solvents would be used during construction of the Project. These

materials would be transported and handled in accordance with all federal, state, and local laws regulating the management and use of hazardous materials. Consequently, use of these materials for their intended purpose would not pose a significant risk to the public or environment. Once construction is complete, construction-related hazardous materials would no longer remain on-site.

Implementation of the Project would result in the demolition of existing buildings on the site. According to the Phase I Environmental Site Assessment (Appendix F) for the Project site, there are no Recognized Environmental Conditions (RECs) in connection with the site. No underground storage tanks are located on site as well (Appendix F).

Although not considered RECs, Appendix F identified other notable findings of contingent risk. The Project site maintained past light industrial operations on site, such as under existing conditions. As such, the use of gasoline, hydraulic oil, and oil have been used on site. There is no readily available information on the specific use of chemicals, but there is no indication that these operations were chemically intensive or involved the use of significant amounts of petroleum products or other hazardous substances (Appendix F). Additionally, previous site operations were subject to robust environmental regulations to ensure limited risk. Further, the Project site is not listed on any environmental databases indicative of a release or of hazardous waste generation [see Section 3.9(d) of this IS/MND for more discussion] (Appendix F). While the possibility of inadvertent spills or releases of chemicals or petroleum products could have occurred, no specific contamination concerns were identified (Appendix F).

In addition, Appendix F notes the presence of straining on gravel ground underneath existing hazardous waste drums associated with M.R. Tudor, located on the southeast corner of the lot. The staining is likely resulted from minor drips or spills when transferring hazardous materials. The staining does not indicate widespread release or loss (Appendix F).

Given the buildings were constructed around 1985, the possibility of asbestos-containing materials (ACM) being present in the building materials cannot be ruled out (Appendix F). In addition, lead was a major ingredient in paint pigment prior to and through the 1940s and had some presence until the 1970s. Lead-containing paint [or lead-based paint (LBP)] is now banned by the Consumer Products Safety Commission. Based on the construction date of the existing buildings, there is a possibility that lead-based paint was used on structures. Finally, the Project site is located within an area categorized as having an average indoor basement radon levels between 2 and 4 picoCuries per liter (pCi/L). The United States Environmental Protection Agency (EPA) recommends continuous testing or remedial action for radon at levels greater than 4 pCi/L.

During construction, ACM and LBP would be tested and removed from the existing structures in accordance with applicable local, state, and federal regulations, including SCAQMD Rule 1403, Asbestos Emissions from Demolition/Renovation Activities. Upon compliance with applicable laws involving safe treatment and disposal of ACM, LBP, and other hazardous building materials, construction activities would not pose a significant risk to the public or environment due to transport, use, or disposal of hazardous materials. Hazardous materials that could be used once the Project is constructed would include chemical reagents, solvents, fuels, paints, cleansers, pesticides, fertilizers, and miscellaneous organics and inorganics that are used as part of building and landscaping maintenance. The Project Applicant, building manager/operator, and employees would be required to comply with all federal, state, and local laws regulating the management, use, storage, and transportation of hazardous materials. Through compliance with local, state, and federal regulations, implementation of the Project would not create a significant hazard to the

public or to the environment through the routine transport, use, or disposal of hazardous materials. Impacts would be less than significant. No mitigation is required.

b) Would the project 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. Relatively small amounts of commonly used hazardous substances would be used during construction of the Project. Hazardous substances required for construction and any hazardous materials removed from the existing buildings on the Project site would be handled, transported, and/or disposed of in accordance with all federal, state, and local laws. Upon required compliance with these existing regulations, upset and accident conditions involving hazardous substances during construction are not reasonably foreseeable.

As discussed in Section 3.9(a), the existing buildings on site contain ACM and LBP, and include other notable environmental findings. However, no RECs were determined (Appendix F). During construction, such materials would have the potential to be released into the environment if they are not properly and safety handled. In the event that this were to occur, ACM and/or LBP removed from the existing structures would have the potential to pose a hazard to the workers, the public, and the environment. However, as stated under Section 3.8(a), any ACM, LBP, or other hazardous building materials detected on the Project site would be removed and disposed of in accordance with applicable local, state, and federal regulations, including SCAQMD Rule 1403. Upon compliance with these applicable laws involving safe treatment and disposal of ACM, LBP, or other hazardous building materials, construction activities at the Project site would not pose a significant risk to the public or environment due to upset or accident conditions involving the release of hazardous materials into the environment.

During operation, the Project would not involve the use of acutely hazardous materials. Furthermore, as described under Section 3.9(a), regulations are in place at the federal, state, and local level that require hazardous materials to be stored, handled, and transported in a manner that minimizes the potential for their release into the environment. Upon compliance with these regulations, the likelihood of upset or accident conditions involving hazardous materials used during project construction and/or operation would be reduced to the extent practicable. Impacts would therefore be less than significant. No mitigation is required.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. The Project site is adjacent to and within the vicinity of three existing schools: Bob Murphy Community School (immediately adjacent to the west), Charlotte N. Werner Elementary School (approximately 0.20 mile to the west), and Rialto Middle School (approximately 0.35 mile to the west). As described in Section 3.9(a) and Section 3.9(b), regulations are in place at the federal, state, and local level that require hazardous materials to be stored, handled, and transported in a manner that minimizes the potential for their release into the environment. Upon compliance with these regulations, the likelihood of upset or accident conditions involving hazardous materials used during Project construction and/or operation would be reduced to the extent practicable. For these reasons, less than significant impacts would occur. No mitigation is required.

d) Would the project 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?

No Impact. A search of regulatory database listings of hazardous materials sites (i.e., California GeoTracker and EnviroStor databases) was conducted as part of the Phase I Environmental Site Assessment for the Project site. The database search did not indicate any listings on or near the site listed as a hazardous materials site compiled pursuant to Government Code Section 65962.5 that could create a hazard as a result of the Project (Appendix F). Therefore, no impact would occur.

e) For a project located within 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, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The Project site is not located within two miles of a public airport or public use airport. The closest airport is the San Bernardino International Airport, located approximately 7 miles southeast of the Project site (Appendix I). As such, the Project would not result in a safety hazard or excessive noise for people residing or working in the area. Therefore, no impact would occur.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. The City maintains procedures for mitigating potential disasters through the Standard Emergency Management System Multi-Hazard Functional Plan, which incorporates and coordinates all the facilities and personnel of the City. In the event of a disaster, evacuation route movement would be conducted by Rialto law enforcement agencies (City of Rialto 2010). As further detailed in Section 3.15, Public Services, of this IS/MND, the Project site is adequately served by existing police and fire protection services.

Project construction and operational activities would occur on site and not result in the physical interference of adopted emergency response or evacuation plans. Additionally, prior to the issuance of a building permit, the Project would be subject to review of emergency access and circulation during the plan check and permitting process. Adherence to the requirements of the City's Municipal Code would further reduce potential impacts. Impacts would be less than significant. No mitigation is required.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact. As further detailed in Section 3.20, Wildfire, of this IS/MND, the Project site is not located within a Very High Fire Hazard Severity Zone (CalFIRE 2022). Moreover, the Project site is located within an urbanized area and would not be at risk of wildland fires. In the unlikely event of a fire emergency at the Project site due to wildland fires, the Rialto Fire Department would provide fire protection services. Implementation of the Project is not likely to expose people or structures to a significant risk of loss, injury, or death involving wildland fires due to the intervening distance and urban development between the Project site and wildland areas. As such, impacts would be less than significant. No mitigation is required.

3.10 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water 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 which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) 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?	☐	☐	☒	☐

The following discussion and analysis are primarily based on the findings included in the Water Quality Management Plan (WQMP), included as Appendix G to this IS/MND, and the Preliminary Drainage Report, included as Appendix H for this IS/MND.

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. Short-term construction activities for the Project would have some potential to affect the quality of stormwater discharged from the Project site. Ground disturbing activities could result in erosion and sedimentation, and spills or leaks of petroleum products used by construction equipment could also affect the quality of stormwater. There is one municipal drinking water monitoring well and two USGS wells on site. No production, injection, oil, or gas wells are located on site (Appendix F). In addition, as discussed in Section 3.9, Hazards and Hazardous Materials, of this IS/MND, the Project site does not contain any underground storage tanks, which could result in potential impacts to water quality.

The Project would be subject to the provisions outlined in Municipal Code Chapter 12.60, Municipal Separate Storm Sewer System (MS4), which requires measures to prohibit non-stormwater discharges into the storm sewer and to control the discharge of stormwater to the maximum extent practical. These measures include Best Management Practices (BMPs), control techniques, and system design methods. The Project's site design practices would be in compliance with Low Impact Development (LID) requirements of the MS4 permit. The Santa Ana Regional Water Quality Control Board (RWQCB) issues NPDES permits for construction activities that would involve one acre or more. The Project site falls within the jurisdiction of San Bernardino County Municipal Storm Water Management Program. Because the Project would involve construction on an area greater than 1 acre, it would require compliance with the General Construction Activity NPDES Permit (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, NPDES No. CAS000002), which requires the preparation of and compliance with a SWPPP. The SWPPP must include erosion control measures such as covering exposed soil stockpiles, protecting the perimeter of the construction site with sediment barriers, and protecting storm drain inlets. The NPDES permit requires implementation of a stormwater quality management program that specifies guidelines to control, reduce, and monitor discharges of waste to storm drains. Implementation of the Project would include the construction of a storm drain system with catch basins throughout the site. The Project site would flow into one drainage area for water quality treatment, which would drain into an underground retention/infiltration system, identified as BMP-1, via a pretreatment hydrodynamic (i.e., gravity) separator, identified as BMP-2 (Appendix G). This storm drain system would ensure that potential stormwater pollutants would be captured, thus, reduce impacts to water quality. In addition, the Project-specific water quality management plan (Appendix G) ensures appropriate BMPs for post-construction and operations of the Project. The combination of low-impact development BMPs and source-control and treatment-control BMPs addressed within the water quality management plan would address identified pollutants and hydrologic concerns from new development that could result in impacts to water quality standards. As such, through compliance with the water quality standards, construction and operations of the Project would not adversely affect water quality. Impacts would be less than significant. No mitigation is required.

b) Would the project 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 would not deplete or substantially interfere with the groundwater supplies because no groundwater wells are proposed and because the Project would not substantially interfere with groundwater recharge. There is one municipal drinking water monitoring well and two USGS wells on site. As described in Section 2.2, Environmental Setting, of this IS/MND, the water quality monitoring well is located on the City's property and is currently operational. However, the two USGS wells are inactive groundwater wells (Nos. 340600117230401 and 34055911723021). As such, no

production, injection, oil, or gas wells are located on site (Appendix F). The Project would connect to municipal water services provided by the City (see Section 3.19, Utilities and Service Systems, of this IS/MND for more discussion).

Under the existing conditions, the Project site is generally covered with impervious surfaces, with the exception of some areas of exposed soil. Under the Project, the site would be improved with pervious surfaces, including proposed landscaping features throughout the site at the completion of Phase 2 (Appendix G). As such, implementation of the Project would not substantially alter the Project site's contribution to groundwater recharge, and the Project would not interfere substantially with groundwater recharge such the Project would impede sustainable groundwater management of the basin. Moreover, the Project site is not currently used for groundwater extraction. For these reasons, the indirect impact of the Project's water demand on groundwater supplies would be less than significant. No mitigation is required.

c) Would the project 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 which would:

i) Result in substantial erosion or siltation on- or off-site?

Less Than Significant Impact. The Project would involve earthwork and other construction activities that would disturb surface soils and temporarily leave exposed soil on the ground's surface. During construction, soil erosion could occur on the Project site due to stormwater runoff, wind, and soil being tracked off site by vehicles. However, the Project would be required to comply with standard regulations, including SCAQMD Rules 402 and 403, which would reduce construction erosion impacts. Rule 402 requires that dust suppression techniques be implemented to prevent dust and soil erosion from creating a nuisance off site (SCAQMD 1976). Rule 403 requires that fugitive dust be controlled with best available control measures so that it does not remain visible in the atmosphere beyond the property line of the emissions source (SCAQMD 2005). As detailed above in Section 3.10(a), the SWPPP prepared for the Project must include erosion control measures such as covering exposed soil stockpiles, protecting the perimeter of the construction site with sediment barriers, and protecting storm drain inlets. Additionally, the Project would be required to comply with Chapter 17.40, Grading and Erosion Control, of the City's Municipal Code, which specifies conditions including the prevention of sedimentation or damage to off-site property. Compliance with all applicable federal, state, and local requirements, including the current MS4 Permit adopted by the Santa Ana RWQCB would ensure that the Project is designed with adequate capacity to capture stormwater flow to prevent erosion and on-site and off-site flooding impacts.

Additionally, an existing portion of a rip-rap-lined flood control channel with no direct on-site connectivity is located on the northeastern side of the Project site. During construction activities, Phase 1 of the proposed impact area for the Project would be located within existing developed areas west of the flood control channel, and construction work would occur within the existing fencing separating the construction staging area from the reach. No direct impacts would occur to this drainage during Phase 1 construction activities. Due to proximity of the reach to the Project site there is potential for indirect impacts to occur related to erosion, runoff, and dust. Compliance with the General Construction Activity NPDES Permit (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, NPDES No. CAS000002) would require the preparation of and compliance with a SWPPP, as mentioned above. The SWPPP would include erosion control measures such as covering exposed soil stockpiles, protecting the perimeter of the construction site with sediment barriers, and protecting storm drain inlets.

Thus, Project construction could alter the direction or behavior of stormwater runoff in the immediate area. However, the Project would be designed to conform with all applicable LID requirements. Compliance with these requirements would ensure the Project is designed to have adequate capacity to capture stormwater flow to prevent erosion or siltation on- or off-site. As such, any alterations in the on-site drainage pattern would be conducted in a manner consistent with all applicable standards related to the collection and treatment of stormwater. Impacts associated with minor alterations to the existing drainage pattern of the Project site would be less than significant relative to erosion or siltation on or off site. No mitigation is required.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less Than Significant Impact. Under existing conditions, the Project site drains across the site by sheetflow to the adjacent City streets. As mentioned previously in Section 3.10(c)(i), an existing portion of a rip-rap -lined flood control channel is located on the northeastern side of the Project site and has no direct on-site connectivity. Moreover, no NWI-mapped 'blue line' wetlands are mapped on the Project site and the Project site is located outside of a 500-year flood plain (USFWS 2018, Appendix D). Similar to the discussion provided above, Project construction could alter the direction or behavior of stormwater runoff in the immediate area. However, the Project would be designed to conform with all applicable LID requirements. Compliance with these requirements would ensure the Project is designed to have adequate capacity to capture stormwater flow to surface runoff in a manner which would result in flooding on- or offsite. Given this, surface runoff would result in less than significant impacts related to on- or off-site flooding. No mitigation is required.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant Impact. The Project site is located within an urbanized area with existing infrastructure to support the Project site's stormwater drainage needs. Construction would include earthwork activities that could potentially result in stormwater runoff. Compliance with the required Project-specific erosion and sediment control plan, and specifically the use of runoff-control devices, and SWPPP BMPs, would ensure that runoff quantities are controlled to avoid overwhelming the existing stormwater drainage system. Furthermore, the erosion and sediment control plan would contain project-specific best management practices to prevent pollutants from entering the storm drain system. These standard construction control procedures would ensure that construction impacts would be less than significant.

Development of the Project site would involve redevelopment of the Project site with a warehouse building including landscaped areas, which would result in an increase in pervious surfaces from existing conditions. As such, the amount of runoff from the Project site is not anticipated to substantially change under the Project and may be reduced, due to the decrease in impervious surfaces. Furthermore, the Project would be required to comply with the recommendations and requirements outlined in the WQMP (Appendix G) and the Preliminary Drainage Report (Appendix G). Compliance would ensure that stormwater is retained on the Project site to the extent feasible and that any effects to stormwater quality are minimized. Due to the minor changes in drainage patterns that are proposed, as well as compliance with applicable stormwater regulations, the Project would result in a less than significant impact to the stormwater drainage system and to stormwater quality. No mitigation is required.

iv) Impede or redirect flood flows?

No Impact. The Project site is located outside a 500-year flood zone and is located in Zone X per the Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map (FIRM) panel 06071C8659H (Appendix D, Appendix H). As discussed previously, an existing portion of a rip-rap -lined flood control channel is located on the northeastern side of the Project site. Although the Project site does not contain on-site connectivity to the existing flood control channel, the existence of the channel would help reduce flooding events. Given the existing condition, no impact would occur.

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

No Impact. Tsunamis are large ocean waves caused by the sudden water displacement that results from an underwater earthquake, landslide, or volcanic eruption. Tsunamis affect low-lying areas along the coastline. The Project site is located over 45 miles northeast of the Pacific Ocean and inland enough that they would not be affected by a potential tsunami. Seiches are waves in enclosed or semi-enclosed bodies of water such as bays, lakes, and harbors. The Project sire is not in the vicinity of such a water body. As such, the Project would have no impact related the potential to release pollutants due to Project inundation from a flood, tsunami, or seiche. Similar to the discussion provided in Sections 3.10(c)(ii) and (iv), the Project site is not located within a flood zone (Appendix D). No impact would occur.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. As discussed previously, the Project would not deplete or substantially interfere with the groundwater supplies because no groundwater wells are proposed and because the Project would not substantially interfere with groundwater recharge. The Project would connect to municipal water service provided by the City (see Section 3.19, Utilities and Service Systems, of this IS/MND for more discussion).

The Project would have a less than significant impact relative to groundwater use and groundwater quality. As such, implementation of the Project would not conflict with or obstruct sustainable groundwater management. Implementation of the urban water management plan and any plans pertaining to groundwater management would continue to be implemented as planned without interruption from the Project's development.

The Project would comply with regional and local regulations for water quality control and would not obstruct existing water quality control plans. The City requires hydrology and stormwater discharge review during the City's standard development review process and would ensure there is no conflict with existing water quality control plans. For these reasons, impacts associated with a water quality control plan or sustainable groundwater management plan would be less than significant. No mitigation is required.

3.11 Land Use and Planning

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING – 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?	☐	☐	☒	☐

a) Would the project physically divide an established community?

No Impact. The physical division of an established community typically refers to the construction of a linear feature (e.g., a major highway or railroad tracks) or removal of a means of access (e.g., a local road or bridge) that would impair mobility within an existing community or between a community and outlying area. Under existing conditions, the Project site is developed with industrial-related uses. Implementation of the Project would be contained within the boundaries of the proposed site. However, as discussed in Chapter 2 of this IS/MND, the Project would require a lot line adjustment to provide direct access to an existing water quality monitoring well on City property. The Project would provide access to this facility via Rialto Avenue throughout Project construction and operation. This would not result in a physical divide of an established community. Therefore, no impact would occur.

b) Would the project 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. Land use plans and policies applicable to the Project are set forth in the City's General Plan and the Municipal Code. Implementation of the Project would require approval of the following: a Conditional Development Permit, a Precise Plan of Design, a Variance, Lot Line Adjustment, and an Environmental Assessment Review. The approvals required are necessary to comply with the City's land use goals and regulations.

As detailed in Section 2.0 Project Description, the Project Applicant is requesting a variance to account for the temporary automobile parking shortfall that is a result of the SBCFCD's pending construction and completion of the Rialto Channel Drainage Improvement Project. Absent the requested variance, the Project would not be in compliance with the City's Zoning Code and requirements for off-street parking due to the temporary shortfall of 17 automobile parking spaces. The variance would temporarily sanction the Project's parking shortfall until the County's construction of the portion of the Rialto Channel Drainage Improvement Project adjacent to the Project site is completed and the Project's Phase 2 construction phase is commenced and completed ultimately resulting in the elimination of the off-street parking shortfall. As

such, upon approval of Variance No. 2023-0002, the Project would include all necessary parking (and one additional parking space) and would be in compliance with the City's Zoning Code.

According to the General Plan, the Light Industrial land use designation has a maximum FAR intensity of 1.0. The Project's proposed gross FAR would be 0.47. In addition, the intended uses under this designation include light industrial activities such as processing, packaging, machinery repair, fabrication, distribution, warehousing and storage, research and development, and similar low impact uses. However, warehousing, trucking and transportation-related uses, heavy manufacturing, and outdoor activities are prohibited under the Light Industrial designation without a Conditional Development Permit (City of Rialto 2010). At the time of drafting this IS/MND, a tenant has not been identified for the Project. No General Plan amendment or change in zoning is proposed. Instead, a Conditional Development Permit is required to ensure no conflict with the proposed use. As further defined in the Municipal Code, the Project site's Light Industrial (M-1) zoning conditionally permits storage warehouse/distribution centers. As such, with the approval of the Conditional Development Permit, no conflict regarding the proposed land use type would occur. Given the above, the Project would be required to be consistent with the City's Light Industrial land use designation and M-1 zoning designation. Compliance with the City's goals, policies, and regulations would be ensured through the plan check and permitting process prior to the issuance of a building permit. Therefore, impacts would be less than significant. No mitigation is required.

3.12 Mineral Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES – 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?	☐	☐	☐	☒

a) Would the project 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 California Surface Mining and Reclamation Act of 1975 requires that all cities address significant aggregate resources, classified by the State Geologist and designated by the State Mining and Geology Board, in their General Plans. Exhibit 2.6, Aggregate Resources, of the City's General Plan, illustrates that the Project site is not within or adjacent to land designated for mining purposes (City of Rialto 2010). Furthermore, Exhibit 2.7, Mineral Resource Zones (MRZ) of the City's General Plan, illustrates that the Project site and its local vicinity is comprised of land classified as MRZ-2 and MRZ-3 (City of Rialto 2010). Land identified as MRZ-2 are defined as areas where geologic data indicates that significant Precipitated Calcium Carbonate (PCC)-Grade aggregate resources are present. MRZ-3 is a defined

classification for areas containing known or inferred mineral occurrences of undetermined mineral resource significance. Despite the mineral resource designations, the Project site, under existing conditions, is currently paved with developed land uses on site. No mineral resource extraction activities occur under existing conditions. The Project would redevelop the Project site with a new industrial warehouse building, and no mineral resource extraction activities are proposed under the Project. As such, the Project would not 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 would occur. No mitigation is required.

b) Would the project 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. As discussed above in Section 3.12(a), the Project site and its local vicinity is comprised of land classified as MRZ-2 and MRZ-3 (City of Rialto 2010). However, the Project site's existing M-1 zoning does not allow for mineral resource extraction activities. Given existing and proposed conditions on site, implementation of the Project would not result in the loss of availability of a locally important mineral resource recovery site delineated on the City's General Plan. No impact would occur.

3.13 Noise

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project 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, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The following discussion and analysis are based on the findings included in the 160 N. Cactus Avenue Noise and Vibration Analysis, included as Appendix I to this IS/MND.

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact. The Project would generate temporary or permanent increases in ambient noise levels during construction and operations. The City's General Plan Safety and Noise Element establishes policies to guard against the creation of any new noise and land use conflicts, and to minimize the impact of existing noise sources on the community. However, the City does not contain specific transportation-related noise standards. Instead, land use compatibility guidelines for future development and future noise contour boundaries for major roadways are provided in the Safety and Noise Element (Appendix I). The Rialto Noise Guidelines for Land Use Planning matrix indicates that general industrial land uses, such as the Project site, are considered normally acceptable with exterior noise levels below 75 [decibel (dB) level as measured with a sound-level meter using the A weighting network] Community Noise Equivalent Level (CNEL), and conditionally acceptable with noise levels below 85 dBA CNEL. Noise-sensitive residential land uses are considered normally acceptable with exterior noise levels below 60 dBA CNEL, and conditionally acceptable with noise levels below 65 dBA CNEL. For conditionally acceptable land uses, new development should be undertaken only after detailed analysis of noise reduction requirements are made (Appendix I).

The City's Municipal Code regulates noise in a variety of ways (e.g., type of equipment, construction hours, and land use compatibility). For example, Section 9.50.070 of the Municipal Code states that construction activities are permitted between the hours of 7:00 a.m. to 5:30 p.m. Monday through Friday from October 1st to April 30th, 6:00 a.m. to 7:00 p.m. Monday through Friday from May 1st to September 30th, and 8:00 a.m. to 5:00 p.m. on Saturdays any time of year; with no activity allowed on Sundays or state holidays. While the City establishes limits to the hours during which construction activity may take place, neither the City or County of San Bernardino General Plans or Municipal Codes establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes as a substantial temporary or periodic noise increase. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA time-averaged equivalent noise level (L_{eq}) as a reasonable threshold for noise sensitive residential land use with a nighttime exterior construction noise level of 70 dBA L_{eq}.

During operations, the proposed warehouse building would include the following on-site Project-related noise sources: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements. Section 9.50.050(B) of the Municipal Code restricts loading/unloading, the use of dollies, carts, forklifts, or wheeled equipment that causes any unnecessary noise within 1000 feet of a residence between the hours of 8:00 p.m. and 7:00 a.m. However, the Municipal Code does not identify specific exterior noise level standards. Therefore, the County of San Bernardino Development Code standards are used to assess the potential impacts at adjacent sensitive receiver locations consistent with the City's Municipal Code. As such, for residential properties, the exterior noise level shall not exceed 55 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.) for both the whole hour, and for not more than 30 minutes in any hour.

Existing Noise Conditions

Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, outpatient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Noise measurements were taken at the nearest noise-sensitive receptors in order to assess the existing noise level environment. Four receptors were measured from nearby single-family residences and one receptor was measured near Bob Murphy Community School (see Exhibit 5-A of Appendix I for a map detailing locations). The closest noise-sensitive receptor to the Project site, Bob Murphy Community School, is approximately 33 feet to the west (referred to as R5 in Appendix I). The second closest receptor is an existing residence located at 189 N. Fillmore Avenue, approximately 91 feet to the north of the Project site (Appendix I).

Construction Noise (Short-Term Impacts)

The Project's construction activities would include the following phases (as shown in Section 2.4 of this IS/MND): demolition/crushing, site preparation, grading, building construction, paving, and architectural coating. Table 3.13-1 presents the combined noise levels for the loudest construction equipment operating at the same time. As shown, construction noise levels are expected to range from 65.7 to 76.4 dBA L_{eq} at the nearby receiver locations (i.e., R1 through R5) (Appendix I). As shown in Table 3.13-1, the construction-related daytime noise level threshold is 80 dBA L_{eq}. Therefore, highest construction noise levels at each noise-sensitive receiver location would not exceed the aforementioned threshold (Appendix I).

Table 3.13-1. Construction Noise Level Compliance

Receiver Location	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels	Threshold	Threshold Exceeded?
R1	66.6	80	No
R2	67.2	80	No
R3	68.4	80	No
R4	65.7	80	No
R5	76.4	80	No

Source: Appendix I.
Notes: Noise receiver locations are shown on Exhibit 8-A of Appendix I; The highest construction noise level calculations are based on distance from the construction noise source activity to the nearest receiver locations.

Additionally, as part of the Project construction activities, analysis was prepared to assess the potential impacts associated with nighttime concrete pouring on site (Appendix I). The nighttime pouring of concrete for the foundation and walls during the building construction phase would be necessary in the event of excessive daytime ambient temperatures. Since these activities would take place outside of the permitted

construction hours regulated by the City, the Project Applicant would be required to obtain authorization for nighttime work through a written early work permit from the City Manager or his/her designee as required under Section 9.50.070(D)(2) of the Municipal Code. Moreover, these nighttime construction activities would be subject to the FTA residential 70 dBA L_{eq} noise limit threshold. For the purposes of this analysis, such activities are anticipated to generate a sound power level of 100.3 dBA Lw[7]. As shown in Table 3.13-2, noise levels are anticipated to range from 50.2 to 58.3 dBA L_{eq} and would, therefore, not exceed the residential noise level threshold at all the receiver locations (Appendix I).

Table 3.13-2. Nighttime Concrete Pour Noise Level Compliance

Receiver Location	Concrete Pour Construction Noise Levels (dBA L_{eq})		
	Exterior Noise Levels	Nighttime Threshold	Threshold Exceeded?
R1	48.9	70	No
R2	49.5	70	No
R3	50.7	70	No
R4	48.0	70	No
R5	58.7	70	No

Source: Appendix I.
Note: Noise receiver locations are shown on Exhibit 8-A of Appendix I

Given the above, the Project is anticipated to result in less than significant impacts related to the generation of substantial temporary or permanent increases in ambient noise levels in the vicinity of the Project in excess of applicable noise standards. No mitigation is required.

Operational Noise (Long-Term Impacts)

Project operations would include the following noise-generating activities on site: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements. As detailed in Chapter 2, Project Description, of this IS/MND the Project would incorporate design features, such as walls and fences (e.g., proposed 6- to 14-foot-high loading dock screenwall) that would also reduce potential impacts during operations.

The noise analysis determined the daytime hourly noise levels at off-site receiver locations are expected to range from 37.2 to 52.2 dBA L_{eq}. The nighttime hourly noise levels at the same off-site receiver locations are expected to range from 37.1 to 52.1 dBA L_{eq}. Additionally, The Project is anticipated to generate daytime operational noise level increases ranging from 0.0 to 0.8 dBA L_{eq} at the nearest receiver locations and nighttime increases ranging from 0.1 to 1.4 dBA L_{eq} (Appendix I). Therefore, impacts related to operational noise would be less than significant. No mitigation is required.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact. Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. The City's Municipal Code does not identify specific vibration level standards. As such, San Bernardino County's (the County's) standards were used to assess potential impacts at nearby sensitive receiver locations. According to the County's Development Code

[7] L_w = This is a measure of the total sonic energy directly emitted by the machine per unit of time.

Section 83.013.090(a), vibration shall be no greater than or equal to two-tenths inches per second measured at or beyond the lot line. Therefore, a significant impact would occur if vibration levels exceeded the peak particle velocity (PPV) standard of 0.2 inches per second (in/sec) (Appendix I).

The Project is anticipated to result in construction vibration velocity levels ranging from 0.001 to 0.059 PPV in/sec for receiver locations at distances ranging from 33 to 496 feet from the Project site. As such, construction activities are not anticipated to exceed the County's threshold of significance of 0.2 in/sec. Impacts related to ground-borne vibration are therefore considered less than significant. No mitigation is required.

c) ***For a project 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, would the project expose people residing or working in the project area to excessive noise levels?***

No Impact. The Project site is not located within two miles of a public airport or public use airport. The closest airport is the San Bernardino International Airport, located approximately 7 miles southeast of the Project site (Appendix I). As such, implementation of the Project on site would not expose people working in the Project site's vicinity to excessive noise levels. Therefore, no impact would occur.

3.14 Population and Housing

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING – Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a) ***Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?***

Less Than Significant Impact. The Project would lead to a temporary need for construction workers, which may come from Rialto, other areas of San Bernardino County, or elsewhere within the SCAG region. The Project involves fairly common construction requirements that would not require a highly specialized labor force to permanently relocate from other regions. As detailed in Chapter 2 of this IS/MND, construction would commence in January 2024 and would last though January 2025. Thus, construction activities would

short-term and would cease upon completion of the Project. Therefore, the Project's construction activities would not induce substantial unplanned population growth.

According to the U.S. Census Bureau, 104,026 people were recorded within the City during the 2020 Census and approximately 104,394 people were estimated in July 2021 (U.S. Census Bureau 2023). The Project would not result in residential uses, and would therefore, not induce potential future residential population in the city. Moreover, the Project would not indirectly induce population growth through the extension of a road or other infrastructure that would facilitate population growth.

The Project's proposed warehouse would result in new employment opportunities. During operations, the number of jobs anticipated cannot be precisely determined, as the future tenant of the Project is not yet known. For the purposes of this analysis, employment estimates are calculated using the average employment density provided by SCAG. An average of one employee for every 1,195 square feet of warehouse uses are estimated in San Bernardino County (SCAG 2001). The Project would result in a new warehouse industrial building totaling 159,700 square feet. Thus, approximately 134 employees/jobs[8] are projected to be generated as a result of the Project.

According to the SCAG Demographics and Growth Forecast, employment in the City is anticipated to grow from 25,500 employees in 2016 to 35,500 employees in 2045 (SCAG 2020b). The Project-related increase in employment of 134 jobs would be minimal in comparison to the anticipated increase for the City. Therefore, the Project would not induce substantial population growth. Impacts would be less than significant. No mitigation required.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The Project site is currently developed with industrial-related uses. No residences, housing, or people would be displaced as a result of Project implementation. Construction and operation of the proposed industrial warehouse building would not necessitate the construction of replacement housing elsewhere. No impact would occur.

3.15 Public Services

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES – Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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 public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐

[8] 159,700 / 1,195 = 133.6 or 134 employees

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

a) ***Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, 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 public services:***

Fire protection?

Less Than Significant Impact. The Rialto Fire Department (RFD) provides fire protection and emergency response services to the Project site. The RFD deploys from four fire stations and staffs one battalion chief, three engine companies, one truck company, and four paramedic ambulances. On-duty personnel also provides specialized staffing for hazardous materials and search and rescue (City of Rialto 2023b).

The closest fire station to the Project site is Fire Station 201, located approximately 0.5-mile east of the site at 131 S. Willow Avenue. As detailed above in Section 3.14 of this IS/MND, the Project is projected to generate approximately 134 employees during operations. Under existing conditions, the Project site supports operational industrial-related land uses with employees on site. The Project would increase the land use intensity on site; however, as demonstrated above, the increase in employment on the Project site would represent a nominal contribution to planned population growth projections. While the Project would result in an incremental increase in demand for fire protection services within the city, the Project would be supported by existing services. Moreover, the Project would be subject to current City requirements for fire sprinkler systems, fire alarm systems, fire flow, and equipment and firefighter access, as well as fire code requirements. Compliance with the fire code standards would be ensured through the plan check process prior to the issuance of building permits and would reduce the potential demand for fire services at the project site. Due to the limited increase in demand that would be attributable to the Project, the availability of fire services within proximity to the Project site, and required compliance with fire code standards, the construction or expansion of existing fire facilities would not be required as a result of developing the Project. Therefore, the Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities. Impacts resulting from the Project would be less than significant. No mitigation is required.

Police protection?

Less Than Significant Impact. The Rialto Police Department (RPD) is comprised of 176 employees and serves the City with patrol and specialty services, including street crime, narcotics, K-9, investigative, Special Weapons and Tactics (SWAT), school resources, traffic enforcement, re-entry support, and community services (RPD 2023). The RPD headquarters is located on 128 N. Willow Avenue, approximately 0.5 mile to the east of the Project site.

As discussed in Section 3.14, the Project would increase the land use intensity of the Project site, resulting in approximately 134 new employees on the site. The increased land use intensity at the Project site could increase the frequency of emergency and non-emergency calls to the Rialto Police Department from the Project site, as compared with existing conditions. However, the Project would employ defensible design (e.g., walls and fences), lighting, and landscaping, and site design would minimize dead spaces hidden from public view to prevent loitering and crime. These aspects of the Project could lessen the demand for police protection services at the Project site. Furthermore, police units are continuously mobile, and service calls are responded to by the nearest available mobile unit. Emergency calls typically have a response time of several minutes, and the Project site is located within close proximity to the Rialto Police Station. New development would place increased demand on police protection services. The payment of development fees and local taxes would incrementally support any expansion of police protection services that may be warranted based on overall growth in the Project site's vicinity. Due to the limited increase in demand that would be attributable to the Project, the availability of police services within proximity to the Project site, and required compliance with the City's Municipal Code, the construction or expansion of police facilities and would not be required as a result of developing the Project. Therefore, the Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities. Impacts resulting from the Project would be less than significant. No mitigation is required.

Schools?

Less Than Significant Impact. The Project site is located within the boundaries of Rialto Unified School District. Three schools are located within the Project site's immediate vicinity: Bob Murphy Community School, Charlotte N. Werner Elementary School, and Rialto Middle School. As discussed in Section 3.14, the Project would result in approximately 134 new employees on the Project site. However, the projected employment growth is not considered to represent substantial unplanned growth and would not result in the construction of new housing. Instead, it is likely that the majority of the future employees are already residents of the nearby communities. Therefore, the Project would not directly generate significant additional student enrollment within the surrounding area. For the purposes of this analysis, it is assumed the Project's future employees are currently served by the Project area's schools. As such, the minimal potential student enrollment generated as an indirect result of the Project would be distributed amongst nearby school districts.

Additionally, California Education Code Section 17620 authorizes school districts to levy school fees to offset the impacts to school facilities from new residential and commercial/industrial construction and reconstruction (RUSD 2022). The Project would result in the construction of a new industrial warehouse building. As such, the Project would be subject to the payment of fees to the Rialto Unified School District. Moreover, the payment of these fees by a developer serves to fully mitigate all potential project impacts on school facilities from implementation of a project to less-than-significant levels. California Government Code Sections 65996(a) and (b) state that such fees collected by school districts provide full and complete school facilities mitigation under CEQA. Therefore, with the payment of the applicable school fees, the Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts to maintain acceptable service ratios, or other performance objectives for schools. Impacts to schools would be less than significant, and no mitigation is required.

Parks?

No Impact. As demonstrated above, the Project would not directly or indirectly induce substantial unplanned population growth. Typically, impacts to public services, such as parks, would occur relative to the introduction of new residential uses. The Project site would construct a new industrial warehouse building and not result in the generation of new residential population. Instead, it is likely that the majority of the future employees are already residents of the nearby communities. As such, the Project would not directly or indirectly result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, need for new or physically altered park facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for parks. No impact would occur.

Other public facilities?

No Impact. Other public facilities and services provided within the City include library services and City administrative services. Library services are provided by the County of San Bernardino, which the Rialto Branch Library located at 251 West First Street (County of San Bernardino 2023). In addition, administrative services are provided at Rialto City Hall, located at 150 S. Palm Avenue. Similar to park facilities and services, the Project would not directly or indirectly induce substantial unplanned population growth and impacts to public services, such as libraries and administrative services, would occur relative to the introduction of new residential uses. Instead, it is likely that the majority of the future employees are already residents of the nearby communities. As such, the Project would not directly or indirectly result in substantial adverse physical impacts associated with the provision of new or physically altered library or administrative facilities, need for new or physically altered library or administrative facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for library or administrative services. No impact would occur.

3.16 Recreation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION				
a) Would the project 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) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

a) Would the project 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. As discussed in Section 3.14 of this IS/MND, the Project would result in approximately 134 new employees and not result in a new residential population on the site. Similar to the discussion provided in Section 3.15, the Project would not directly or indirectly result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, need for new or physically altered park facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives for parks. Typically, impacts to parks and recreational facilities would occur relative to the introduction of new residential uses. For the purposes of this analysis, it is likely that the majority of the future employees are already residents of the nearby communities. As such, Project employees are not anticipated to utilize existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. No impact would occur.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

No Impact. the Project would not include recreational facilities. Instead, the Project would result in the redevelopment of an existing developed site for a new industrial warehouse building. Project implementation would not require the construction or expansion of recreational facilities. Similar to the discussions provided in Sections 3.14 and 3.15, it is likely that the majority of the future employees are already residents of the nearby communities. Project employees are not anticipated to utilize existing neighborhood and regional parks or other recreational facilities, thereby necessitating in the expansion of such facilities. No impact would occur.

3.17 Transportation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION – 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 CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☐	☒

The following discussion and analysis are based on the findings included in the Traffic Analysis, included as Appendix J to this IS/MND.

a) Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less Than Significant Impact. California Planning Law requires that cities' general plans include a circulation element that guides development in a manner that is compatible with the Land Use Element. As such, the City's General Plan anticipates the level and pattern of development throughout the city and identifies accommodations through the roadway system, public transportation, and non-motorized forms of transportation (City of Rialto 2010).

The City designates both Rialto Avenue and Cactus Avenue as a "Major Arterial" street classification, which are designed as the largest of the local surface street roadways and link freeways with local streets to accommodate larger volumes of through traffic. Typically, Major Arterials have at least two lanes of travel in each direction (City of Rialto 2010). In addition, the closest designated truck route to the Project site (according to General Plan Exhibit 4.5, Truck Routes) is Cedar Avenue (City of Rialto 2010). According to the General Plan, a "Truck Route" is a path of circulation required for all vehicles exceeding set weight or axle limits; and therefore, follows major arterials through commercial or industrial areas to avoid sensitive areas (City of Rialto 2010). Project implementation would require the use of trucks for construction and operational activities. The Project would comply with existing regulations governing truck circulation to and from the Project site, including compliance with Chapter 10.40, Trucks, of the City's Municipal Code. The Project would not alter the surrounding roadways.

For informational purposes, the General Plan includes goals and policies regarding Level of Service (LOS). However, with the passage of Senate Bill (SB) 743, a new methodology for assessing transportation impacts was implemented from LOS to Vehicle Miles Traveled (VMT), as further discussed in Section 3.17(b). Given this change, the Project's anticipated LOS impacts are not analyzed within this IS/MND. As such, the Project would not conflict with City planning regarding roadway facilities. However, although the Project is anticipated to generate fewer than 50 net new passenger car equivalent (PCE) peak hour trips, the City requested a study area to be evaluated as part of a Traffic Analysis (included within Appendix J). As such, this analysis is appended for informational purposes.

Public transit service in the City is provided by Omnitrans and Metrolink. Omnitrans is a local fixed-route bus service with the closest bus stop (Route 14) located at the intersection of Foothill Boulevard and Cedar Avenue (approximately 0.75-mile northwest from the Project site) (Omnitrans 2023). The nearest Metrolink station is located in Downtown Rialto, approximately 0.65-mile southeast of the Project site (Metrolink 2023). Given the distance from the Project site, implementation of the Project would not conflict with transit facilities.

Within the Project site's surrounding vicinity, pedestrian facilities exist under existing conditions. Both Rialto and Cactus Avenues include sidewalks on each side of the road with a crosswalk at the intersection. Additionally, the Project site is supported by existing bicycle facilities surrounding the site. A Class II bicycle lane runs north-south on Cactus Avenue. Additionally, the Pacific Electric Trail was identified in the City's Circulation Element as a future regional bike route (City of Rialto 2010). Under existing conditions, this former rail line serves as a bicycle route which connects Rialto to surrounding communities. Project implementation would not result in a substantial conflict with existing pedestrian and transit facilities. As

discussed in Chapter 2, Project Description, of this IS/MND, the Project would result in changes to the Project site's adjacent sidewalks due to design changes to the site's driveway circulation. However, these changes would be in accordance with established City policies and regulations for pedestrian access and circulation. Further, no off-site changes to Rialto Avenue, Cactus Avenue, and the Pacific Electric Trail would occur associated with the proposed Project. Transportation improvements within the City of Rialto are funded through a combination of project mitigation, development impact fee programs or fair share contributions, such as the City of Rialto Development Impact Fee (DIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.[9] There are no recommended improvements at the study area intersections, as detailed in Appendix J. However, the Project Applicant will fulfill any potential obligations towards off-site intersections through fair share contributions that would be assigned to the future construction of any future local/regional improvement needs. These will be required as Conditions of Approval for the Project. As such, the Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Based on analysis provided above, the Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and its impact to transportation plans and programs would be less than significant. No mitigation is required.

b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

Less Than Significant Impact. CEQA Guidelines Section 15064.3(b) states that "generally, vehicle miles traveled is the most appropriate measure of transportation impacts," and define VMT as "the amount and distance of automobile travel attributable to a project." Note that "automobile" refers to on-road passenger vehicles, specifically cars and light trucks. Heavy-duty truck VMT does not need to be included in the analysis per SB 743 requirements. Other relevant considerations may include the effects of the Project on transit and non-motorized traveled.

The City's VMT guidelines are used to identify potential transportation impacts for land use projects. Certain projects are screened out of additional analysis based on the following criteria: 1) located within a Transit Priority Area (TPA), 2) located within a Low VMT area, and 3) based on project type. According to the Project's Traffic Analysis (Appendix J), the Project site is not located within 0.5 mile of an existing major transit stop or along a high-quality transit corridor; thus, the Project does not meet the TPA criteria. The Project site is located within a traffic analysis zone (TAZ) with an average VMT per service population that is below the screening criteria; thus, the Project site is located within a low VMT-generating area (Appendix J).

[9] In 2006, the City of Rialto adopted their DIF program incorporating the regional component of Measure I. The fee schedule was updated in June 2021. Fees from new residential, commercial, and industrial development are collected to fund Measure I compliant regional facilities. Under the City's DIF program, the City may grant developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program. After the City's DIF fees are collected, they are placed in a separate interest-bearing account pursuant to the requirements of Government Code sections 66000 et seq. The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. Project improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion) (Appendix J).

Under existing conditions, the Project site generates approximately 181 daily vehicle trips based on traffic counts collected on Tuesday, April 12, 2022 through Thursday, April 14, 2022 (Appendix J). According to Appendix J, the Project's proposed land use is anticipated to generated 274 daily vehicle trips. Therefore, the Project is estimated to generate 93 net new vehicle trips per day, which is below the City's 110 daily vehicle trip threshold. Thus, the Project would also satisfy the "Project Type" screening criteria (Appendix J).

Given the above, the Project would result in less than significant impacts related to conflict or inconsistency with CEQA Guidelines Section 15064.3(b). No mitigation is required.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant Impact. The Project would result in a warehouse building with truck and passenger vehicle circulation traveling to and from the site during operations. Project construction activities would be contained to the Project site. Implementation of the Project would result in changes to the site's design relative to driveway access points, as detailed in Section 2.3, Project Characteristics. However, the Project would not result in off-site improvements to the adjacent roadways (i.e., Rialto Avenue and Cactus Avenue). As detailed in Section 3.17a, the Project Applicant will fulfill any potential obligations towards off-site intersections through fair share contributions. These will be required as Conditions of Approval for the Project. Moreover, the Project would not utilize incompatible uses (e.g., farm equipment) during construction or operation.

The Traffic Analysis analyzed the Project's anticipated vehicle trip generation compared to existing conditions. Using the vehicle and truck mix sourced from the City's guidelines, the Project is anticipated to generate a net total of 460 two-way passenger car equivalent (PCE) trips per day with 50 PCE a.m. peak hour trips and 54 PCE p.m. peak hour trips (Appendix J). When compared to the Project site's existing conditions, the Project would generate 247 net new PCE two-way trips per day and 32 net PCE a.m. peak hour trips and 35 net PCE p.m. peak hour trips (Appendix J). The Project on its own would generate fewer than 50 peak hour trips and would generate even fewer trips with the credit for existing uses.

Under existing conditions, the Project site maintains two points of access on Rialto Avenue and one driveway on Cactus Avenue. The Project would result in two points of access on each roadway surrounding the site. Passenger vehicles (full access) and trucks (inbound only) would utilize the western driveway on Rialto Avenue (Driveway 1) while the easterly driveway on Rialto Avenue would serve inbound trucks only (Driveway 2). The northerly driveway on Cactus Avenue would serve passenger vehicles only and would be restricted to right-in/right-out access only. The southerly driveway on Cactus Avenue (Driveway 4) would serve outbound trucks only and will be restricted to right-out access only (Appendix J). A review of the intersection of Rialto Avenue and Cactus Avenue indicates both roadways are currently constructed to the General Plan roadway classification as a Major Arterial (Appendix J). Additionally, discretionary actions for the Project by the City includes review and approval of the Project's site plan and proposed truck access. With City approval of the site plan, the Project would not substantially increase hazards due to a design feature or incompatible uses.

For the reasons stated above, the Project would result in less than significant impacts related to hazardous design features and incompatible uses. No mitigation is required.

d) Would the project result in inadequate emergency access?

No Impact. As stated in Section 3.17(c) above, implementation of the Project would result in four driveways (two each on Rialto and Cactus Avenues). The Project's driveways would be designed and constructed in accordance with the City's standards under the direction of a licensed and qualified engineer. Similarly, the proposed parking areas and internal drive aisles have been designed to comply with the necessary width, clearance, and turning-radius requirements set forth in the City's Municipal Code. As such, all areas of the Project site would be accessible to emergency responders during construction and operation. No impact would occur.

3.18 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES				
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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

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)?

No Impact. As discussed under Section 3.5, Cultural Resources, of this IS/MND, the findings included in the Cultural Resources Record Search Results (Appendix C), nine previous studies have been completed

within one-half mile of the Project site and no cultural resources were recorded. In addition, the Project site has not been subject to a previous cultural resources assessment and no cultural resources have been previously recorded within its boundaries. Thus, no previously recorded archaeological resources of Native American origin within or surrounding the Project site were listed or eligible to be listed in the California Register of Historical Resources (CRHR) or in a local register. No significant cultural resource, as defined by CEQA Section 15064.5, has been identified within the Project site as a result of previous or current investigations. Therefore, the Project would not impact a known tribal cultural resource (TCR) listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k). Therefore, the Project would not impact TCRs that are listed or eligible for listing in the state or local register. There would be no impact.

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.***

Less Than Significant Impact With Mitigation Incorporated. As discussed above in Section 3.18(a), a records search (Appendix C) found no cultural resources were recorded within the vicinity of the Project site. Additionally, the Project site is entirely disturbed and has been developed for several decades. The development and construction activities that have taken place over the years have heavily disturbed subsurface soils found on the Project site. Much like most of the surrounding area, the Project site supported industrial activities prior to development, which disturbed underlying soils as well. As such, there is little potential for the inadvertent discovery of subsurface archaeological or other cultural resources materials during earthwork activities.

The Project is subject to compliance with AB 52 (California Public Resources Code, Section 21074), which requires consideration of impacts to TCRs as part of the CEQA process. AB 52 requires the City, as the lead agency responsible for CEQA compliance for the Project, to notify any groups (who have requested notification) of the Project who are traditionally or culturally affiliated with the geographic area of the Project site. Because AB 52 is a government-to-government process, all records of correspondence related to AB 52 notification and any subsequent consultation are on file with the City. In accordance with AB 52, on February 1, 2023, the City sent notification letters to the tribal representatives that have formally requested such notice under AB 52, inviting the tribes to consult on the proposed Project. To date, the City has received two responses to the notification letters: one response was received from Gabrieleño Band of Mission Indians - Kizh Nation (Kizh Nation) and one response was received from the Yuhaaviatam of San Manuel Nation (YSMN) (formally known as the San Manuel Band of Mission Indians). Records of consultation are on-file with the City. No specific, known tribal cultural resources were identified intersecting the Project site as a result of consultation. However, both Tribes requested that mitigation measures be required of the Project in the event that previously unidentified tribal cultural resources were present on site. It should be noted that, during consultation with the City, YSMN stated that the Tribe realizes that there may be additional tribes claiming cultural affiliation to the area; however, YSMN can only speak for itself. YSMN stated that it has no objection if the agency, developer, and/or archaeologist wishes to consult with other tribes in addition to YSMN and if the Lead Agency wishes to revise the conditions to recognize additional tribes. Consultation was closed between the tribes and the City in June 2023.

Therefore, despite the previous disturbance on the Project site and lack of known cultural resources within the vicinity of the Project site, it is possible that intact tribal cultural resources deposits are present at

subsurface levels, which would result in a potentially significant impact to TCRs. Thus, implementation of MM-TCR-1 through MM-TCR5 would be required to ensure that impacts to potential TCRs are less than significant. MM-TCR-1 and MM-TCR-2 were recommended by the Yuhaaviatam of San Manuel Nation. MM-TCR-3 through MM-TCR-5 were recommended by the Gabrieleño Band of Mission Indians – Kizh Nation. Any potential disjunction between the details of proposed mitigation measures would be resolved through the tribal monitoring agreement negotiations with the Project Applicant and/or, as a result of implementation of mitigation requiring coordination with traditionally culturally affiliated Consulting Tribes in the event of an inadvertent discovery of resources of potential Native American origin. A copy of the executed monitoring agreement with the Native American tribal entities shall be submitted to the lead agency prior to the commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity. For the purposes of this IS/MND, it is assumed the Project Applicant would make arrangements with the Kizh Nation Native American tribal entity to enter into a contract with the intent of securing a total of one Native American monitor, if requested and there is a potential for further disturbance of resources of Native American origin. Therefore, with implementation of MM-TCR-1 through MM-TCR-5, the Project would result in less than significant impacts regarding a substantial adverse change in the significance of a TCR determined by the lead agency to be significant.

MM-TCR-1 Yuhaaviatam of San Manuel Nation: Cultural Resources Mitigation

A. In the event that cultural resources are discovered during Project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the Project outside of the buffered area may continue during this assessment period. Additionally, the Yuhaaviatam of San Manuel Nation Cultural Resources Department (YSMN) shall be contacted, as detailed within MM-TCR-2, regarding any pre-contact and/or historic-era finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

B. If significant pre-contact and/or historic-era cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to YSMN for review and comment, as detailed within MM-TCR-2. The archaeologist shall monitor the remainder of the Project and implement the Monitoring and Treatment Plan accordingly.

C. If human remains or funerary objects are encountered during any activities associated with the Project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the Project.

MM-TCR-2 Yuhaaviatam of San Manuel Nation: Tribal Cultural Resources Mitigation

1. The Yuhaaviatam of San Manuel Nation Cultural Resources Department (YSMN) shall be contacted, as detailed in MM-TCR-1, of any pre-contact and/or historic-era cultural resources discovered during Project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to

significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a Cultural Resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with YSMN, and all subsequent finds shall be subject to the Cultural Resources Monitoring and Treatment Plan. The Cultural Resources Monitoring and Treatment Plan shall allow for a monitor to be present that represents YSMN for the remainder of the Project, should YSMN elect to place a monitor on-site.

2. Any and all archaeological/cultural documents created as a part of the Project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the Project Applicant and Lead Agency for dissemination to YSMN. The Lead Agency and/or Project Applicant shall, in good faith, consult with YSMN throughout the life of the Project.

MM-TCR-3 Gabrieleño Band of Mission Indians – Kizh Nation: Retain a Native American Monitor Prior to Commencement of Ground-Disturbing Activities.

A. The Project Applicant/Lead Agency shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any "ground-disturbing activity" for the subject project at all Project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the Project, such as public improvement work). "Ground-disturbing activity" shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching.

B. A copy of the executed monitoring agreement shall be submitted to the lead agency prior to the earlier of the commencement of any ground-disturbing activity, or the issuance of any permit necessary to commence a ground-disturbing activity.

C. The monitor will complete daily monitoring logs that will provide descriptions of the relevant ground-disturbing activities, the type of construction activities performed, locations of ground-disturbing activities, soil types, cultural-related materials, and any other facts, conditions, materials, or discoveries of significance to the Tribe. Monitor logs will identify and describe any discovered TCRs, including but not limited to, Native American cultural and historical artifacts, remains, places of significance, etc., (collectively, tribal cultural resources, or "TCR"), as well as any discovered Native American (ancestral) human remains and burial goods. Copies of monitor logs will be provided to the Project Applicant/lead agency upon written request to the Tribe.

D. On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the Project Applicant/lead agency that all ground-disturbing activities and phases that may involve ground-disturbing activities on the Project site or in connection with the Project are complete; or (2) a determination and written notification by the Kizh to the Project Applicant/lead agency that no future, planned construction activity and/or

development/construction phase at the Project site possesses the potential to impact Kizh TCRs.

MM-TCR-4 Gabrieleño Band of Mission Indians – Kizh Nation: Unanticipated Discovery of Tribal Cultural Resource Objects (Non-Funerary/Non-Ceremonial). Upon discovery of any TCRs, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered TCR has been fully assessed by the Kizh monitor and/or Kizh archaeologist. The Kizh will recover and retain all discovered TCRs in the form and/or manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural and/or historic purposes.

MM-TCR-5 Gabrieleño Band of Mission Indians – Kizh Nation: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects.

A. Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in Public Resources Code Section 5097.98, are also to be treated according to this statute.

B. If Native American human remains and/or grave goods are discovered or recognized on the project site, then Public Resource Code 5097.9 as well as Health and Safety Code Section 7050.5 shall be followed.

C. Human remains and grave/burial goods shall be treated alike per California Public Resources Code section 5097.98(d)(1) and (2).

D. Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods.

E. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.

3.19 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, waste water treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 waste water treatment provider which 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?	☐	☐	☒	☐

a) Would the project require or result in the relocation or construction of new or expanded water, waste water treatment or storm water 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 site is located within an urbanized area with surrounding land uses supported by existing utility infrastructure. Implementation of the Project would require the connection to existing infrastructure, which would involve ground disturbing activities, the use of heavy machinery, among other construction activities.

The Project proposes a new 10-inch water line to support building operations, fire suppression, and supply fire flow. In addition, the Project would install new fire hydrants on site in accordance with fire code standards (see Section 3.15, Public Services, of this IS/MND, for more details). The Project also proposes a new 6-inch sewer line that would connect to existing sewer system. Each service system would be supported by existing infrastructure through connections on Rialto Avenue.

A new 24-inch storm drain would support the Project site and connect to proposed catch basins throughout the site. In addition, a new retention/infiltration chamber would be installed underground relative to the southeastern edge of the loading dock area (for more details, see Section 3.9, Hydrology and Water Quality).

The Project would connect to an existing telecommunications line, gas line, and would be served by existing electrical facilities. The Project site would continue to be supported by existing on- and off-site utility poles with streetlights. Off-site and south of the Project site, the Project would install new streetlights in accordance with the City's Municipal Code regulations.

Given the above, the construction and connection to water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities is part of the Project and analyzed throughout this IS/MND. As such, any potential environmental impacts related to these components of the Project are already accounted for as part of the environmental assessment conducted for the entirety of the Project. No significant adverse physical effects beyond those already disclosed in this IS/MND would occur as a result of implementation of the Project's utility system connections. Additionally, the Project would constitute a nominal increase in utility usage, which has already been accounted for in growth projections for the City (see Section 3.11, Land Use and Planning, and Section 3.14, Population and Housing). No modifications to utility infrastructure would be necessary outside of the immediate Project site vicinity. As such, impacts associated with the construction or expansion of utility line facilities would be less than significant. No mitigation is required.

b) Would the project 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. According to the City's General Plan Exhibit 3.2, Water Districts, the Project site is within the jurisdiction of the Rialto Public Works Department Water Division (also known as the Rialto Water District). Per the General Plan, the City's primary source of water is City-owned water wells, which draw water from four water basins: Lytle Creek Surface Water Basin, Rialto Ground Water Basin, Bunkerhill Ground Water Basin, and Chino Hill Ground Water Basin. In addition, the City receives water from the San Bernardino Valley Municipal Water District (City of Rialto 2010). Water supply is also supplemented by local surface water and recycled water for landscape irrigation (UWMP 2021).

The Project is consistent with the General Plan and does not require a General Plan amendment; therefore, the Project would be consistent with the City's growth projections anticipated in local and regional planning documents, including the City's 2020 Urban Water Management Plan (UWMP). According to the UWMP, population growth projections developed by the SCAG have declined significantly in the last 10 years. While SCAG's Demographics and Growth Forecast projects slower growth than previous plans, the result is still a substantial increase in population within the service area and the region. Total projected water demands for all of the retail water agencies within the region are expected to reach nearly 400,000 acre-feet per year (AFY) by 2045. Normal year supplies meet or exceed regional demands including a 15% reliability factor that accounts for uncertainty factors in the projections (UWMP 2021).

As discussed in Chapter 2, Project Description, of this IS/MND, the Project is anticipated to be operational by August 2024. The UWMP projects that by 2025, the water demand for the Project site's service area would be approximately 9,603 acre-feet, and the total water supply would approximate to 11,043 acre-feet during a normal year; resulting in a difference of 1,980 acre-feet. The service area, under multiple dry year conditions, is projected to yield a difference of 1,584 acre-feet in 2025. As mentioned previously, the Project would not result in changes to the site's land use designation. Thus, the Project would be within the projections outlined in the UWMP and is anticipated to be supported by sufficient water supplies during normal, dry, and multiple dry years. Therefore, the Project would result in less than significant impacts. No mitigation is required.

c) Would the project result in a determination by the waste water treatment provider which 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. The Project site is served by the City's wastewater collection system and treatment plant. All of the wastewater flows from the city is collected by the local sewer mains and delivered to the Rialto Wastewater Treatment Plant (UWMP 2021). According to the UWMP, the Rialto Wastewater Treatment Plant also collects, treats, and disposes of the wastewater from the WVWD service area and some areas of the City of Fontana through Extra-Territorial Agreements and is permitted for 11.7 million gallons per day (mgd) of treatment capacity and treats an average of 7 mgd as of 2020. In addition, it is estimated that approximately 43% or 3 mgd of the wastewater collected at the City of Rialto WWTP was generated within Rialto's water service area in 2020 (UWMP 2021). As discussed in Section 3.19(b), the Project is consistent with the General Plan and does not require a General Plan amendment; therefore, the Project would be consistent with the City's growth projections anticipated in local and regional planning documents, including the City's 2020 UWMP. Therefore, the Project would not exceed current capacities of the wastewater treatment system and would not significantly impact existing wastewater treatment systems such that new facilities would be required. Impacts would be less than significant. No mitigation is required.

d) Would the project 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. According to the City's General Plan, private waste haulers are used for the collection, transfer, recycling, and disposal of solid waste. Most refuse is disposed of at the Mid-Valley Sanitary Landfill, which is operated by the County of San Bernardino Solid Waste Management Division (City of Rialto 2010).

The California Department of Resources Recycling and Recovery (CalRecycle) publishes solid waste generation rates based on land use type and prior studies. According to CalRecycle, manufacturing/warehouse uses generate 1.42 pounds per 100 square feet per day (CalRecycle 1997). Based on this generation factor, construction of the proposed 159,700-square-foot warehouse building is projected to generate approximately 2,268 pounds of solid waste per day[10] (or 1.1 tons per day). The Mid-Valley Sanitary Landfill currently has a maximum permitted throughput of 7,500 tons per day (CalRecycle 2019). As a result, solid waste generated by the Project would represent only a nominal percentage of the collective maximum daily throughput permitted for this landfill. Therefore, impacts would be less than significant. No mitigation is required.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less Than Significant Impact. All collection, transportation, and disposal of solid waste generated by the Project would comply with all applicable federal, state, and local statutes and regulations. Under AB 939, the Integrated Waste Management Act of 1989, local jurisdictions are required to develop source reduction, reuse, recycling, and composting programs to reduce the amount of solid waste entering landfills. Local jurisdictions are mandated to divert at least 50% of their solid waste generation into recycling. The Project

[10] 159,700 x 1.42 / 100 = 2,267.74

would be required to submit plans to the Public Works Department for review and approval to ensure the plan would comply with AB 939. Furthermore, SB 1016 requires 50% diversion requirement to be calculated in a per capita disposal rate equivalent. In addition, the California Green Building Standards require new development to meet recycling minimums. As a result, compliance with applicable laws for recycling and disposal of solid waste would result in less-than-significant impacts as it relates to the Project. Therefore, impacts associated with solid waste disposal regulations would be less than significant. No mitigation is required.

3.20 Wildfire

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE – 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, 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 to 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?	☐	☐	☐	☒

California Public Resources Code Section 4102 defines State Responsibility Areas as areas of the State in which the financial responsibility of preventing and suppressing fires is primarily the responsibility of the State. Similarly, Local Responsibility Areas are areas in which fire protection services are under the responsibility of the local jurisdiction (i.e., city or county). Moreover, the California Department of Forestry and Fire Protection (CalFIRE) publishes maps distinguishing lands that are identified as Very High, High, and Moderate Fire Hazard Severity Zones (FHSZs). According to CalFIRE, the Project site is not located within a State Responsibility Area nor is the site within a Very High FHSZ (VHFHSZ) (CalFIRE 2022, CalFIRE 2008). The nearest VHFHSZ and High FHSZ is located approximately three miles north of the Project site. The following analysis is based on these determinations.

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. As discussed in Section 3.9, Hazards and Hazardous Materials, of this IS/MND, the City maintains procedures for mitigating potential disasters through the Standard Emergency Management System Multi-Hazard Functional Plan. In the event of a disaster, evacuation route movement would be conducted by Rialto law enforcement agencies. As detailed in Section 3.15, Public Services, the Project site is adequately served by existing police and fire protection services. Project construction and operational activities would occur on site and not result in the physical interference of adopted emergency response or evacuation plans. In addition, the Project site is not located within a State Responsibility Area nor is the site within a VHFHSZ (CalFIRE 2022, CalFIRE 2008). The Project would be subject to review by applicable City departments to ensure compliance with the City's goals, plans, and regulations related to emergency response or evacuation plans. Impacts would be less than significant. No mitigation is required.

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

No Impact. As described in the Geotechnical Investigation prepared for the Project site, the site is relatively level and is located within an area without significant slopes (Appendix D). According to the City's General Plan, the City has a history of extensive windstorms, often related to Santa Ana winds that push through the Cajon Pass. As a result, the City issues high wind advisories with posted signs throughout the city. Winds have the potential to push wildland fires in the Lytle Creek area (City of Rialto 2010). However, as determined above, the Project site is not located within a State Responsibility Area nor is the site within a VHFHSZ (CalFIRE 2022, CalFIRE 2008). Moreover, the Project site is approximately 3 miles southeast of the Lytle Creek Basin and nearest VHFHSZ. Typically, flying embers are generally not expected to travel distances greater than 2 miles, depending on weather conditions and the type of fuel (i.e., vegetation, residential structures) (NWCG 2023). In addition, the Project site is adequately served by existing fire protection services, as detailed in Section 3.15, Public Services. Therefore, it is not anticipated that the Project, due to slope, prevailing winds, and other factors, would exacerbate wildfire risks or expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Thus, the Project would not expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. No impact would occur.

c) Would the project 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 to the environment?

No Impact. The Project would include the construction and connection to existing utilities (see Section 3.19, Utilities and Service Systems, of this IS/MND) and associated infrastructure necessary for Project implementation. Construction activities would be conducted in accordance with the City's Municipal Code standards and regulations. The Project site is not located within a State Responsibility Area nor is the site within a VHFHSZ (CalFIRE 2022, CalFIRE 2008). As such, under existing conditions, fire risk is very low. In the event of a fire, the Project site would be served by nearby fire protection services (see Section 3.15, Public Services, of this IS/MND). Therefore, construction activities, including utility pole relocations, would not exacerbate fire risk in the project area. Furthermore, the Project site is located within a built-out

environment with no wildfire exacerbation factors, as described above in Section 3.20(b). As such, there would be no impact, and no mitigation would be required.

d) Would the project 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. As mentioned previously, the Project site is relatively flat and not near any significant slopes, which would have the potential to result in risks related to downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes (see Section 3.7, Geology and Soils, and Section 3.10, Hydrology and Water Quality, of this IS/MND). Furthermore, the Project site is not located within a State Responsibility Area or within lands classified as a VHFHSZ (CalFIRE 2022, CalFIRE 2008). As such, no impact would occur.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
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 which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

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 Impact With Mitigation Incorporated. As discussed in Section 3.4 of this IS/MND, the Project area is located on a developed site surrounded by existing residential and commercial development and is not expected to support sensitive vegetation, sensitive wildlife species, or sensitive habitat. However, the Project area contains trees and other vegetation that have the potential to support nesting birds and raptors that are protected under the California Fish and Game Code and under the MBTA. In the event that any such nesting birds or raptors are present during construction activities associated with the Project, MM-BIO-1 would be implemented to ensure the birds and/or raptors would be protected in accordance existing regulations, which would reduce this impact. Once the Project has been constructed, construction-related disturbances would not occur, and landscaping trees would be planted throughout the Project site. As such, the Project site would continue to provide potential nesting sites in an urban environment, consistent with existing and surrounding conditions. Therefore, long-term impacts to nesting and migratory birds would be less than significant with mitigation incorporated. No additional mitigation is required.

As described in Section 3.5 of this IS/MND, the Project would have no impact on historical resources. In addition, the Project would include ground disturbing activities that could result in the inadvertent discovery of sub-surface cultural resources. In the unlikely event that sub-surface cultural resources were to be discovered during construction activities associated with the Project, the resource(s) would be protected in accordance with MM-CUL-1. Therefore, the Project would not eliminate important examples of the major periods of California history or prehistory. Similarly, as described in Section 3.18 of this IS/MND, there is little potential for the inadvertent discovery of subsurface archaeological, paleontological, or other cultural resources materials during earthwork activities. In addition, no tribal cultural resources were identified on the Project site during consultation with Tribes in accordance with AB 52. However, the Gabrieleño Band of Mission Indians - Kizh Nation and the Yuhaaviatam of San Manuel Nation (YSMN) requested that mitigation measures be required of the Project in the event that previously unidentified tribal cultural resources were present on-site. Therefore, implementation of MM-TCR-1 through MM-TCR-5 would be required to ensure that impacts to potential TCRs would be less than significant. For these reasons, impacts to cultural resources and tribal cultural resources resulting from the Project would be less than significant with mitigation incorporated. No further mitigation is required.

As such, with the implementation of MM-BIO-1, MM-CUL-1, and MM-TCR-1 through MM-TCR-5, the Project would not 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. Impacts would be less than significant with mitigation incorporated. No further mitigation is required.

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 With Mitigation Incorporated. As described throughout this IS/MND, the Project would result in potentially significant impacts involving biological resources, paleontological resources, cultural resources, and tribal cultural resources. However, mitigation measures, have been identified that would reduce these impacts to less-than-significant levels. Furthermore, the air quality and transportation analyses presented in Section 3.3 and Section 3.17 of this IS/MND consider cumulative impacts and have determined that cumulative air and transportation impacts would be less than significant. All reasonably foreseeable future development in the City would be subject to the same land use and environmental regulations that have been described throughout this document. Furthermore, all development projects are guided by the policies identified in the City's General Plan and by the regulations established in the Municipal Code. Therefore, compliance with applicable land use and environmental regulations would ensure that environmental effects associated with the Project would not combine with effects from reasonably foreseeable future development in the City to cause cumulatively considerable significant impacts. For these reasons, cumulative impacts would be less than significant with mitigation incorporated. No further mitigation is required.

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

Less Than Significant Impact. As detailed throughout this IS/MND, the Project would not exceed any significance thresholds or result in significant impacts in the environmental categories typically associated with indirect or direct effects to human beings, such as aesthetics, air quality, or public services. As such, significant impacts related to substantial adverse effects on human beings would not occur. Less than significant impacts would occur. No further mitigation is required.

4 References and Preparers

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Kelsey Bacon, GIS Analyst

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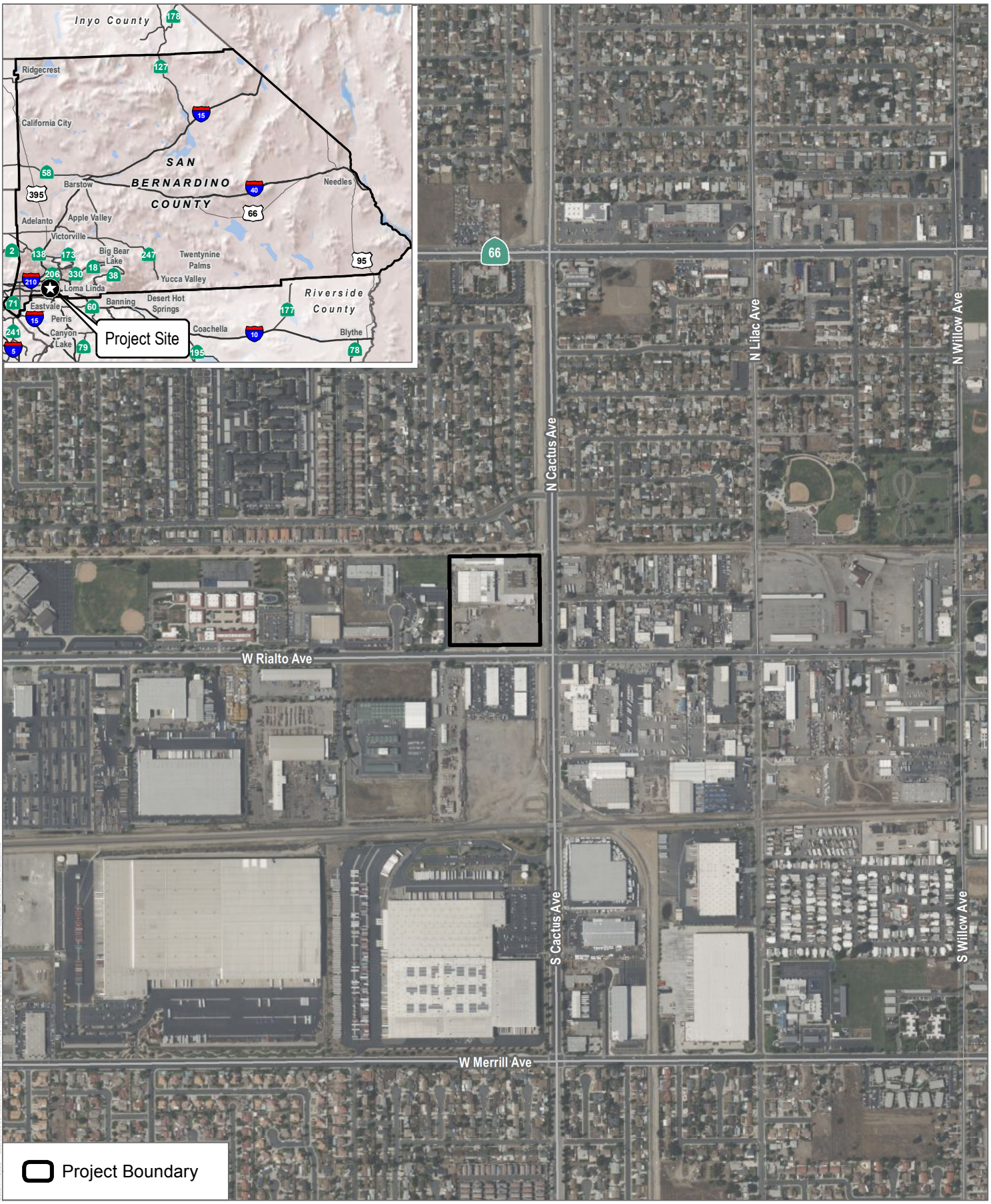


SOURCE: Bing Maps Aerial

DUDEK

0 500 1,000 Feet

FIGURE 1

Regional and Local Vicinity

160 N. Cactus Avenue Project



SOURCE: ESRI World Imagery 2020

DUDEK

0 50 100 Feet

FIGURE 2

Existing Project Site

160 N. Cactus Avenue Project



Rialto Ave - Cactus Ave Looking Northwest



Rialto Ave Looking North



Rialto Ave Looking Northwest



Rialto Ave Looking West



Rialto Ave Looking Northwest



Rialto Ave Looking Northeast

FIGURE 3a

Existing Site Photos

160 N. Cactus Avenue Project

DUDEK



Cactus Ave Looking Southwest



Cactus Ave Looking West



Cactus Ave Looking Northwest

FIGURE 3b

Existing Site Photos

160 N. Cactus Avenue Project

DUDEK



City Property



Flood Control Channel Looking North-Northwest



Flood Control Channel Looking South-Southwest



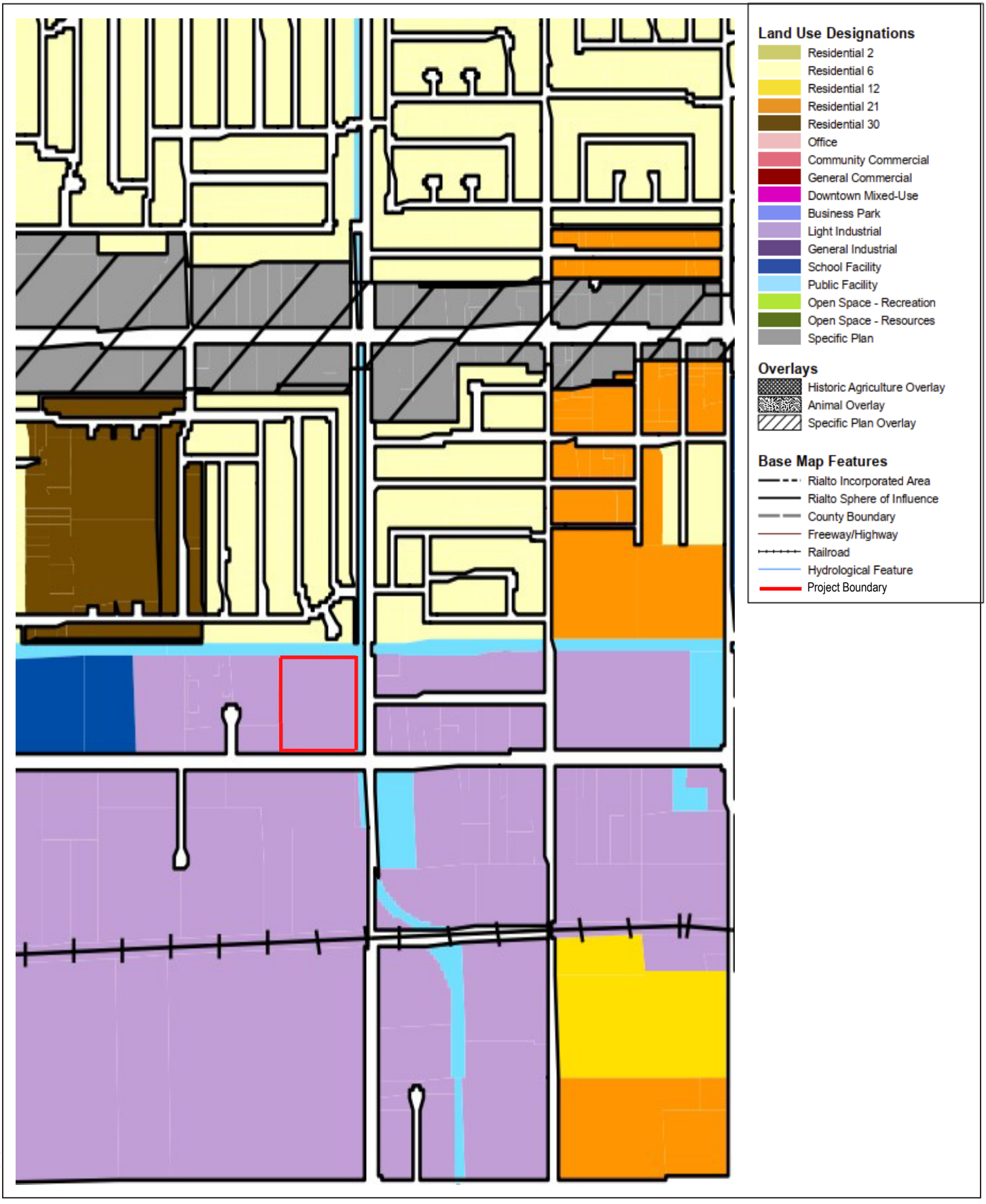
Rialto Ave Looking Northwest

DUDEK

FIGURE 3c

Existing Site Photos

160 N. Cactus Avenue Project



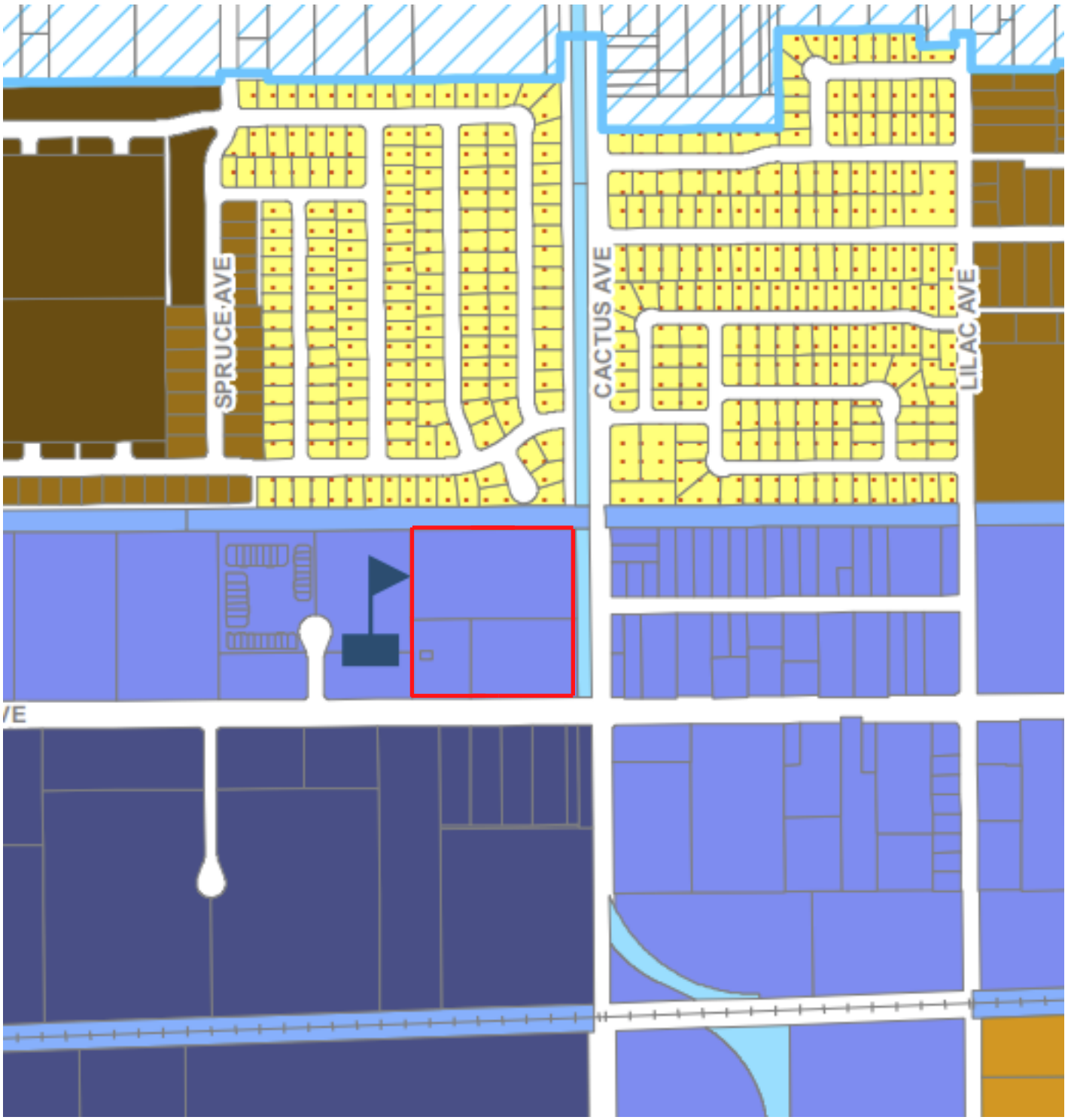
SOURCE: Hogle-Ireland, Inc., 2010

FIGURE 4

Existing General Plan Designation

160 N. Cactus Avenue Project

DUDEK



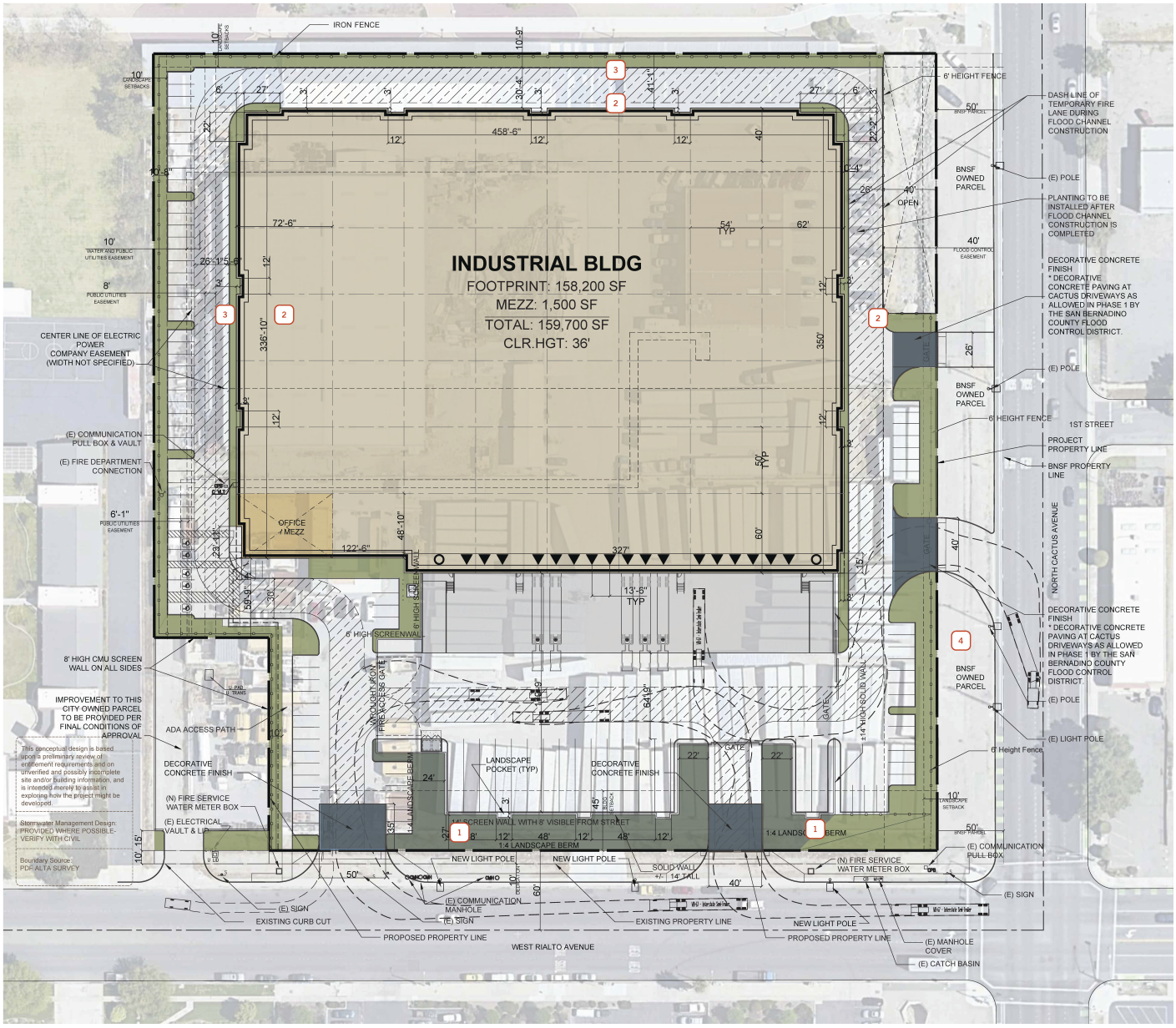
SOURCE: City of Rialto, 2010; San Bernadino County Assessor, 2011; Hogle-Ireland, Inc., 2012

FIGURE 5

Existing Zoning

160 N. Cactus Avenue Project

DUDEK



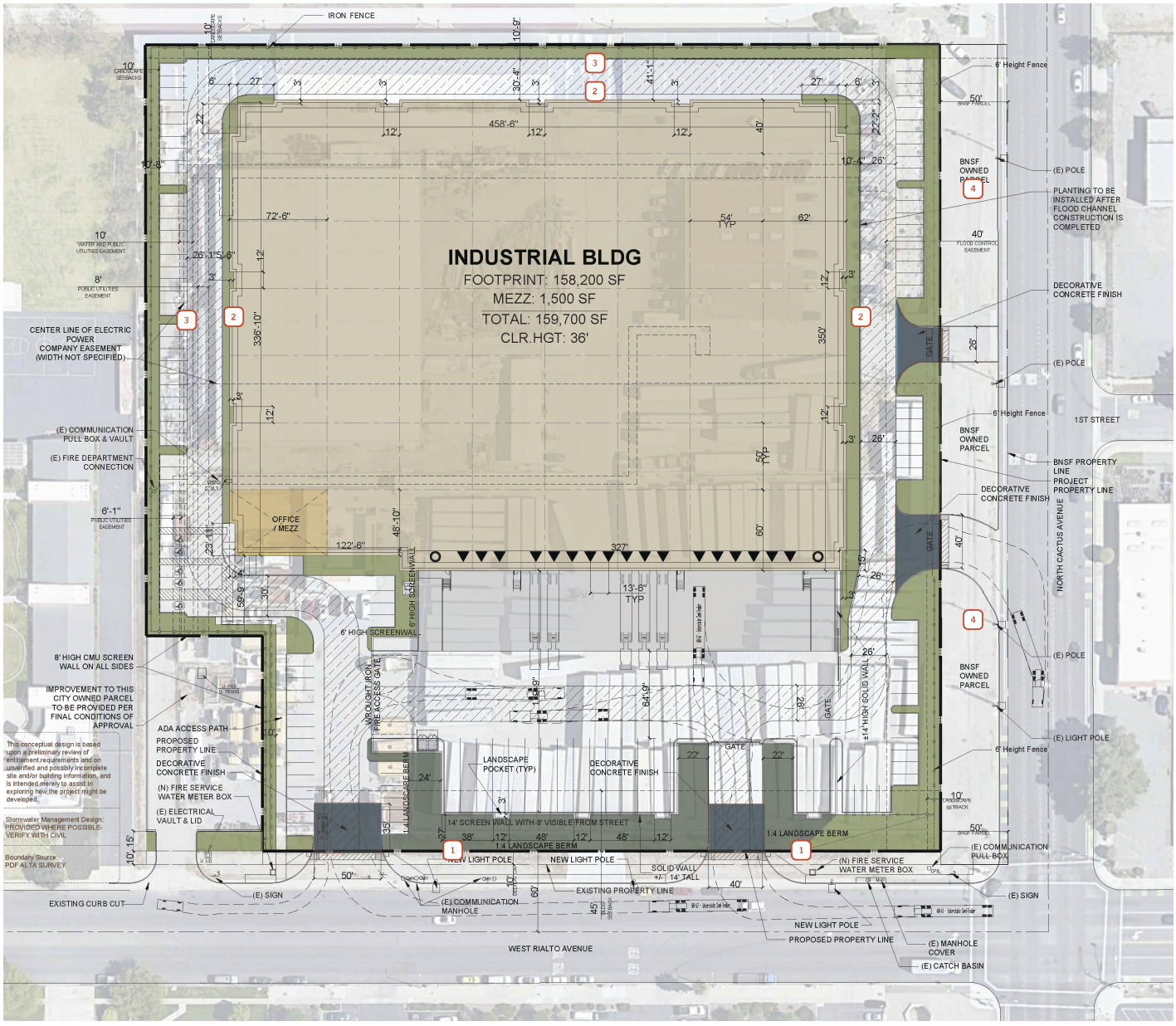
SOURCE: Ware Malcomb, 2023

FIGURE 6a

Conceptual Site Plan Phase 1

160 N. Cactus Avenue Project

DUDEK



SOURCE: Ware Malcomb, 2023

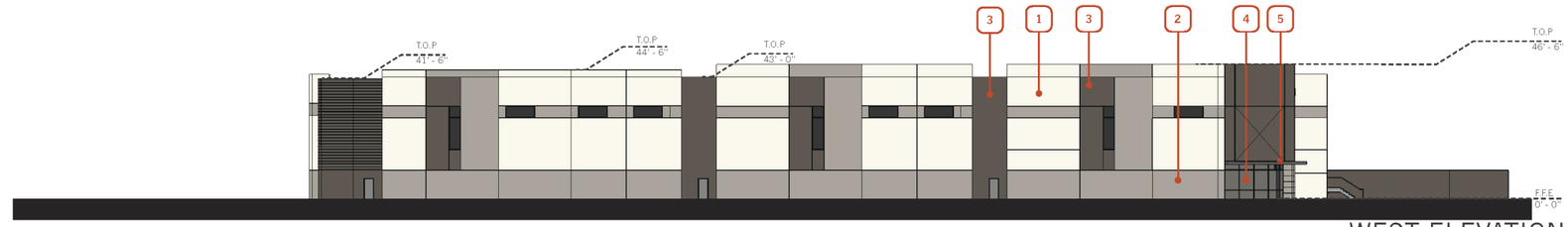
FIGURE 6b

Conceptual Site Plan Phase 2

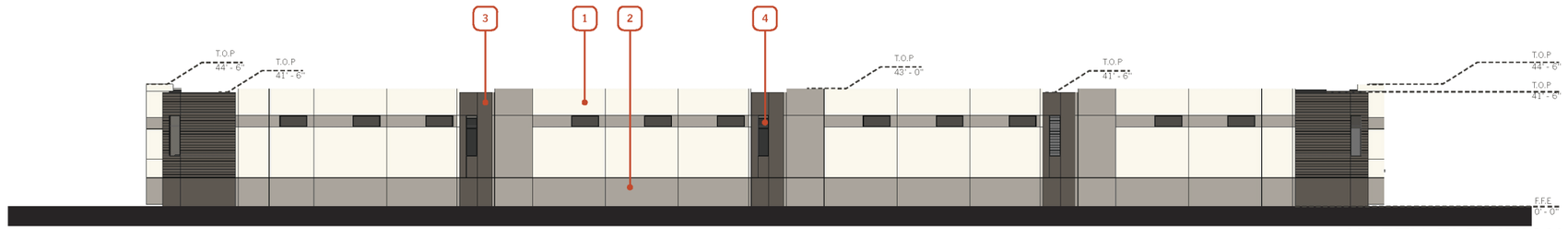
160 N. Cactus Avenue Project

DUDEK

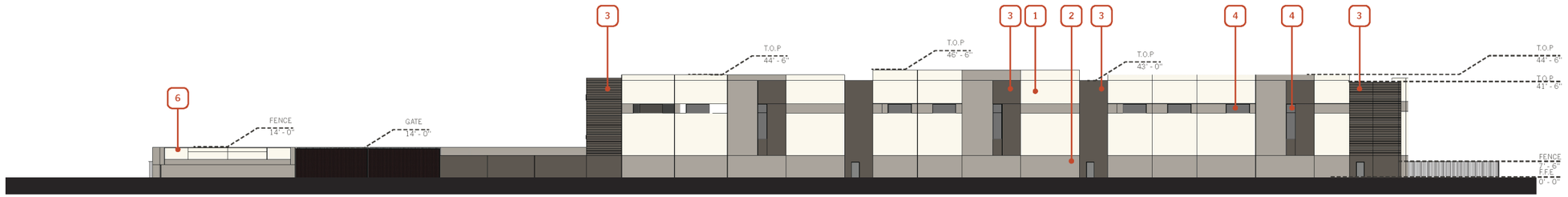
ALL SIGNAGE IS FOR THE PURPOSE OF ILLUSTRATION ONLY, A SEPARATE SIGN PERMIT WILL BE REQUIRED.



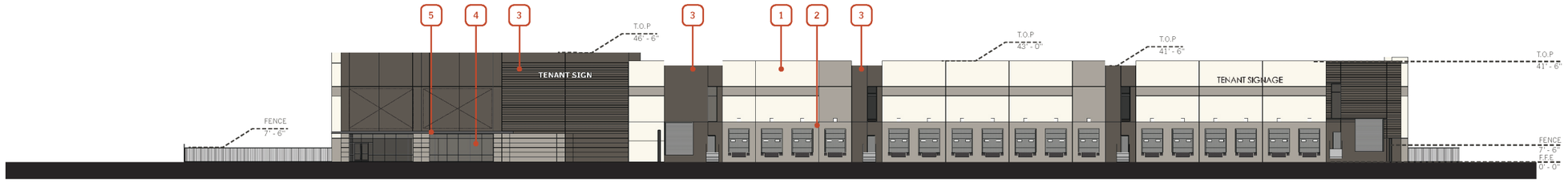
WEST ELEVATION



NORTH ELEVATION



EAST ELEVATION



SOUTH ELEVATION

KEYNOTES

1. CONCRETE TILT UP PAINTED WITH REVEALS AS SHOWN
2. CONCRETE TILT UP PAINTED WITH REVEALS AS SHOWN
3. CONCRETE TILT UP PAINTED WITH REVEALS AS SHOWN
4. HIGH PERFORMANCE GLAZING WITH BLACK MULLIONS GLASS-TINTED GRAY
5. METAL CANOPY

BASE COLOR

SECONDARY COLOR

ACCENT COLOR

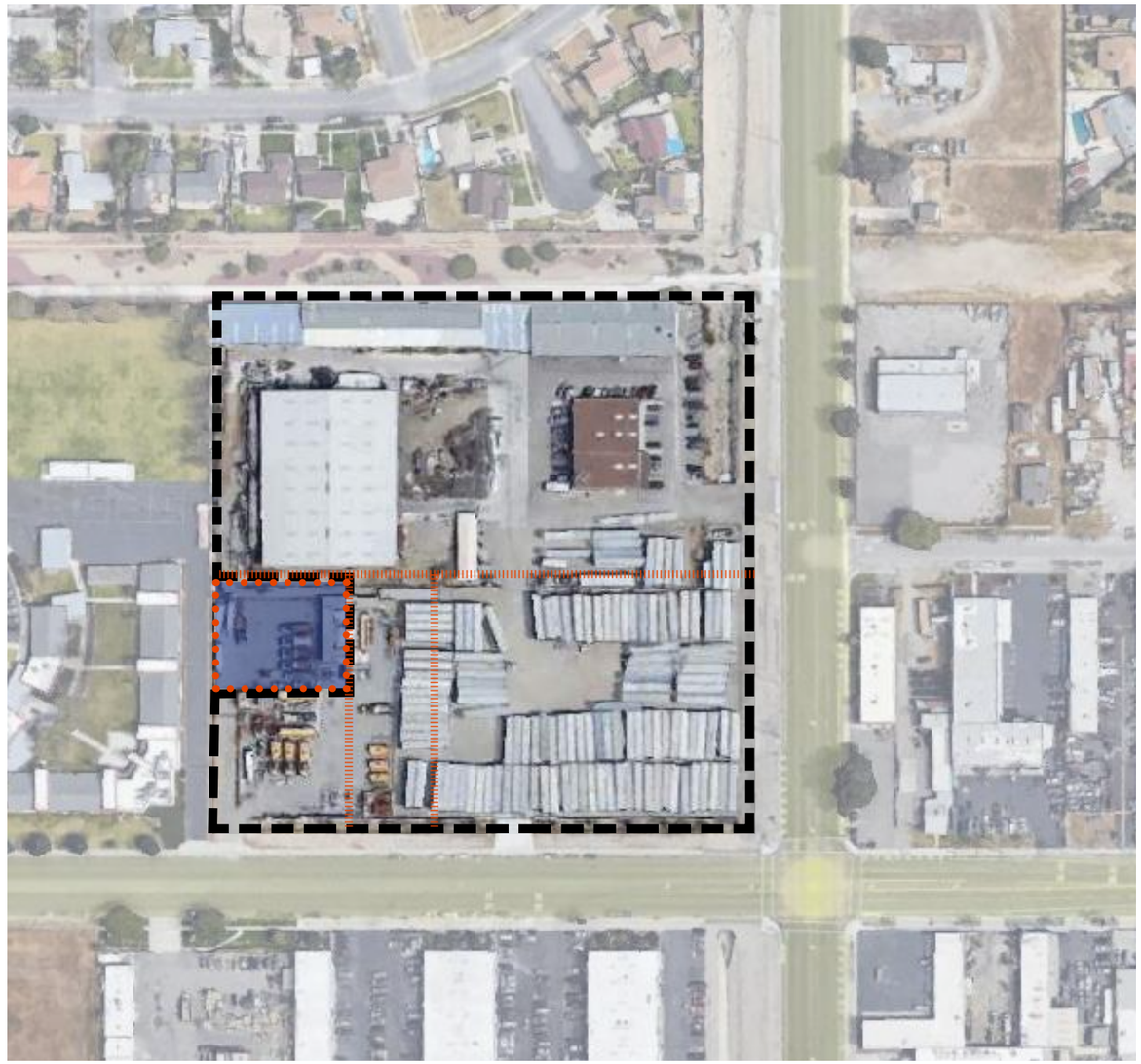
SOURCE: Ware Malcomb, 2023

DUDEK

FIGURE 7

Elevations

160 N. Cactus Avenue Project





LEGEND

- EXISTING PROPERTY LINE
- LOT LINE TO BE REMOVED
- CURRENT CITY PROPERTY
- PROPOSED PROPERTY LINE
- PROPOSED CITY PROPERTY

SOURCE: Ware Malcomb, 2022

FIGURE 8

Lot Line Adjustment

160 N. Cactus Avenue Project

DUDEK

DWY. 1

DWY. 2

DWY. 3

DWY. 4

CACTUS AVE.

1ST ST.

RIALTO AVE.

SCALE: 1" = 40' (ON 24" x 36" SHEET)

0 20 40 80 120 160

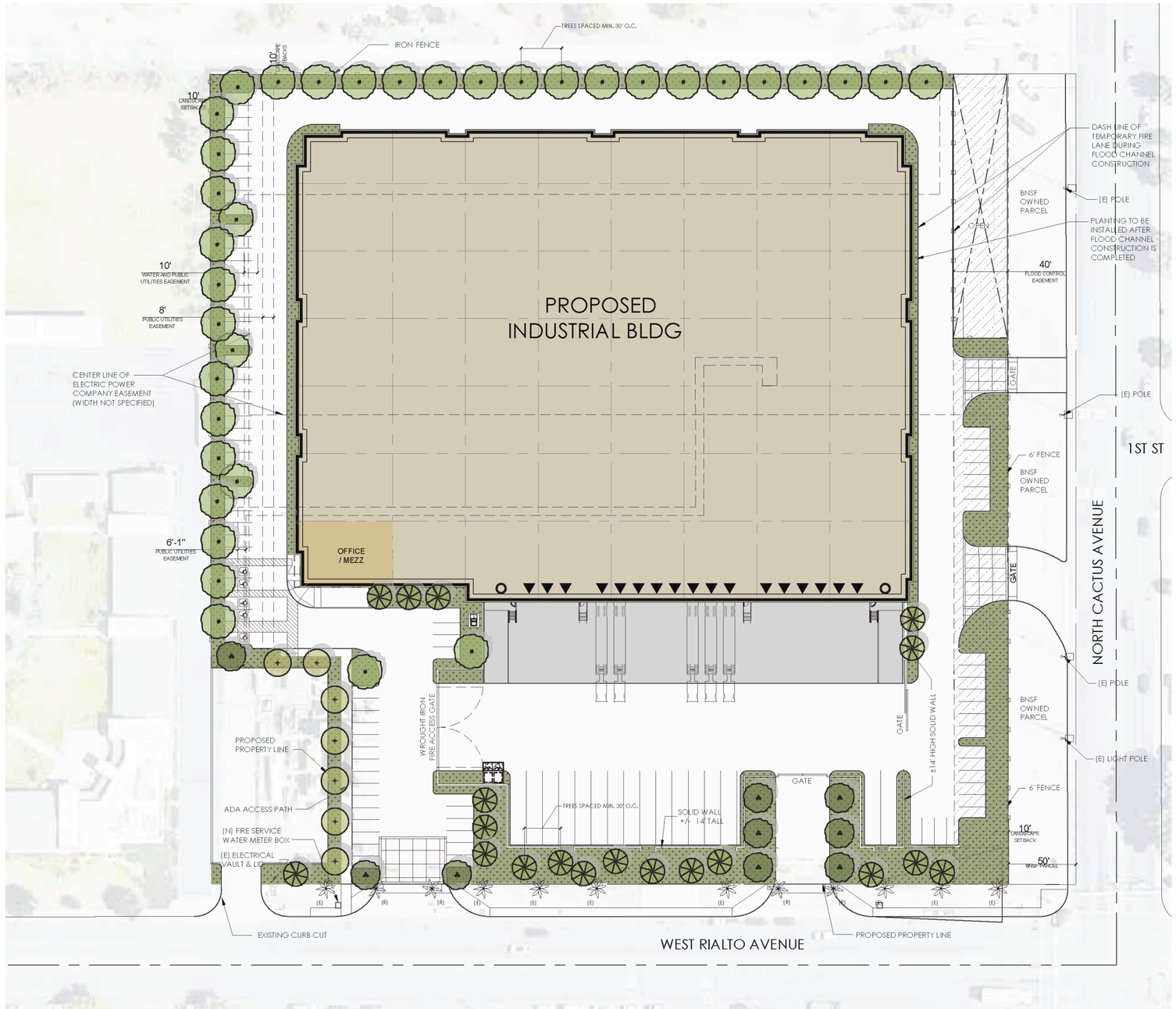
SOURCE: Urban Crossroads, 2023

FIGURE 9

Truck Circulation

160 N. Cactus Avenue Project

DUDEK



PRELIMINARY PLANTING LEGEND

SYMBOL	BOTANICAL / COMMON NAME	SIZE	REGION 4 WUCOLS SOUTH INLAND VALLEY
PROPOSED TREES			
	CUPANIOPSIS ANACARDIOIDES / CARROTWOOD (EVERGREEN)	15 GAL STANDARD	MOD
	GEIJERA PARVIFOLIA / AUSTRALIAN WILLOW (EVERGREEN)	36" BOX STANDARD	MOD
	QUERCUS AGRIFOLIA / COAST LIVE OAK (EVERGREEN)	24" BOX STANDARD	LOW
	LAGERSTROEMIA L 'NATCHEZ' / CREPE MYRTLE (DECIDUOUS)	24" BOX STANDARD	LOW
	MELALEUCA QUINQUENERVIA / CAJEPUT TREE (EVERGREEN)	15 GAL STANDARD	LOW

SYMBOL	BOTANICAL / COMMON NAME	SIZE
PROPOSED SHRUBS		
	AEONIUM ARBOREUM / TREE AEONIUM	1 GAL / 24" O.C.
	AGAVE AMERICANA / CENTURY PLANT	5 GAL / 36" O.C.
	AGAVE ATTENUATA / FOXTAIL AGAVE	1 GAL / 36" O.C.
	AGAVE 'BLUE GLOW' / BLUE GLOW AGAVE	1 GAL / 24" O.C.
	ALYOGYNE HUEGELII / BLUE HIBISCUS	1 GAL / 36" O.C.
	BACCHARIS 'CENTENNIAL' / CENTENNIAL BACCHARIS	1 GAL / 36" O.C.
	BAILEYA MULTIRADIATA / DESERT MARIGOLD	1 GAL / 36" O.C.
	BOUGAINVILLEA 'MONKA' / OO-LA-LA BOUGAINVILLEA	1 GAL / 36" O.C.
	CAESALPINEA MEXICANA / MEXICAN BIRD OF PARADISE	5 GAL / 36" O.C.
	CALLIANDRA ERIOPHYLLA / FAIRY DUSTER	1 GAL / 36" O.C.
	CALLISTEMON 'LITTLE JOHN' / DWARF BOTTLE BRUSH	1 GAL / 36" O.C.
	CISTUS PURPUREUS / ORCHID ROCKROSE	5 GAL / 36" O.C.
	ECHEVARIA VIOLACINA / ECHEVARIA	1 GAL / 24" O.C.
	ELAEAGNUS PUNGENS / SILVERBERRY	5 GAL / 36" O.C.
	ENCELIA CALIFORNIA / CALIFORNIA ENCELIA	1 GAL / 36" O.C.
	HESPERALOE PARVIFLORA / RED/YELLOW YUCCA	1 GAL / 30" O.C.
	LEUCOPHYLLUM F. 'GREEN CLOUD' / GREEN CLOUD TEXAS RANGER	5 GAL / 36" O.C.
	SALVIA GREGII 'FURHMAN'S RED' / FURHMANS RED SAGE	1 GAL / 30" O.C.
	SALVIA LEUCANTHA / MEXICAN SAGE	1 GAL / 36" O.C.

SOURCE: Ware Malcomb, 2023

FIGURE 10a

Landscape Plan Phase 1

160 N. Cactus Avenue Project

DUDEK

Path: Z:\Projects\15041911\MXD\DOC\DOCUMENT



PRELIMINARY PLANTING LEGEND

REGION 4 WUCOLS SOUTH INLAND VALLEY

SYMBOL	BOTANICAL / COMMON NAME	SIZE	
PROPOSED TREES			
	CUPANIOPSIS ANACARDIOIDES / CARROTWOOD (EVERGREEN)	15 GAL STANDARD	MOD
	GEUERA PARVIFOLIA / AUSTRALIAN WILLOW (EVERGREEN)	36" BOX STANDARD	MOD
	QUERCUS AGRIFOLIA / COAST LIVE OAK (EVERGREEN)	24" BOX STANDARD	LOW
	LAGERSTROEMIA L 'NATCHEZ' / CREPE MYRTLE (DECIDUOUS)	24" BOX STANDARD	LOW
	MELALEUCA QUINQUENERVIA / CAJEPUT TREE (EVERGREEN)	15 GAL STANDARD	LOW

SYMBOL	BOTANICAL / COMMON NAME	SIZE
PROPOSED SHRUBS		
	AEONIUM ARBOREUM / TREE AEONIUM	1 GAL / 24" O.C.
	AGAVE AMERICANA / CENTURY PLANT	5 GAL / 36" O.C.
	AGAVE ATTENUATA / FOXTAIL AGAVE	1 GAL / 36" O.C.
	AGAVE 'BLUE GLOW' / BLUE GLOW AGAVE	1 GAL / 24" O.C.
	ALYOGYNE HUEGELII / BLUE HIBISCUS	1 GAL / 36" O.C.
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	BOUGAINVILLEA 'MONKA' / OO-LA-LA BOUGAINVILLEA	1 GAL / 36" O.C.
	CAESALPINEA MEXICANA / MEXICAN BIRD OF PARADISE	5 GAL / 36" O.C.
	CALLIANDRA ERIOPHYLLA / FAIRY DUSTER	1 GAL / 36" O.C.
	CALLISTEMON 'LITTLE JOHN' / DWARF BOTTLE BRUSH	1 GAL / 36" O.C.
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	ECHEVARIA VIOLACINA / ECHEVARIA	1 GAL / 24" O.C.
	ELAEAGNUS PUNGENS / SILVERBERRY	5 GAL / 36" O.C.
	ENCELIA CALIFORNIA / CALIFORNIA ENCELIA	1 GAL / 36" O.C.
	HESPERALOE PARVIFLORA / RED/YELLOW YUCCA	1 GAL / 30" O.C.
	LEUCOPHYLLUM F. 'GREEN CLOUD' / GREEN CLOUD TEXAS RANGER	5 GAL / 36" O.C.
	SALVIA GREGII 'FURHMAN'S RED' / FURHMANS RED SAGE	1 GAL / 30" O.C.
	SALVIA LEUCANTHA / MEXICAN SAGE	1 GAL / 36" O.C.

SOURCE: Ware Malcomb, 2023

DUDEK

FIGURE 10b

Landscape Plan Phase 2

160 N. Cactus Avenue Project

Appendix A
Air Quality Impact Analysis

160 N. Cactus Avenue

AIR QUALITY IMPACT ANALYSIS

CITY OF RIALTO

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Ali Dadabhoy
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JANUARY 30, 2023

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LIST OF ABBREVIATED TERMS

%	Percent
°F	Degrees Fahrenheit
(1)	Reference
µg/m^3	Microgram per Cubic Meter
1992 CO Plan	*1992 Federal Attainment Plan for Carbon Monoxide*
1993 CEQA Handbook	*SCAQMD's CEQA Air Quality Handbook (1993)*
2016-2040 RTP/SCS	*2016-2040 Regional Transportation Plan/Sustainable Communities Strategy*
AB 2595	California Clean Air Act
AQIA	Air Quality Impact Analysis
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
BC	Black Carbon
Brief	*Brief of Amicus Curiae by the SCAQMD in the Friant Ranch Case*
C_2Cl_4	Perchloroethylene
C_4H_6	1,3-butadiene
C_6H_6	Benzene
C_2H_3Cl	Vinyl Chloride
C_2H_4O	Acetaldehyde
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CEQA Guidelines	*2019 CEQA Statute and Guidelines*
CH_2O	Formaldehyde
City	City of Rialto
CO	Carbon Monoxide
COH	Coefficient of Haze

COHb	Carboxyhemoglobin
Cr(VI)	Chromium
CTP	Clean Truck Program
DPM	Diesel Particulate Matter
DRRP	Diesel Risk Reduction Plan
EC	Elemental Carbon
EIR	Environmental Impact Report
EMFAC	Emissions FACtor Model
EPA	Environmental Protection Agency
ETW	Equivalent Test Weight
EV	Electric Vehicle
Final EIR	Renaissance Specific Plan Final Environmental Impact Report
GHG	Greenhouse Gas
GVWR	Gross Vehicle Weight Rating
H_2S	Hydrogen Sulfide
HDT	Heavy-Duty Trucks
HHDT	Heavy-Heavy-Duty Trucks
HI	Hazard Index
hp	Horsepower
HPLV	High-Pressure-Low-Volume
lbs	Pounds
lbs/day	Pounds Per Day
LDA	Light Duty Auto
LDT1/LDT2	Light-Duty Trucks
LHDT1/LHDT2	Light-Heavy-Duty Trucks
LST	Localized Significance Threshold
LST Methodology	*Final Localized Significance Threshold Methodology*
MATES	Multiple Air Toxics Exposure Study
MCY	Motorcycles
MDV	Medium-Duty Vehicles
MHDT	Medium-Heavy-Duty Trucks
MICR	Maximum Individual Cancer Risk
MM	Mitigation Measures
mph	Miles Per Hour
MWELO	California Department of Water Resources' Model Water Efficient
N_2	Nitrogen

N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
O_2	Oxygen
O_3	Ozone
O_2 Deficiency	Chronic Hypoxemia
OBD-II	On-Board Diagnostic
ODC	Ozone Depleting Compounds
Pb	Lead
PM	Particulate Matter
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
POLA	Port of Los Angeles
POLB	Port of Long Beach
ppm	Parts Per Million
Project	160 N. Cactus Avenue
RECLAIM	Regional Clean Air Incentives Market
RFG-2	Reformulated Gasoline Regulation
ROG	Reactive Organic Gases
RSP	Renaissance Specific Plan
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
sf	Square Feet
SIPs	State Implementation Plans
SO_2	Sulfur Dioxide
SO_4	Sulfates
SO_X	Sulfur Oxides
SRA	Source Receptor Area
SWIP	Southwest Industrial Park
TAC	Toxic Air Contaminant
Title 24	California Building Code
TITLE I	Non-Attainment Provisions
TITLE II	Mobile Sources Provisions
UFP	Ultrafine Particles

URBEMIS	URBan EMISsions
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
vph	Vehicles Per Hour

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *160 N. Cactus Avenue Air Quality Impact Analysis* (AQIA) are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the *CEQA Guidelines* (*CEQA Guidelines*) (1). Table ES-1 shows the findings of significance for each potential air quality impact under CEQA before and after any required mitigation measures (MM) described below.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Regional Construction Emissions	3.4	*Less Than Significant*	*n/a*
Localized Construction Emissions	3.7	*Less Than Significant*	*n/a*
Regional Operational Emissions	3.5	*Less Than Significant*	*n/a*
Localized Operational Emissions	3.7	*Less Than Significant*	*n/a*
CO "Hot Spot" Analysis	3.9	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.10	*Less Than Significant*	*n/a*
Sensitive Receptors	3.11	*Less Than Significant*	*n/a*
Odors	3.12	*Less Than Significant*	*n/a*
Cumulative Impacts	3.13	*Less Than Significant*	*n/a*

ES.2 REGULATORY REQUIREMENTS

There are numerous requirements that development projects must comply with by law, and that were put in place by federal, State, and local regulatory agencies for the improvement of air quality.

Any operation or activity that might cause the emission of any smoke, fly ash, dust, fumes, vapors, gases, or other forms of air pollution, which can cause damage to human health, vegetation, or

other forms of property, or can cause excessive soiling on any other parcel shall conform to the requirements of the SCAQMD.

SCAQMD RULES

SCAQMD Rules that are currently applicable during construction activity for this Project are described below.

SCAQMD RULE 402

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any such persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

Odor Emissions. All uses shall be operated in a manner such that no offensive odor is perceptible at or beyond the property line of that use.

SCAQMD RULE 403

This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent and reduce fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust and requires best available control measures to be applied to earth moving and grading activities.

Dust Control, Operations. Any operation or activity that might cause the emission of any smoke, fly ash, dust, fumes, vapors, gases, or other forms of air pollution, which can cause damage to human health, vegetation, or other forms of property, or can cause excessive soiling on any other parcel, shall conform to the requirements of the SCAQMD.

SCAQMD RULE 1113

This rule serves to limit the VOC content of architectural coatings used on projects in the SCAQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects.

SCAQMD RULE 1301

This rule is intended to provide that pre-construction review requirements to ensure that new or relocated facilities do not interfere with progress in attainment of the National Ambient Air Quality Standards (NAAQS), while future economic growth within the SCAQMD is not unnecessarily restricted. The specific air quality goal is to achieve no net increases from new or modified permitted sources of nonattainment air contaminants or their precursors. Rule 1301 also limits emission increases of ammonia, and Ozone Depleting Compounds (ODCs) from new, modified or relocated facilities by requiring the use of Best Available Control Technology (BACT).

SCAQMD RULE 1401

A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any 1 hour that is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States (U.S.) Bureau of Mines.

SCAQMD RULE 2305

The SCAQMD adopted Rule 2305, the Warehouse Indirect Source Rule, on May 7, 2021. Owners and operators associated with warehouses 100,000 square feet (sf) or larger are required to directly reduce nitrogen oxides (NO_X) and particulate matter emissions, or to otherwise facilitate emission and exposure reductions of these pollutants in nearby communities. The rule imposes a "Warehouse Points Compliance Obligation" (WPCO) on warehouse operators. Operators satisfy the WPCO by accumulating "Warehouse Actions and Investments to Reduce Emissions Points" (WAIRE Points) in a given 12-month period. WAIRE Points are awarded by implementing measures to reduce emissions listed on the WAIRE Menu, or by implementing a custom WAIRE Plan approved by the SCAQMD.

Although the Project would comply with Rule 2305, it should be noted that there is no way to quantify these reductions in the California Emissions Estimator Model (CalEEMod). The two most pertinent regulatory requirements that could be modeled, are Rule 403 (Fugitive Dust) (2) and Rule 1113 (Architectural Coatings) (3). Credit for Rule 403 and Rule 1113 have been taken in the analysis.

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1 INTRODUCTION

This report presents the results of the AQIA prepared by Urban Crossroads, Inc., for the proposed 160 N. Cactus Avenue (Project). The purpose of this AQIA is to evaluate the potential impacts to air quality associated with construction and operation of the Project and recommend measures to mitigate impacts considered potentially significant in comparison to thresholds established by the SCAQMD.

1.1 SITE LOCATION

The 160 N. Cactus Avenue Project is located on the northwest corner of North Cactus Avenue and W. Rialto Avenue in the City of Rialto as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of a single 159,680 square foot warehouse building as shown on Exhibit 1-B. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2024.

EXHIBIT 1-A: LOCATION MAP

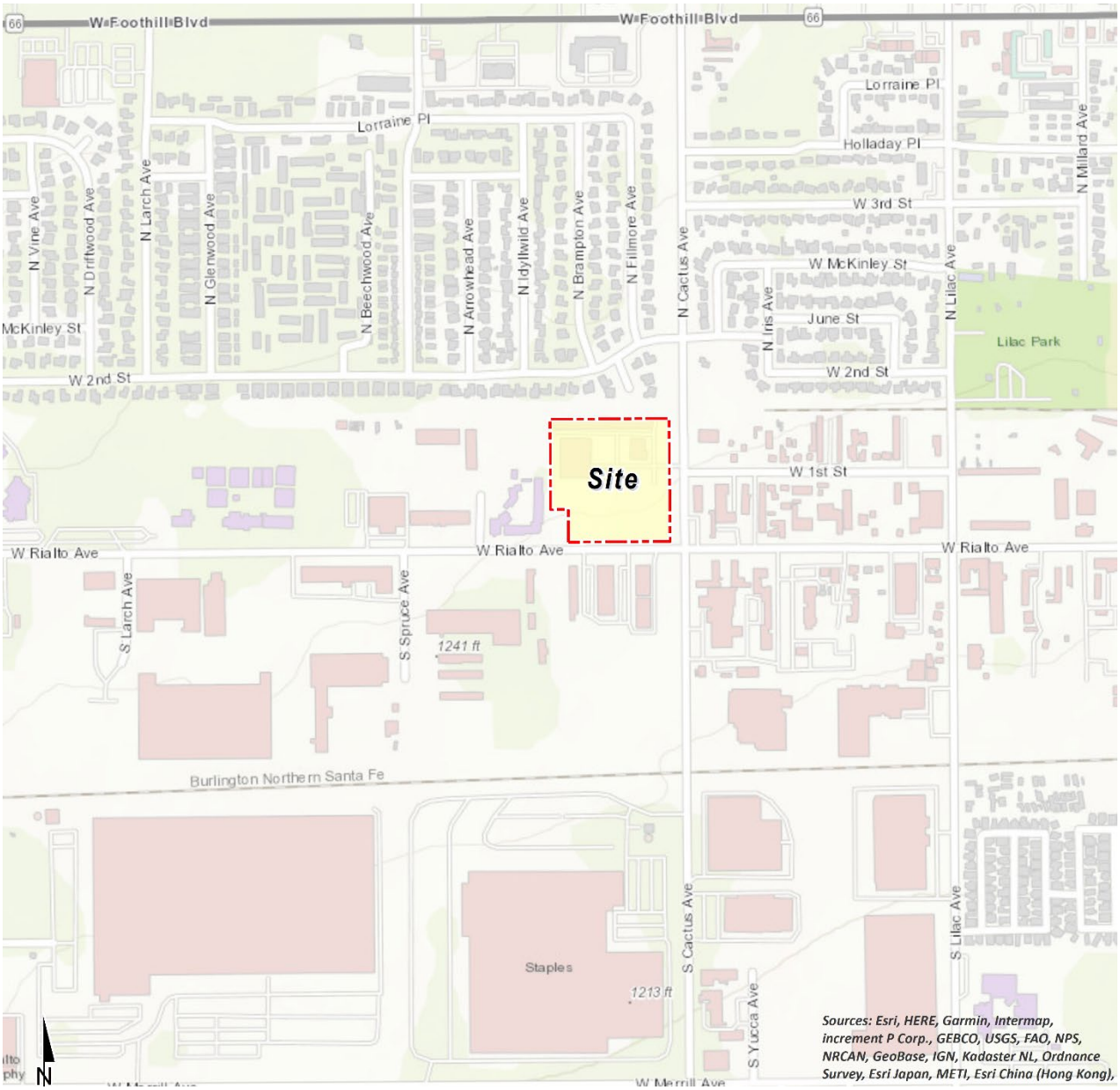
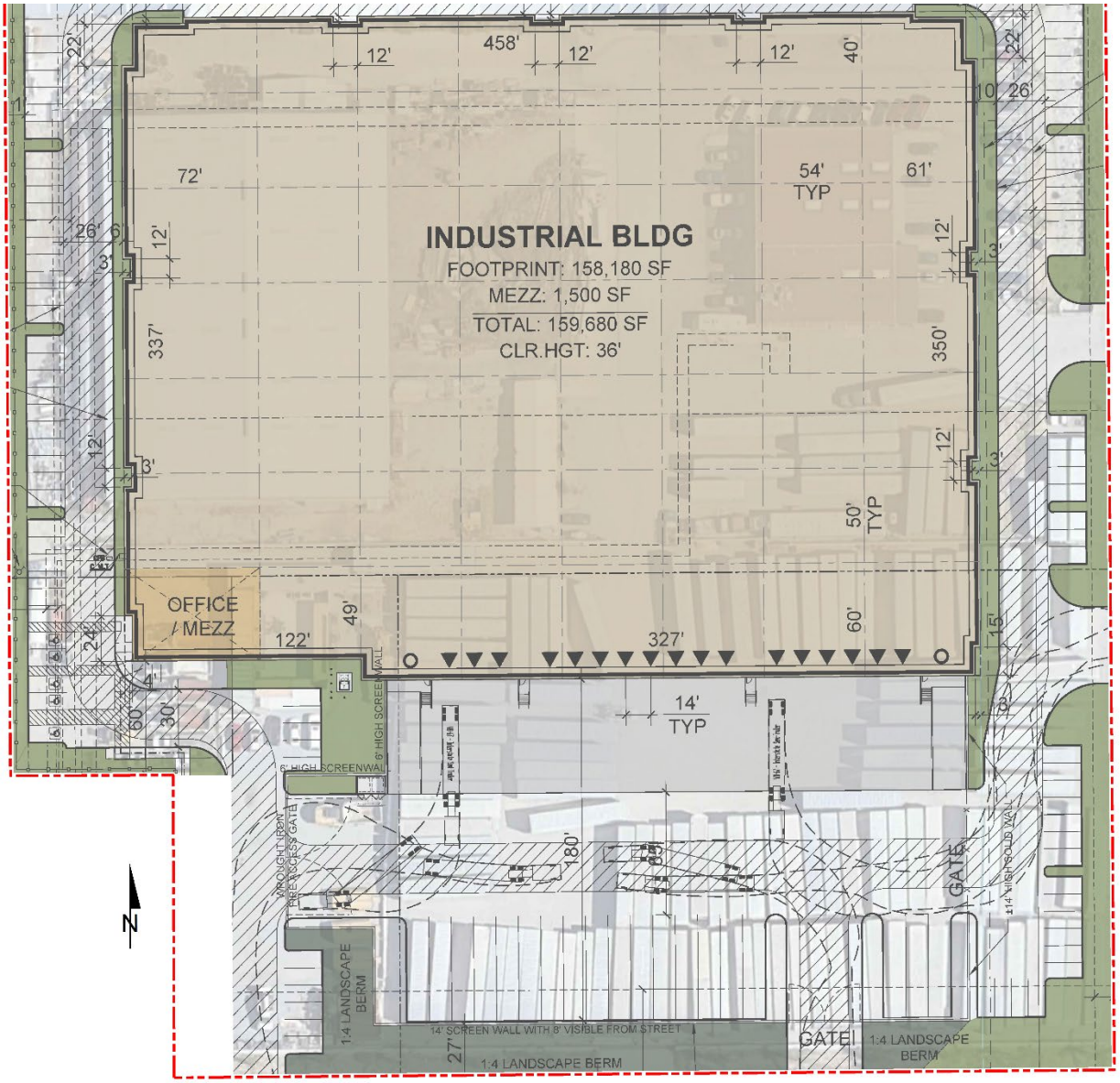


EXHIBIT 1-B: SITE PLAN



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2 AIR QUALITY SETTING

This section provides an overview of the existing air quality conditions in the Project area and region.

2.1 SOUTH COAST AIR BASIN

The Project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of SCAQMD (4). The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As previously stated, the Project site is located within the SCAB, a 6,745-square mile subregion of the SCAQMD, which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, and the San Diego Air Basin to the south.

2.2 REGIONAL CLIMATE

The regional climate has a substantial influence on air quality in the SCAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the air quality.

The annual average temperatures throughout the SCAB vary from the low to middle 60s degrees Fahrenheit (°F). Due to a decreased marine influence, the eastern portion of the SCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100°F.

Although the climate of the SCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB, and the conversion of sulfur dioxide (SO_2) to sulfates (SO_4) is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71% along the coast and 59% inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90% of the SCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately nine inches in Riverside to fourteen inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year, there are approximately 10 hours of possible sunshine, and on the longest day of the year, there are approximately 14½ hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the "Catalina Eddy," a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections.

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as nitrogen oxides (NO_X) and carbon monoxide (CO) from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

2.3 WIND PATTERNS AND PROJECT LOCATION

The distinctive climate of the Project area and the SCAB is determined by its terrain and geographical location. The SCAB is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Wind patterns across the south coastal region are characterized by westerly and southwesterly onshore winds during the day and easterly or northeasterly breezes at night. Winds are characteristically light although the speed is somewhat greater during the dry summer months than during the rainy winter season.

2.4 CRITERIA POLLUTANTS

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and health effects are identified below (5):

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
CO	CO is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone (O_3), motor vehicles operating at slow speeds are the primary source of CO in the SCAB. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen (O_2) supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with O_2 transport and competing with O_2 to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for O_2 supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (O_2 deficiency) as seen at high altitudes.
SO_2	SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant	Coal or oil burning power plants and industries,	A few minutes of exposure to low levels of SO_2 can result in airway constriction in some

Criteria Pollutant	Description	Sources	Health Effects
	mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms SO_4. Collectively, these pollutants are referred to as sulfur oxides (SO_X).	refineries, diesel engines	asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2. Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically, or one pollutant alone is the predominant factor.
NO_X	NO_X consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with O_2. Their lifespan in the atmosphere ranges from	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming	Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is

Criteria Pollutant	Description	Sources	Health Effects
	one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. NO_X is typically created during combustion processes and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitoring station.	equipment and residential heating.	associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups. In animals, exposure to levels of NO_2 considerably higher than ambient concentrations result in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of O_3 exposure increases when animals are exposed to a combination of O_3 and NO_2.
O_3	O_3 is a highly reactive and unstable gas that is formed when VOCs and NO_X, both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. O_3 concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.	Formed when reactive organic gases (ROG) and NO_X react in the presence of sunlight. ROG sources include any source that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and	Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for O_3 effects. Short-term exposure (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased

Criteria Pollutant	Description	Sources	Health Effects
		storage and pesticides.	susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated O_3 levels are associated with increased school absences. In recent years, a correlation between elevated ambient O_3 levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple outdoor sports and live in communities with high O_3 levels. O_3 exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes O_3 may be more toxic than exposure to O_3 alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.
Particulate Matter	PM_{10}: A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. Particulate matter pollution is a major cause of reduce visibility (haze) which is caused by the scattering of light and consequently the significant reduction air clarity. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be	Sources of PM_{10} include road dust, windblown dust and construction. Also formed from other pollutants (acid rain, NO_X, SO_X, organics). Incomplete combustion of any fuel. $PM_{2.5}$ comes from	A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In

Criteria Pollutant	Description	Sources	Health Effects
	deposited, resulting in adverse health effects. Additionally, it should be noted that PM_{10} is considered a criteria air pollutant. $PM_{2.5}$: A similar air pollutant to PM_{10} consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include SO_4 formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles, and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.	fuel combustion in motor vehicles, equipment, and industrial sources, residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).	recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in lifespan, and an increased mortality from lung cancer. Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long term exposure to particulate matter. The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.
VOC	VOCs are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form O_3 to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the	Organic chemicals are widely used as ingredients in household products. Paints, varnishes, and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing and hobby products. Fuels are made up of organic chemicals. All of these products can release organic	Breathing VOCs can irritate the eyes, nose, and throat, can cause difficulty breathing and nausea, and can damage the central nervous system as well as other organs. Some VOCs can cause cancer. Not all VOCs have all these health effects, though many have several.

Criteria Pollutant	Description	Sources	Health Effects
	solvents used in paints. Exceptions to the VOC designation include CO, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms VOC and ROG (see below) interchangeably.	compounds while you are using them, and, to some degree, when they are stored.	
ROG	Similar to VOC, ROGs are also precursors in forming O_3 and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and NO_X react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms ROG and VOC (see previous) interchangeably.	Sources similar to VOCs.	Health effects similar to VOCs.
Lead (Pb)	Pb is a heavy metal that is highly persistent in the environment and is considered a criteria pollutant. In the past, the primary source of Pb in the air was emissions from vehicles burning leaded gasoline. The major sources of Pb emissions are ore and metals processing, particularly Pb smelters, and piston-engine aircraft operating on leaded aviation gasoline. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. It should be noted that the Project does not include operational activities such as metal processing or Pb acid battery manufacturing. As such, the Project is not anticipated to	Metal smelters, resource recovery, leaded gasoline, deterioration of Pb paint.	Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure. Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be

Criteria Pollutant	Description	Sources	Health Effects
	generate a quantifiable amount of Pb emissions.		stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.
Odor	Odor means the perception experienced by a person when one or more chemical substances in the air come into contact with the human olfactory nerves (6).	Odors can come from many sources including animals, human activities, industry, natures, and vehicles.	Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

2.5 EXISTING AIR QUALITY

Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 2-2 (7).

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards. At the time of this AQIA, the most recent state and federal standards were updated by CARB on May ,4 2016 and are presented in Table 2-2. The air quality in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, PM_{10}, and $PM_{2.5}$ are not to be exceeded. All others are not to be equaled or exceeded. It should be noted that the three-year period is presented for informational purposes and is not the basis for how the State assigns attainment status. Attainment status for a pollutant means that the SCAQMD meets the standards set by the EPA or the California EPA (CalEPA). Conversely, nonattainment means that an area has monitored air quality that does not meet the NAAQS or CAAQS standards. In order to improve air quality in nonattainment areas, a State Implementation Plan (SIP) is drafted by CARB. The SIP outlines the measures that the state will take to improve air quality. Once nonattainment areas meet the standards and additional redesignation requirements, the EPA will designate the area as a maintenance area (8).

TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (1 OF 2)

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

For more information please call ARB-PIO at (916) 322-2990 California Air Resources Board (5/4/16)

TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (2 OF 2)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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2.6 REGIONAL AIR QUALITY

Air pollution contributes to a wide variety of adverse health effects. The EPA has established NAAQS for six of the most common air pollutants: CO, Pb, O_3, particulate matter (PM_{10} and $PM_{2.5}$), NO_2, and SO_2 which are known as criteria pollutants. The SCAQMD monitors levels of various criteria pollutants at 37 permanent monitoring stations and 5 single-pollutant source Pb air monitoring sites throughout the air district (9). On January 5, 2021, CARB posted the 2020 amendments to the state and national area designations. See Table 2-3 for attainment designations for the SCAB (10). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

TABLE 2-3: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SCAB

Criteria Pollutant	State Designation	Federal Designation
O_3 – 1-hour standard	Nonattainment	--
O_3 – 8-hour standard	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassifiable/Attainment
NO_2	Attainment	Unclassifiable/Attainment
SO_2	Attainment	Unclassifiable/Attainment
Pb[1]	Attainment	Unclassifiable/Attainment

Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the SCAB
"-" = The national 1-hour O_3 standard was revoked effective June 15, 2005.

2.7 LOCAL AIR QUALITY

The SCAQMD has designated general forecast areas and air monitoring areas (referred to as Source Receptor Areas [SRA]) throughout the district in order to provide Southern California residents about the air quality conditions. The Project site is located within the Central San Bernardino Valley 2 area (SRA 34). The Central San Bernardino Valley 2 monitoring station is located approximately 6.33 miles east of the Project site and reports air quality statistics for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$.

The most recent three (3) years of data available is shown on Table 2-4 and identifies the number of days ambient air quality standards were exceeded for the study area, which is considered to be representative of the local air quality at the Project site. Data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ for 2019 through 2021 was obtained from the SCAQMD Air Quality Data Tables (11). Additionally, data for SO_2 has been omitted as attainment is regularly met in the SCAB and few monitoring stations measure SO_2 concentrations.

[1] The Federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

TABLE 2-4: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2019-2021

Pollutant	Standard	Year		
		2019	2020	2021
O_3				
Maximum Federal 1-Hour Concentration (ppm)		0.127	0.162	0.142
Maximum Federal 8-Hour Concentration (ppm)		0.114	0.128	0.112
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	63	89	66
Number of Days Exceeding State/Federal 8-Hour Standard	> 0.070 ppm	96	128	101
CO				
Maximum Federal 1-Hour Concentration	> 35 ppm	1.3	1.9	2.0
Maximum Federal 8-Hour Concentration	> 20 ppm	1.1	1.4	1.6
NO_2				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.059	0.054	0.056
Annual Federal Standard Design Value		0.014	0.015	0.015
PM_{10}				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 150 $\mu g/m^3$	112	80	111
Annual Federal Arithmetic Mean ($\mu g/m^3$)		29.9	38.7	39.3
Number of Days Exceeding Federal 24-Hour Standard	> 150 $\mu g/m^3$	0	0	0
Number of Days Exceeding State 24-Hour Standard	> 50 $\mu g/m^3$	36	81	79
$PM_{2.5}$				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 35 $\mu g/m^3$	34.80	25.70	57.90
Annual Federal Arithmetic Mean ($\mu g/m^3$)	> 12 $\mu g/m^3$	10.06	11.66	11.90
Number of Days Exceeding Federal 24-Hour Standard	> 35 $\mu g/m^3$	0	0	0

ppm = Parts Per Million
$\mu g/m^3$ = Microgram per Cubic Meter
Source: Data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ was obtained from SCAQMD Air Quality Data Tables.

2.8 REGULATORY BACKGROUND

2.8.1 FEDERAL REGULATIONS

The EPA is responsible for setting and enforcing the NAAQS for O_3, CO, NO_X, SO_2, PM_{10}, and Pb (12). The EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance (13). The CAA also mandates that states submit and implement SIPs for local areas not meeting these

standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions) (14) (15). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and Pb. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 2-3 (previously presented) provides the NAAQS within the SCAB.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and NO_X. NO_X is a collective term that includes all forms of NO_X which are emitted as byproducts of the combustion process.

2.8.2 CALIFORNIA REGULATIONS

CARB

CARB, which became part of CalEPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. AB 2595 mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for SO_4, visibility, hydrogen sulfide (H_2S), and vinyl chloride (C_2H_3Cl). However, at this time, H_2S and C_2H_3Cl are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (16) (12).

Local air quality management districts, such as the SCAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare Air Quality Management Plans (AQMP) that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;

- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a 5% or more annual reduction in emissions or 15% or more in a period of three years for ROGs, NO_X, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than 5% per year under certain circumstances.

TITLE 24 ENERGY EFFICIENCY STANDARDS AND CALIFORNIA GREEN BUILDING STANDARDS

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that will be effective on January 1, 2023. The CEC anticipates that the 2022 energy code will provide $1.5 billion in consumer benefits and reduce GHG emissions by 10 million metric tons (17). The Project would be required to comply with the applicable standards in place at the time plan check submittals are made. These require, among other items (18):

NONRESIDENTIAL MANDATORY MEASURES

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking for clean air vehicles. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106. 5.3.3 (5.106.5.3). Additionally, Table 5.106.5.4.1 specifies requirements for the installation of raceway conduit and panel power requirements for medium- and heavy-duty EV supply equipment for warehouses, grocery stores, and retail stores.
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8).

- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reuse or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor- mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
    - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor potable water uses in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water uses in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).

- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

2.8.3 AQMP

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of AQMP to meet the state and federal ambient air quality standards (19). AQMPs are updated regularly to ensure an effective reduction in emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.10.

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3 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

This study quantifies air quality emissions generated by construction and operation of the Project and addresses whether the Project conflicts with implementation of the SCAQMD's AQMP and Lead Agency planning regulations. The analysis of Project-generated air emissions determines whether the Project would result in a cumulatively considerable net increase of any criteria pollutant for which the SCAB is in non-attainment under an applicable NAAQS and CAAQS. Additionally, the Project has been evaluated to determine whether the Project would expose sensitive receptors to substantial pollutant concentrations and the impacts of odors. The significance of these potential impacts is described in the following sections.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related air quality impacts are taken from the *CEQA Guidelines* (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would (1):

- Conflict with or obstruct implementation of the applicable air quality plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The SCAQMD has also developed regional significance thresholds for other regulated pollutants, as summarized at Table 3-1 (20). The SCAQMD's *CEQA Air Quality Significance Thresholds* (April 2019) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

TABLE 3-1: MAXIMUM DAILY REGIONAL EMISSIONS THRESHOLDS

Pollutant	Regional Construction Threshold	Regional Operational Thresholds
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Pb	3 lbs/day	3 lbs/day

lbs/day = Pounds Per Day

3.3 MODELS EMPLOYED TO ANALYZE AIR QUALITY

3.3.1 CALEEMOD

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

In May 2022 the California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SCAQMD, released the latest version of CalEEMod version 2022.1. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (21). Accordingly, the latest version of CalEEMod has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendices 3.1 through 3.3.

3.4 CONSTRUCTION EMISSIONS

3.4.1 CONSTRUCTION ACTIVITIES

Construction activities associated with the Project would result in emissions of VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$. Construction related emissions are expected from the following construction activities:

- Demolition
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

DEMOLITION ACTIVITIES

The site is currently developed with existing buildings which total approximately 77,900 sf that will be demolished. Demolished material associated with demolition will be hauled off-site.

GRADING ACTIVITIES

Dust is typically a major concern during grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called “fugitive emissions”. Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). CalEEMod was utilized to calculate fugitive dust emissions resulting from this phase of activity. This analysis assumes that earthwork activities are expected to balance on site and no import or export of soils would be required.

ON-ROAD TRIPS

Construction generates on-road vehicle emissions from vehicle usage for workers, vendors, and haul trucks commuting to and from the site. The number of worker, vendor, and hauling trips are presented below in Table 3-2. Worker trips are based on CalEEMod defaults. It should be noted that for vendor trips, specifically, CalEEMod only assigns vendor trips to the Building Construction phase. Vendor trips would likely occur during all phases of construction. As such, the CalEEMod defaults for vendor trips have been adjusted based on a ratio of the total vendor trips to the number of days of each subphase of activity.

TABLE 3-2: CONSTRUCTION TRIP ASSUMPTIONS

Construction Activity	Worker Trips Per Day	Vendor Trips Per Day	Hauling Trips Per Day
Demolition	15	1	60
Site Preparation	18	1	0
Grading	15	2	0
Building Construction	67	16	0
Paving	20	2	0
Architectural Coating	13	2	0

3.4.2 CONSTRUCTION DURATION

For purposes of analysis, construction of Project is expected to commence in August 2023 and would last through August 2024. The construction schedule utilized in the analysis, shown in Table 3-3, represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent[2]. The duration of construction activity and associated equipment was based on information provided by the Project Applicant and represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (1).

TABLE 3-3: CONSTRUCTION DURATION

Construction Activity	Start Date	End Date	Working Days
Demolition	8/16/2023	9/5/2023	15
Site Preparation	9/6/2023	9/26/2023	15
Grading	9/27/2023	10/27/2023	23
Building Construction	11/9/2023	6/26/2024	165
Paving	6/27/2024	7/27/2024	22
Architectural Coating	7/29/2024	8/28/2024	23

[2] As shown in the CalEEMod User's Guide Version 2022.1, Section 4.3 "Off-Road Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

3.4.3 CONSTRUCTION EQUIPMENT

Consistent with industry standards and typical construction practices, each piece of equipment listed in Table 3-4 will operate up to a total of eight (8) hours per day, or more than two-thirds of the period during which construction activities are allowed pursuant to the code.

TABLE 3-4: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Activity	Equipment[1]	Amount	Hours Per Day
Demolition/Crushing	Concrete/Industrial Saws	1	8
	Excavators	3	8
	Rubber Tired Dozers	2	8
Site Preparation	Rubber Tired Dozers	3	8
	Crawler Tractors	4	8
Grading	Excavators	1	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Crawler Tractors	3	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
	Tractors/Loaders/Backhoes	2	8
Architectural Coating	Air Compressors	1	8
	Aerial Lifts	4	8

[1] In order to account for fugitive dust emissions, Crawler Tractors were used in lieu of Tractors/Loaders/Backhoes during the site preparation and grading phases of Project construction.

3.4.4 CONSTRUCTION EMISSIONS SUMMARY

IMPACTS WITHOUT MITIGATION

The estimated maximum daily construction emissions without mitigation are summarized on Table 3-5. Detailed construction model outputs are presented in Appendix 3.1. Under the assumed scenarios, emissions resulting from the Project construction will not exceed the thresholds established by the SCAQMD for emissions of any criteria pollutant.

TABLE 3-5: OVERALL CONSTRUCTION EMISSIONS SUMMARY – WITHOUT MITIGATION

Year	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
2023	5.00	47.20	39.60	0.06	8.44	5.07
2024	34.80	13.10	20.20	0.03	1.56	0.75
Winter						
2023	2.84	25.60	22.70	0.03	3.96	2.36
2024	1.64	13.20	18.80	0.03	1.56	0.75
Maximum Daily Emissions	**34.80**	**47.20**	**39.60**	**0.06**	**8.44**	**5.07**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod construction-source (unmitigated) emissions are presented in Appendix 3.1.

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the Project would result in emissions of VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$. Operational emissions are expected from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- On-Site Cargo Handling Equipment Emissions

3.5.1 AREA SOURCE EMISSIONS

ARCHITECTURAL COATINGS

Over a period of time the buildings that are part of this Project would require maintenance and would therefore produce emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings. The emissions associated with architectural coatings were calculated using CalEEMod.

CONSUMER PRODUCTS

Consumer products include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on defaults provided within CalEEMod.

LANDSCAPE MAINTENANCE EQUIPMENT

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. It should be noted that as October 9, 2021, Governor Gavin Newsom signed AB 1346. The bill aims to ban the sale of new gasoline-powered equipment under 25 gross horsepower (known as small off-road engines [SOREs]) by 2024. For purposes of analysis, the emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod.

3.5.2 ENERGY SOURCE EMISSIONS

COMBUSTION EMISSIONS ASSOCIATED WITH ELECTRICITY

Criteria pollutant emissions are emitted through the generation of electricity. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the use of pollution credits (RECLAIM) for generation within the SCAB, criteria pollutant emissions from offsite generation of electricity are excluded from the evaluation of significance. The emissions associated with natural gas use were calculated using CalEEMod.

3.5.3 MOBILE SOURCE EMISSIONS

The Project related operational air quality emissions derive primarily from vehicle trips generated by the Project, including employee trips to and from the site and truck trips associated with the proposed uses. Trip characteristics available from the *160 N. Cactus Avenue Trip Generation* were utilized in this analysis (22).

APPROACH FOR ANALYSIS OF THE PROJECT

In order to determine emissions from passenger car vehicles, CalEEMod defaults for trip length and trip purpose were utilized. Default vehicle trip lengths for primary trips will be populated using data from the local metropolitan planning organizations/Regional Transportation Planning Agencies (MPO/RTPA). Trip type percentages and trip lengths provided by MPO/RTPAs truncate data at their demonstrative borders. This analysis assumes that passenger cars include Light-Duty-Auto vehicles (LDA), Light-Duty-Trucks (LDT1[3] & LDT2[4]), Medium-Duty-Vehicles (MDV), and Motorcycles (MCY) vehicle types. In order to account for emissions generated by passenger cars, the fleet mix in Table 3-6 was utilized.

[3] Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

[4] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

TABLE 3-6: PASSENGER CAR FLEET MIX

Land Use	% Vehicle Type				
	LDA	LDT1	LDT2	MDV	MCY
Warehouse	54.62%	4.53%	21.75%	16.80%	2.30%

Note: The Project-specific passenger car fleet mix used in this analysis is based on a proportional split utilizing the default CalEEMod percentages assigned to LDA, LDT1, LDT2, and MDV vehicle types.

To determine emissions from trucks for the proposed industrial uses, the analysis incorporated the SCAQMD recommended truck trip length of 15.3 miles for 2-axle (LHDT1, LHDT2), 14.2 miles for 3-axle (MHDT) trucks, and 40 miles for 4+-axle (HHDT) trucks and weighting the average trip lengths using traffic trip percentages. The trip length function for the industrial uses have been revised to 31.98 mile and an assumption of 100% primary trips. This trip length assumption is higher than the CalEEMod defaults for trucks. In order to be consistent with the *160 N. Cactus Avenue Trip Generation* trucks are broken down by truck type. The truck fleet mix is estimated by rationing the trip rates for each truck type based on information provided by the SCAQMD recommended truck mix, by axle type. Heavy trucks are broken down by truck type (or axle type) and are categorized as either Light-Heavy-Duty Trucks (LHDT1[5] & LHDT2 [6])/2-axle, Medium-Heavy-Duty Trucks (MHDT)/3-axle, and Heavy-Heavy-Duty Trucks (HHDT)/4+-axle. To account for emissions generated by trucks, the fleet mix in Table 3-7 was utilized.

TABLE 3-7: TRUCK FLEET MIX

Land Use	% Vehicle Type			
	LHDT1	LHDT2	MHDT	HHDT
Warehouse	1.43%	0.39%	29.09%	69.09%

Note: Project-specific truck fleet mix is based on the number of trips generated by each truck type (LHDT1, LHDT2, MHDT, and HHDT) relative to the total number of truck trips.

FUGITIVE DUST RELATED TO VEHICULAR TRAVEL

Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of brake and tire wear particulates. The emissions estimate for travel on paved roads were calculated using CalEEMod.

3.5.4 ON-SITE CARGO HANDLING EQUIPMENT SOURCE EMISSIONS

It is common for warehouse buildings to require the operation of exterior yard trucks or cargo handling equipment (CHE) to move empty containers and empty chassis in the building's truck court areas. The cargo handling equipment is assumed to have a horsepower (hp) range of approximately 175 hp to 200 hp. Based on the latest available information from SCAQMD (23); for example, warehouse projects typically have 3.6-yard trucks/CHE per million square feet of building space. Since the proposed Project includes up to 159,680-square-foot (sf) warehouse

[5] Vehicles under the LHDT1 category have a GVWR of 8,501 to 10,000 lbs.

[6] Vehicles under the LHDT2 category have a GVWR of 10,001 to 14,000 lbs.

building, on-site modeled operational equipment is estimated to include up to one (1) 200 horsepower (hp), compressed natural gas or gasoline-powered tractors/loaders/backhoes operating at 4 hours a day[7] for 365 days of the year.

3.5.5 OPERATIONAL EMISSIONS SUMMARY

As previously stated, CalEEMod utilizes summer and winter EMFAC2021 emission factors in order to derive vehicle emissions associated with Project operational activities, which vary by season. The estimated operational-source emissions are summarized on Table 3-9. Detailed operation model outputs for the Project are presented in Appendix 3.2. As shown on Table 3-9, the Project's daily regional emissions from on-going operations would not exceed the thresholds of significance for emissions of any criteria pollutant.

EXISTING USE EMISSIONS

As previously stated, the Project site is currently occupied with existing buildings. The estimated operation-source emissions from the existing developments are summarized on Table 3-8. Detailed operation model outputs are presented in Appendix 3.3.

TABLE 3-8: EMISSIONS FROM EXISTING DEVELOPMENT

Source	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer (Smog Season)						
Mobile Source	0.76	5.11	7.83	0.04	1.09	0.29
Area Source	2.32	0.03	3.39	< 0.005	< 0.005	0.01
Energy Source	0.02	0.40	0.33	< 0.005	0.03	0.03
On-Site Equipment Source	0.12	0.38	16.44	0.00	0.03	0.03
Total Maximum Daily Emissions	**3.22**	**5.92**	**27.99**	**0.04**	**1.15**	**0.36**
Winter						
Mobile Source	0.72	5.35	7.13	0.04	1.09	0.29
Area Source	1.77	0.00	0.00	0.00	0.00	0.00
Energy Source	0.02	0.40	0.33	< 0.005	0.03	0.03
On-Site Equipment Source	0.12	0.38	16.44	0.00	0.03	0.03
Total Maximum Daily Emissions	**2.63**	**6.13**	**23.90**	**0.04**	**1.15**	**0.35**

Source: CalEEMod operation-source emissions are presented in Appendix 3.3.

[7] Based on Table II-3, Port and Rail Cargo Handling Equipment Demographics by Type, from CARB's Technology Assessment: Mobile Cargo Handling Equipment document, a single piece of equipment could operate up to 2 hours per day (Total Average Annual Activity divided by Total Number Pieces of Equipment). As such, the analysis conservatively assumes that the tractor/loader/backhoe would operate up to 4 hours per day.

PROPOSED PROJECT EMISSIONS

Operational-source emissions are summarized on Table 3-9. As indicated, the Project would not exceed regional thresholds of significance established by the SCAQMD for any criteria pollutant

TABLE 3-9: SUMMARY OF PEAK OPERATIONAL EMISSIONS

Source	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer (Smog Season)						
Mobile Source	0.78	12.00	10.70	0.11	2.06	0.58
Area Source	4.79	0.06	6.94	< 0.005	0.01	0.01
Energy Source	0.04	0.82	0.68	< 0.005	0.06	0.06
On-Site Equipment Source	0.12	0.38	16.44	0.00	0.03	0.03
Project Maximum Daily Emissions	**5.73**	**13.26**	**34.76**	**0.11**	**2.16**	**0.68**
Existing Emissions	3.22	5.92	27.99	0.04	1.15	0.36
Total Maximum Daily Emissions	**2.51**	**7.34**	**6.77**	**0.07**	**1.01**	**0.32**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Winter						
Mobile Source	0.74	12.50	10.10	0.11	2.06	0.58
Area Source	3.65	0.00	0.00	0.00	0.00	0.00
Energy Source	0.04	0.82	0.68	< 0.005	0.06	0.06
On-Site Equipment Source	0.12	0.38	16.44	0.00	0.03	0.03
Project Maximum Daily Emissions	**4.55**	**13.70**	**27.22**	**0.11**	**2.15**	**0.67**
Existing Emissions	2.63	6.13	23.90	0.04	1.15	0.35
Total Maximum Daily Emissions	**1.92**	**7.57**	**3.32**	**0.07**	**1.00**	**0.32**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod operation-source emissions are presented in Appendix 3.1.

3.6 LOCALIZED SIGNIFICANCE

BACKGROUND ON LST DEVELOPMENT

The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (LST Methodology). The SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the federal and/or state ambient air quality standards (NAAQS/CAAQS). Collectively, these are referred to as Localized Significance Thresholds (LSTs).

The SCAQMD established LSTs in response to the SCAQMD Governing Board's Environmental Justice Initiative I-4[8]. LSTs represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses.

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized air quality impacts and thereby cause or contribute to potential localized adverse health effects. The analysis makes use of methodology included in the *LST Methodology* (24).

APPLICABILITY OF LSTS FOR THE PROJECT

For this Project, the appropriate SRA for the LST analysis is the SCAQMD Central San Bernardino Valley 2 (SRA 34). LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. The SCAQMD produced look-up tables for projects less than or equal to 5 acres in size.

In order to determine the appropriate methodology for determining localized impacts that could occur as a result of Project-related construction, the following process is undertaken:

- Identify the maximum daily on-site emissions that would occur during construction activity:
    - The maximum daily on-site emissions could be based on information provided by the Project Applicant; or
    - The SCAQMD's *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds* and CalEEMod User's Guide *Appendix A: Calculation Details for CalEEMod* can be used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod (25) (26).
- If the total acreage disturbed is less than or equal to 5 acres per day, then the SCAQMD's screening look-up tables are utilized to determine if a Project has the potential to result in a significant impact. The look-up tables establish a maximum daily emissions threshold in lbs/day that can be compared to CalEEMod outputs.
- If the total acreage disturbed is greater than 5 acres per day, then LST impacts may still be conservatively evaluated using the LST look-up tables for a 5-acre disturbance area. Use of the 5-acre disturbance area thresholds can be used to show that even if the daily emissions from all construction activity were emitted within a 5-acre area, and therefore concentrated over a smaller area which would result in greater site adjacent concentrations, the impacts would still be less than significant if the applicable 5-acre thresholds are utilized.
- The *LST Methodology* presents mass emission rates for each SRA, project sizes of 1, 2, and 5 acres, and nearest receptor distances of 25, 50, 100, 200, and 500 meters. For project sizes between the

[8] The purpose of SCAQMD's Environmental Justice program is to ensure that everyone has the right to equal protection from air pollution and fair access to the decision-making process that works to improve the quality of air within their communities. Further, the SCAQMD defines Environmental Justice as "…equitable environmental policymaking and enforcement to protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution."

values given, or with receptors at distances between the given receptors, the methodology uses linear interpolation to determine the thresholds.

EMISSIONS CONSIDERED

Based on SCAQMD's *LST Methodology*, emissions for concern during construction activities are on-site NO_X, CO, $PM_{2.5}$, and PM_{10}. The *LST Methodology* clearly states that "off-site mobile emissions from the Project should not be included in the emissions compared to LSTs (27)." As such, for purposes of the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered.

MAXIMUM DAILY DISTURBED-ACREAGE

The "acres disturbed" for analytical purposes are based on specific equipment type for each subcategory of construction activity and the estimated maximum area a given piece of equipment can pass over in an 8-hour workday (as shown on Table 3-10). The equipment-specific grading rates are summarized in the SCAQMD's *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds* and CalEEMod User's Guide *Appendix C: Emission Calculation Details for CalEEMod* (25) (28). It The disturbed area per day is representative of a piece of equipment making multiple passes over the same land area. In other words, one Rubber Tired Dozer can make multiple passes over the same land area totaling 0.5 acres in a given 8-hour day. Based on Table 3-10, the Project's construction activities could actively disturb approximately 1.0 acre per day during demolition, 3.5 acres per day during site preparation, and 2.5 acres per day during grading activities. For purposes of analysis and in order to use linear regression, this analysis conservatively assumes that 5 acres can be disturbed during grading activities.

TABLE 3-10: MAXIMUM DAILY DISTURBED-ACREAGE

Construction Activity	Equipment Type	Equipment Quantity	Acres graded per 8-hour day	Operating Hours per Day	Acres graded per day
Demolition	Rubber Tired Dozers	2	0.5	8	1.0
Total acres disturbed per day during Demolition					1.0
Site Preparation	Crawler Tractors	4	0.5	8	2.0
	Rubber Tired Dozers	3	0.5	8	1.5
Total acres disturbed per day during Site Preparation					3.5
Grading	Crawler Tractors	3	0.5	8	1.5
	Graders	1	0.5	8	0.5
	Rubber Tired Dozers	1	0.5	8	0.5
Total acres disturbed per day during Grading					2.5

Source: Maximum daily disturbed acreage based on equipment list presented in Appendix 3.1.

RECEPTORS

As previously stated, LSTs represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable NAAQS and CAAQS at the nearest residence or sensitive receptor. Receptor locations are off-site locations where individuals may be exposed to emissions from Project activities.

Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, and individuals with pre-existing respiratory or cardiovascular illness. Structures that house these persons or places where they gather are defined as "sensitive receptors". These structures typically include uses such as residences, hotels, and hospitals where an individual can remain for 24 hours. Consistent with the LST Methodology, the nearest land use where an individual could remain for 24 hours to the Project site has been used to determine construction and operational air quality impacts for emissions of PM_{10} and $PM_{2.5}$, since PM_{10} and $PM_{2.5}$ thresholds are based on a 24-hour averaging time.

LSTs apply, even for non-sensitive land uses, consistent with *LST Methodology* and SCAQMD guidance. Per the *LST Methodology*, commercial and industrial facilities are not included in the definition of sensitive receptor because employees and patrons do not typically remain onsite for a full 24 hours but are typically onsite for 8 hours or less. However, *LST Methodology* explicitly states that "*LSTs based on shorter averaging periods, such as the NO_2 and CO LSTs, could also be applied to receptors such as industrial or commercial facilities since it is reasonable to assume that a worker at these sites could be present for periods of one to eight hours* (27)." Therefore, any adjacent land use where an individual could remain for 1 or 8-hours, that is located at a closer distance to the Project site than the receptor used for PM_{10} and $PM_{2.5}$ analysis, must be considered to determine construction and operational LST air impacts for emissions of NO_2 and CO since these pollutants have an averaging time of 1 and 8-hours.

PROJECT-RELATED RECEPTORS

Receptors in the Project study area are described below and shown on Exhibit 3-A. Localized air quality impacts were evaluated at sensitive receptor land uses nearest the Project site. All distances are measured from the Project site boundary to the outdoor living areas (e.g., backyards) or at the building façade, whichever is closer to the Project site.

R1: Location R1 represents existing residence 805 West 2nd Street, approximately 94 feet north of the Project site. Receptor R1 is placed in the private outdoor living areas (backyards) facing the Project site.

R2: Location R2 represents existing residence 189 N Fillmore Avenue, approximately 91 feet north of the Project site. Receptor R2 is placed in the private outdoor living areas (backyards) facing the Project site.

R3: Location R3 represents existing residence at 141 N Cactus Avenue, approximately 193 feet northeast of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receptor R3 is placed at the building façade.

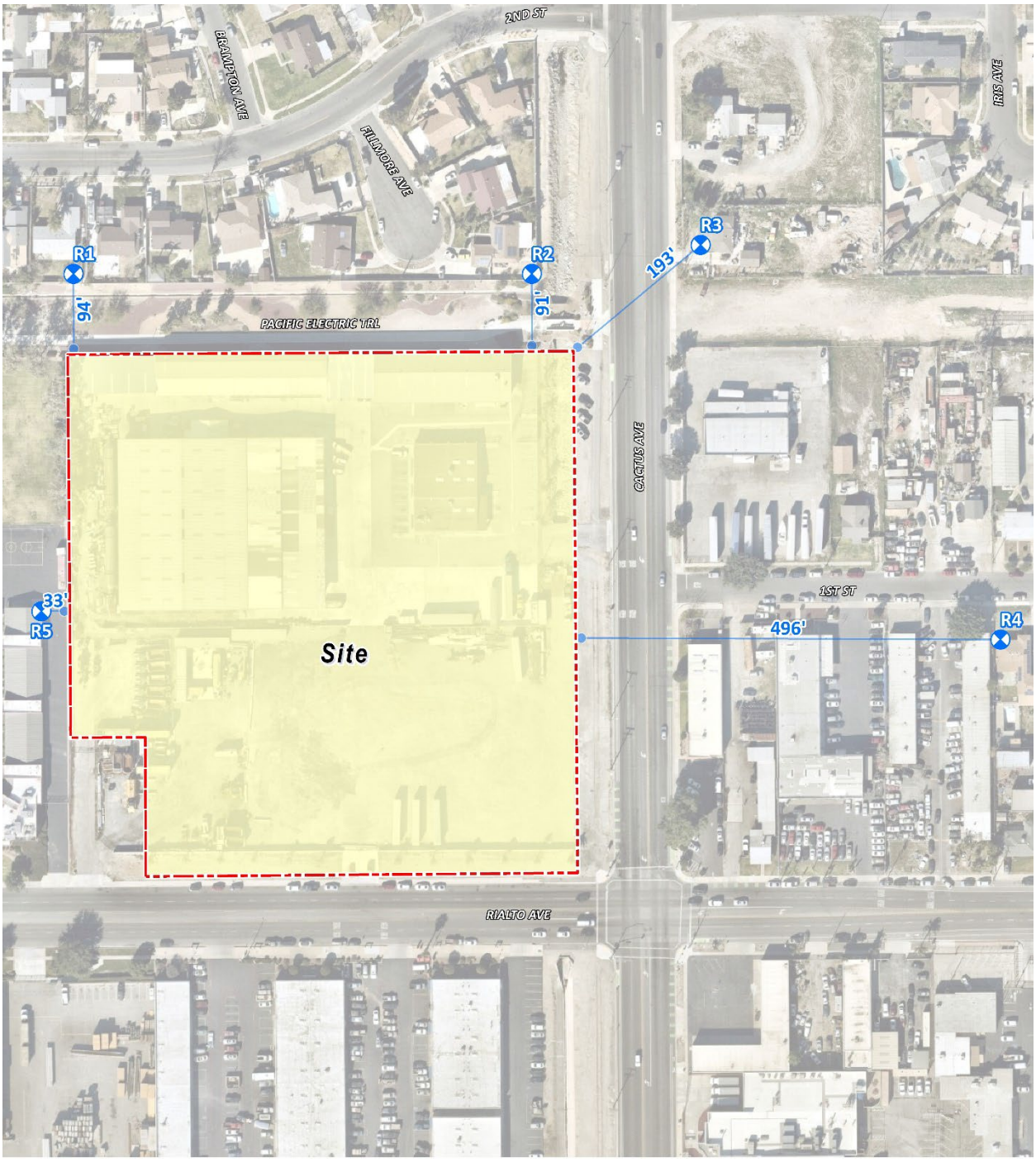
R4: Location R4 represents existing residence at 623 W 1st Street, approximately 496 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receptor R4 is placed at the building façade.

R5: Location R5 represents the Bob Murphy Community School at 149 N Arrowhead Avenue, approximately 33 feet west of the Project site.

The SCAQMD recommends that the nearest sensitive receptor be considered when determining the Project's potential to cause an individual a cumulatively significant impact. The nearest land use where an individual could remain for 24 hours to the Project site has been used to determine localized construction and operational air quality impacts for emissions of PM_{10} and $PM_{2.5}$ (since PM_{10} and $PM_{2.5}$ thresholds are based on a 24-hour averaging time). The nearest receptor used for evaluation of localized impacts of PM_{10} and $PM_{2.5}$ is the existing residence 189 N Fillmore Avenue, approximately 91 feet (28 meters) north of the Project site, represented by R2. As such a 28-meter receptor distance will be used for evaluation of localized PM_{10} and $PM_{2.5}$.

As previously stated, and consistent with *LST Methodology*, the nearest commercial/industrial use to the Project site is used to determine construction and operational LST air impacts for emissions of NO_X and CO as the averaging periods for these pollutants are shorter (8 hours or less) and it is reasonable to assumed that an individual could be present at these sites for periods of one to 8 hours. The nearest receptor used for evaluation of localized impacts of NO_X and CO is the Bob Murphy Community School at 149 N Arrowhead Avenue, approximately 33 feet (10 meters) east of the Project site, represented by R5. It should be noted that the *LST Methodology* explicitly states that "*It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters* (29)." As such a 25-meter receptor distance will be used for evaluation of localized NO_X and CO.

EXHIBIT 3-A: RECEPTOR LOCATIONS



3.7 CONSTRUCTION-SOURCE EMISSIONS LST ANALYSIS

3.7.1 LOCALIZED THRESHOLDS FOR CONSTRUCTION ACTIVITY

Since the total acreage disturbed is less than five acres per day for demolition/crushing, site preparation, and grading activities, the SCAQMD's screening look-up tables are utilized in determining impacts. Consistent with SCAQMD guidance, the thresholds presented in Table 3-11 were calculated by interpolating the threshold values for the Project's disturbed acreage.

TABLE 3-11: MAXIMUM DAILY LOCALIZED CONSTRUCTION EMISSIONS THRESHOLDS

Construction Activity	Construction Localized Thresholds			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Demolition	118 lbs/day	667 lbs/day	5 lbs/day	3 lbs/day
Site Preparation	220 lbs/day	1,359 lbs/day	13 lbs/day	6 lbs/day
Grading	187 lbs/day	1,101 lbs/day	10 lbs/day	5 lbs/day

Source: Localized Thresholds presented in this table are based on the SCAQMD Final LST Methodology, July 2008

3.7.2 CONSTRUCTION-SOURCE LOCALIZED EMISSIONS

IMPACTS WITHOUT MITIGATION

Table 3-12 identifies the localized impacts at the nearest receptor location in the vicinity of the Project. Without mitigation, localized construction emissions would not exceed the applicable SCAQMD LSTs for emissions of any criterial pollutant. Outputs from the model runs for unmitigated construction LSTs are provided in Appendix 3.1.

TABLE 3-12: LOCALIZED CONSTRUCTION-SOURCE EMISSIONS – WITHOUT MITIGATION

Construction Activity	Year	Scenario	Emissions (lbs/day)			
			NO_X	CO	PM_{10}	$PM_{2.5}$
Demolition	2023	**Maximum Daily Emissions**	**27.30**	**23.50**	**4.47**	**1.60**
		SCAQMD Localized Threshold	118	667	5	3
		Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
Site Preparation	2023	**Maximum Daily Emissions**	**47.00**	**38.00**	**8.19**	**5.02**
		SCAQMD Localized Threshold	220	1,359	13	6
		Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
Grading	2023	**Maximum Daily Emissions**	**25.40**	**21.60**	**3.75**	**2.31**
		SCAQMD Localized Threshold	187	1,101	10	5
		Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod unmitigated localized construction-source emissions are presented in Appendix 3.1.

3.8 OPERATIONAL-SOURCE EMISSIONS LST ANALYSIS

As previously stated, the Project is located on an approximately 7.81-acre parcel. As noted previously, the *LST Methodology* provides look-up tables for sites with an area with daily disturbance of 5 acres or less. For projects that exceed 5 acres, the 5-acre LST look-up tables can be used as a screening tool to determine whether pollutants require additional detailed analysis. This approach is conservative as it assumes that all on-site emissions associated with the Project would occur within a concentrated 5-acre area. This screening method would therefore over-predict potential localized impacts, because by assuming that on-site operational activities are occurring over a smaller area, the resulting concentrations of air pollutants are more highly concentrated once they reach the smaller site boundary than they would be for activities if they were spread out over a larger surface area. On a larger site, the same amount of air pollutants generated would disperse over a larger surface area and would result in a lower concentration once emissions reach the project-site boundary. As such, LSTs for a 5-acre site during operations are used as a screening tool to determine if further detailed analysis is required. The LST analysis generally includes on-site sources (area, energy, mobile, and on-site cargo handling equipment– are previously discussed in Section 3.5 of this report). However, it should be noted that the CalEEMod outputs do not separate on-site and off-site emissions from mobile sources. As such, in an effort to establish a maximum potential impact scenario for analytic purposes, the emissions shown on Table 3-14 represent all on-site Project-related stationary (area) sources and Project-related mobile sources. It should be noted that the longest on-site distance is roughly 0.17 mile for both trucks and passenger cars. Modeling based on these assumptions demonstrates that even within broad encompassing parameters, Project operational-source emissions would not exceed applicable LSTs.

3.8.1 LOCALIZED THRESHOLDS FOR OPERATIONAL ACTIVITY

As previously stated, the Project is located on an approximately 7.81-acre parcel. Since the total acreage disturbed is less than five acres, the SCAQMD's screening look-up tables are utilized in determining impacts. Consistent with SCAQMD guidance, the thresholds presented in Table 3-13 were calculated by interpolating the threshold values for the Project's acreage.

TABLE 3-13: MAXIMUM DAILY LOCALIZED OPERATIONAL EMISSIONS THRESHOLDS

Operational Localized Thresholds			
NO_X	CO	PM_{10}	$PM_{2.5}$
270 lbs/day	1,746 lbs/day	5 lbs/day	2 lbs/day

Source: Localized Thresholds presented in this table are based on the SCAQMD Final LST Methodology, July 2008

3.8.2 OPERATIONAL-SOURCE LOCALIZED EMISSIONS

IMPACTS WITHOUT MITIGATION

As shown on Table 3-14 operational emissions would not exceed the LST thresholds for the nearest sensitive receptor. Therefore, the Project would have a less than significant localized impact during operational activity.

TABLE 3-14: LOCALIZED SIGNIFICANCE SUMMARY OF OPERATIONS

Scenario	Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Summer	2.64	26.21	0.12	0.11
Winter	2.64	19.48	0.11	0.10
Maximum Daily Emissions	**2.64**	**26.21**	**0.12**	**0.11**
SCAQMD Localized Threshold	270	1,746	5	2
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

Source: CalEEMod localized operational-source emissions are presented in Appendix 3.2.

3.9 CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific CO "hot spots" is not needed to reach this conclusion. An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur.

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SCAB is now designated as attainment. To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO "hot spot" analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards, as shown on Table 3-15.

TABLE 3-15: CO MODEL RESULTS

Intersection Location	CO Concentrations (ppm)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire Boulevard/Veteran Avenue	4.6	3.5	3.7
Sunset Boulevard/Highland Avenue	4	4.5	3.5
La Cienega Boulevard/Century Boulevard	3.7	3.1	5.2
Long Beach Boulevard/Imperial Highway	3	3.1	8.4

Source: 2003 AQMP, Appendix V: Modeling and Attainment Demonstrations
Notes: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

Based on the SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (*1992 CO Plan*), peak carbon monoxide concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, for example, 8.4 ppm 8-hr CO concentration measured at the Long Beach Blvd. and Imperial Hwy. intersection (highest CO generating intersection within the "hot spot" analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 7.7 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (30). In contrast, an adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur.

The ambient 1-hr and 8-hr CO concentration within the Project study area is estimated to be 2.0 ppm and 1.6 ppm, respectively (data from Central San Bernardino Valley 2 monitoring station for 2021). Therefore, even if the traffic volumes for the proposed Project were double or even triple of the traffic volumes generated at the Long Beach Blvd. and Imperial Hwy. intersection, coupled with the on-going improvements in ambient air quality, the Project would not be capable of resulting in a CO "hot spot" at any study area intersections.

Traffic volumes generating the CO concentrations for the "hot spot" analysis is shown on Table 3-16. The busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which has a daily traffic volume of approximately 100,000 vph and AM/PM traffic volumes of 8,062 vph and 7,719 vph respectively (30). The *2003 AQMP* estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm)[9].

[9] Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm)

TABLE 3-16: TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	Total (AM/PM)
Wilshire Boulevard/Veteran Avenue	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset Boulevard/Highland Avenue	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega Boulevard/Century Boulevard	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach Boulevard/Imperial Highway	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Source: 2003 AQMP

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour (vph)—or 24,000 vph where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (31).

The proposed Project considered herein would generate a net 93 trips and would not produce the volume of traffic required to generate a CO "hot spot" either in the context of the 2003 Los Angeles hot spot study or based on representative BAAQMD CO threshold considerations. Therefore, CO "hot spots" are not an environmental impact of concern for the proposed Project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

3.10 AQMP

The Project site is located within the SCAB, which is characterized by relatively poor air quality. The SCAQMD has jurisdiction over an approximately 10,743 square-mile area consisting of the four-county Basin and the Los Angeles County and Riverside County portions of what use to be referred to as the Southeast Desert Air Basin. In these areas, the SCAQMD is principally responsible for air pollution control, and works directly with the SCAG, county transportation commissions, local governments, as well as state and federal agencies to reduce emissions from stationary, mobile, and indirect sources to meet state and federal ambient air quality standards.

Currently, these state and federal air quality standards are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of AQMPs to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

In March 2017, the SCAQMD released the *Final 2016 AQMP* (*2016 AQMP*). The *2016 AQMP* continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as explore new and innovative methods to reach its goals. Some of these approaches include

utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (32). Similar to the 2012 AQMP, the *2016 AQMP* incorporates scientific and technological information and planning assumptions, including the *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (*2016-2040 RTP/SCS*), a planning document that supports the integration of land use and transportation to help the region meet the federal CAA requirements (19). The Project's consistency with the AQMP will be determined using the *2016 AQMP* as discussed below.

It should be noted that the draft 2022 AQMP has been prepared by SCAQMD to address the EPA's strengthened ozone standard. The draft 2022 AQMP was released in August 2022 and public comment closed on October 18, 2022. The SCAQMD Governing Board adopted the draft 2022 AQMP at its December 2, 2022, meeting. The draft 2022 AQMP requires CARB's adoption before submittal for U.S. EPA's final approval, which is expected to occur sometime in 2023.

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the *1993 CEQA Handbook* (33). These indicators are discussed below:

3.10.1 CONSISTENCY CRITERION NO. 1

The proposed Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

The violations that Consistency Criterion No. 1 refer to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if regional or localized significance thresholds were exceeded.

Construction Impacts – Consistency Criterion 1

Consistency Criterion No. 1 refers to violations of the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if localized or regional significance thresholds were exceeded. As evaluated, the Project's localized and regional construction-source emissions would not exceed applicable regional significance threshold and LST thresholds. As such, a less than significant impact is expected.

Operational Impacts – Consistency Criterion 1

As evaluated, the Project's localized and regional operation-source emissions would not exceed applicable regional significance threshold and LST thresholds. As such, a less than significant impact is expected.

On the basis of the preceding discussion, the Project is determined to be consistent with the first criterion.

3.10.2 CONSISTENCY CRITERION NO. 2

The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

The *2016 AQMP* demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the SCAG, which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in City of Rialto General Plan is considered to be consistent with the AQMP*.*

Construction Impacts – Consistency Criterion 2

Peak day emissions generated by construction activities are largely independent of land use assignments, but rather are a function of development scope and maximum area of disturbance. Irrespective of the site's land use designation, development of the site to its maximum potential would likely occur, with disturbance of the entire site occurring during construction activities. As such, when considering that no emissions thresholds will be exceeded, a less than significant impact would result.

Operational Impacts – Consistency Criterion 2

The Project site is designated for Light Industrial uses. The Light Industrial designation allows light industrial activity such as processing, packaging, machinery repair, fabrication, distribution, warehousing and storage, research and development, and similar uses which are low impact (34). The Project consist of a single 159,680-sf warehouse building, which is consistent with the proposed uses allowed under the land use designation and therefore, the Project does not propose or require amendment of the site's underlying land use designation.

On the basis of the preceding discussion, the Project is determined to be consistent with the second criterion.

AQMP CONSISTENCY CONCLUSION

The Project would not have the potential to result in or cause NAAQS or CAAQS violations. The Project's proposed uses are consistent with the land use designation. Additionally, the Project would not exceed the regional or localized construction and operational thresholds, as such, the Project's development intensity is consistent with the development intensities allowed within the General Plan as previously stated. As such, the Project is considered to be consistent with the AQMP.

3.11 POTENTIAL IMPACTS TO SENSITIVE RECEPTORS

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Results of the LST analysis indicate that the Project would not exceed the SCAQMD localized significance thresholds during construction. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations during Project construction.

Additionally, the Project would not exceed the SCAQMD localized significance thresholds during operational activity. Further Project traffic would not create or result in a CO "hotspot." Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations as the result of Project operations.

3.11.1 FRIANT RANCH CASE

In December 2018, in the case of *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, the California Supreme Court held that an Environmental Impact Report's (EIR) air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that analysis cannot be provided.

Most local agencies, including the City of Rialto, lack the data to do their own assessment of potential health impacts from criteria air pollutant emissions, as would be required to establish customized, locally-specific thresholds of significance based on potential health impacts from an individual development project. The use of national or "generic" data to fill the gap of missing local data would not yield accurate results because such data does not capture local air patterns, local background conditions, or local population characteristics, all of which play a role in how a population experiences air pollution. Because it is impracticable to accurately isolate the exact cause of a human disease (for example, the role a particular air pollutant plays compared to the role of other allergens and genetics in causing asthma), existing scientific tools cannot accurately estimate health impacts of the Project's air emissions without undue speculation. Instead, readers are directed to the Project's air quality impact analysis above, which provides extensive information concerning the quantifiable and non-quantifiable health risks related to the Project's construction and long-term operation.

Notwithstanding, this AQIA does evaluate the proposed Project's localized impact to air quality for emissions of CO, NO_X, PM_{10}, and $PM_{2.5}$ by comparing the proposed project's on-site emissions to the SCAQMD's applicable LST thresholds. The LST analysis above determined that the Project would not result in emissions exceeding SCAQMD's LSTs. Therefore, the proposed Project would not be expected to exceed the most stringent applicable federal or state ambient air quality standards for emissions of CO, NO_X, PM_{10}, and $PM_{2.5}$.

As the Project's emissions would comply with federal, state, and local air quality standards, the proposed Project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level and would not provide a reliable indicator of health effects if modeled.

3.12 ODORS

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills

- Dairies
- Fiberglass molding facilities

The Project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities and the temporary storage of typical solid waste (refuse) associated with the proposed Project's (long-term operational) uses. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction and is thus considered less than significant. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with current solid waste regulations. The proposed Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odors and other emissions (such as those leading to odors) associated with construction and operations activities of the proposed Project would be less than significant and no mitigation is required (35).

3.13 CUMULATIVE IMPACTS

As previously shown in Table 2-3, the CAAQS designate the Project site as nonattainment for O_3 PM_{10}, and $PM_{2.5}$ while the NAAQS designates the Project site as nonattainment for O_3 and $PM_{2.5}$.

The SCAQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (36). In this report the SCAQMD clearly states (Page D-3):

> *"…the SCAQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for TAC emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.*
>
> *Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."*

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which SCAB is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable.

CONSTRUCTION IMPACTS

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that proposed Project construction-source air pollutant emissions would not result in exceedances of regional thresholds. Therefore, proposed Project construction-source emissions would be considered less than significant on a Project-specific and cumulative basis.

OPERATIONAL IMPACTS

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that proposed Project operation-source air pollutant emissions would not result in exceedances of regional thresholds. Therefore, proposed Project operation-source emissions would be considered less than significant on a project-specific and cumulative basis.

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5 CERTIFICATIONS

The contents of this air study report represent an accurate depiction of the environmental impacts associated with the proposed 160 N. Cactus Avenue. The information contained in this air quality impact assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at hqureshi@urbanxroads.com

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – CARB • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 2.1:

STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS

APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

This attachment fulfills the requirement of Health and Safety Code section 40718 for CARB to publish maps that identify areas where one or more violations of any State ambient air quality standard (State standard) or national ambient air quality standard (national standard) have been measured. The national standards are those promulgated under section 109 of the federal Clean Air Act (42 U.S.C. 7409).

This attachment is divided into three parts. The first part comprises a table showing the levels, averaging times, and measurement methods for each of the State and national standards. This is followed by a section containing maps and tables showing the area designations for each pollutant for which there is a State standard in the California Code of Regulations, title 17, section 70200. The last section contains maps and tables showing the most current area designations for the national standards.

Ambient Air Quality Standards

(Updated 5/4/16)

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

See footnotes on next page ...

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$)as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Area Designations for the State Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a State standard set forth in the California Code of Regulations, title 17, section 60200. Each area is identified as attainment, nonattainment, nonattainment-transitional, or unclassified for each pollutant, as shown below:

Attainment	A
Nonattainment	N
Nonattainment-Transitional	NA-T
Unclassified	U

In general, CARB designates areas by air basin for pollutants with a regional impact and by county for pollutants with a more local impact. However, when there are areas within an air basin or county with distinctly different air quality deriving from sources and conditions not affecting the entire air basin or county, CARB may designate a smaller area. Generally, when boundaries of the designated area differ from the air basin or county boundaries, the description of the specific area is referenced at the bottom of the summary table.

FIGURE 1


2020
Area Designations for State
Ambient Air Quality Standards
OZONE
N
0
50
100
150
200
Miles
Del Norte
Siskiyou
Modoc
NORTH COAST
NORTHEAST PLATEAU
Trinity
Shasta
Lassen
Humboldt
Tehama
SACRAMENTO VALLEY
Plumas
Sutter Buttes
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Lake
Colusa
Yuba
Sutter
Placer
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Kings
Tulare
Inyo
Monterey
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
Ventura
Los Angeles
MOJAVE DESERT
Riverside
Orange
SOUTH COAST
SALTON SEA
San Diego
Imperial
SAN DIEGO
Unclassified
Attainment
Nonattainment-Transitional
Nonattainment
Air Basin
County
Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 1

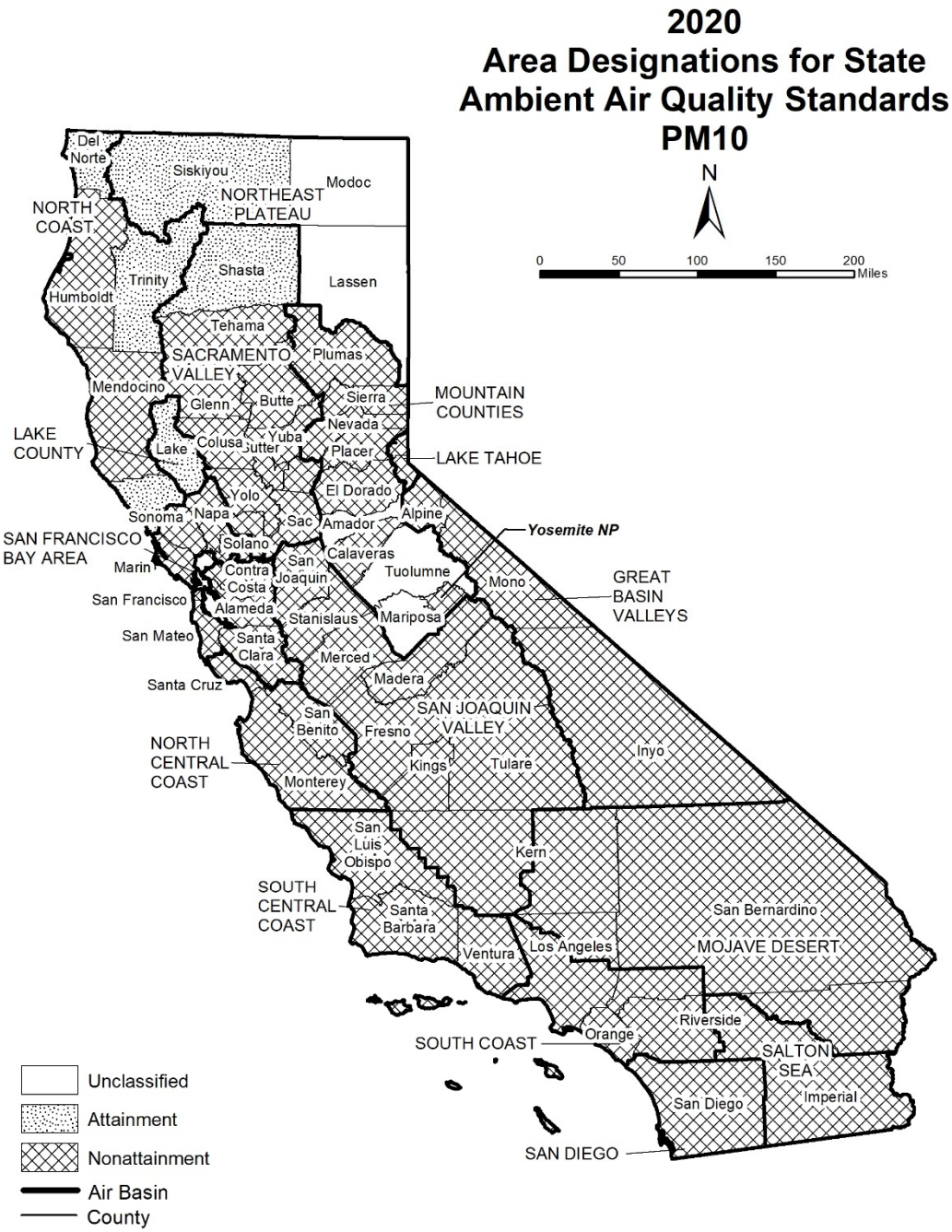
California Ambient Air Quality Standards
Area Designations for Ozone [1]

	N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN				
Alpine County			X	
Inyo County	X			
Mono County	X			
LAKE COUNTY AIR BASIN				X
LAKE TAHOE AIR BASIN				X
MOJAVE DESERT AIR BASIN	X			
MOUNTAIN COUNTIES AIR BASIN				
Amador County		X		
Calaveras County	X			
El Dorado County (portion)	X			
Mariposa County	X			
Nevada County	X			
Placer County (portion)	X			
Plumas County			X	
Sierra County			X	
Tuolumne County	X			
NORTH CENTRAL COAST AIR BASIN				X
NORTH COAST AIR BASIN				X

	N	NA-T	U	A
NORTHEAST PLATEAU AIR BASIN				X
SACRAMENTO VALLEY AIR BASIN				
Colusa and Glenn Counties				X
Shasta County		X		
Sutter/Yuba Counties				
Sutter Buttes	X			
Remainder of Sutter County	X			
Yuba County	X			
Yolo/Solano Counties		X		
Remainder of Air Basin	X			
SALTON SEA AIR BASIN	X			
SAN DIEGO AIR BASIN	X			
SAN FRANCISCO BAY AREA AIR BASIN	X			
SAN JOAQUIN VALLEY AIR BASIN	X			
SOUTH CENTRAL COAST AIR BASIN				
San Luis Obispo County	X			
Santa Barbara County	X			
Ventura County	X			
SOUTH COAST AIR BASIN	X			

[1] AB 3048 (Olberg) and AB 2525 (Miller) signed into law in 1996, made changes to Health and Safety Code, section 40925.5. One of the changes allows nonattainment districts to become nonattainment-transitional for ozone by operation of law.

FIGURE 2



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 2

California Ambient Air Quality Standards
Area Designation for Suspended Particulate Matter (PM_{10})

	N	U	A
GREAT BASIN VALLEYS AIR BASIN	X		
LAKE COUNTY AIR BASIN			X
LAKE TAHOE AIR BASIN	X		
MOJAVE DESERT AIR BASIN	X		
MOUNTAIN COUNTIES AIR BASIN			
Amador County		X	
Calaveras County	X		
El Dorado County (portion)	X		
Mariposa County			
- Yosemite National Park	X		
- Remainder of County		X	
Nevada County	X		
Placer County (portion)	X		
Plumas County	X		
Sierra County	X		
Tuolumne County		X	

	N	U	A
NORTH CENTRAL COAST AIR BASIN	X		
NORTH COAST AIR BASIN			
Del Norte, Sonoma (portion) and Trinity Counties			X
Remainder of Air Basin	X		
NORTHEAST PLATEAU AIR BASIN			
Siskiyou County			X
Remainder of Air Basin		X	
SACRAMENTO VALLEY AIR BASIN			
Shasta County			X
Remainder of Air Basin	X		
SALTON SEA AIR BASIN	X		
SAN DIEGO AIR BASIN	X		
SAN FRANCISCO BAY AREA AIR BASIN	X		
SAN JOAQUIN VALLEY AIR BASIN	X		
SOUTH CENTRAL COAST AIR BASIN	X		
SOUTH COAST AIR BASIN	X		

FIGURE 3


2020
Area Designations for State
Ambient Air Quality Standards
PM2.5
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehama
Portola Valley
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Lake
Colusa
Sutter
Yuba
Placer
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
Inyo
NORTH CENTRAL COAST
Kings
Tulare
Monterey
San Luis Obispo
Kern
County Portion of Federal Ozone AQMA
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
Ventura
Los Angeles
MOJAVE DESERT
Riverside
Orange
SOUTH COAST
SALTON SEA
San Diego
Imperial
SAN DIEGO
Calexico
Unclassified
Attainment
Nonattainment
Air Basin
County
Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 3

California Ambient Air Quality Standards
Area Designations for Fine Particulate Matter ($PM_{2.5}$)

	N	U	A
GREAT BASIN VALLEYS AIR BASIN			X
LAKE COUNTY AIR BASIN			X
LAKE TAHOE AIR BASIN			X
MOJAVE DESERT AIR BASIN			
San Bernardino County			
- County portion of federal Southeast Desert Modified AQMA for Ozone[1]			X
Remainder of Air Basin			X
MOUNTAIN COUNTIES AIR BASIN			
Plumas County			
- Portola Valley[2]	X		
Remainder of Air Basin		X	
NORTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X
SACRAMENTO VALLEY AIR BASIN			
Butte County	X		
Colusa County			X
Glenn County			X
Placer County (portion)			X
Sacramento County			X
Shasta County			X
Sutter and Yuba Counties			X
Remainder of Air Basin		X	

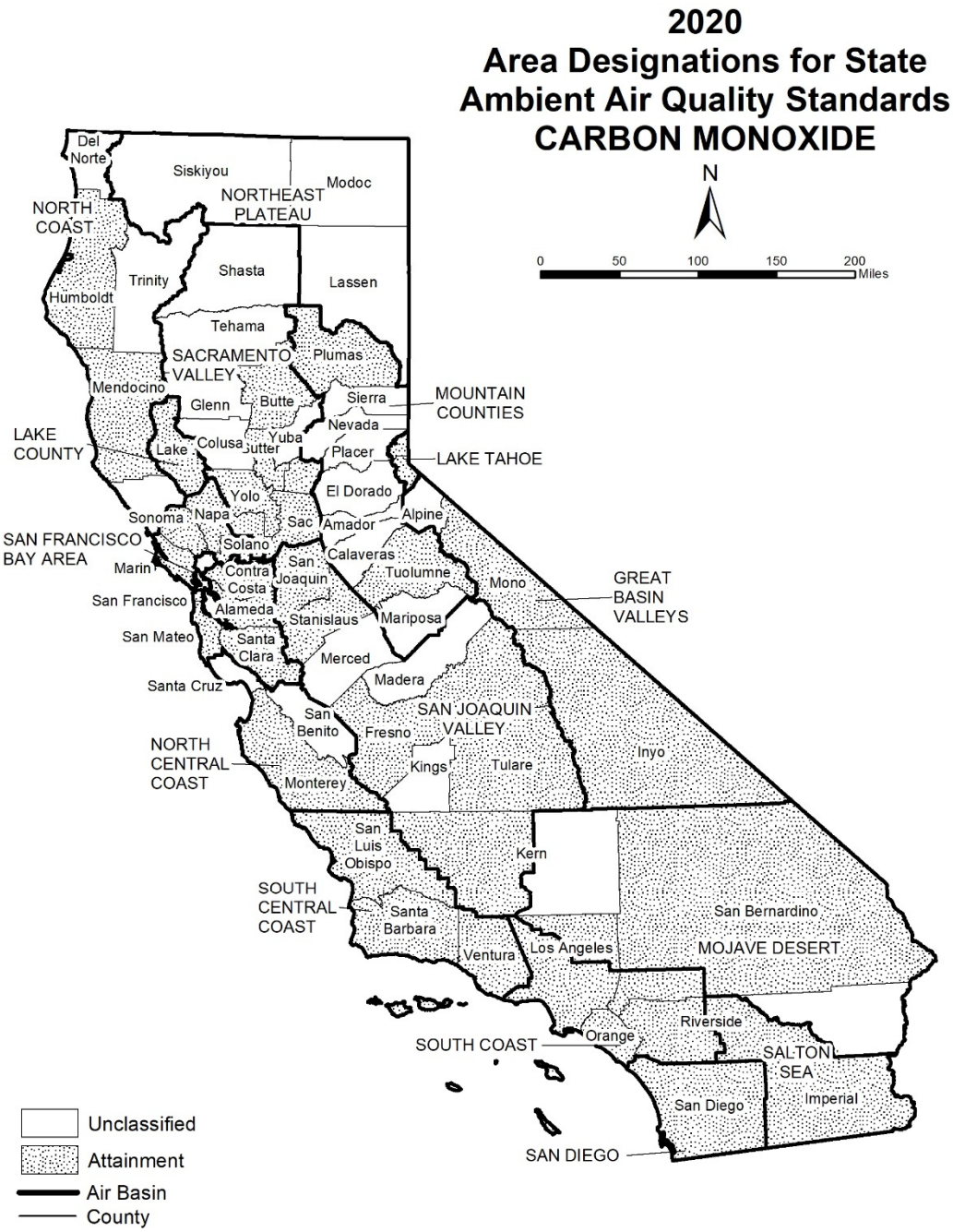
	N	U	A
SALTON SEA AIR BASIN			
Imperial County			
- City of Calexico[3]	X		
Remainder of Air Basin			X
SAN DIEGO AIR BASIN	X		
SAN FRANCISCO BAY AREA AIR BASIN	X		
SAN JOAQUIN VALLEY AIR BASIN	X		
SOUTH CENTRAL COAST AIR BASIN			
San Luis Obispo County			X
Santa Barbara County		X	
Ventura County			X
SOUTH COAST AIR BASIN	X		

[1] California Code of Regulations, title 17, section 60200(b)

[2] California Code of Regulations, title 17, section 60200(c)

[3] California Code of Regulations, title 17, section 60200(a)

FIGURE 4



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 4

California Ambient Air Quality Standards
Area Designation for Carbon Monoxide*

	N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN				
Alpine County			X	
Inyo County				X
Mono County				X
LAKE COUNTY AIR BASIN				X
LAKE TAHOE AIR BASIN				X
MOJAVE DESERT AIR BASIN				
Kern County (portion)			X	
Los Angeles County (portion)				X
Riverside County (portion)			X	
San Bernardino County (portion)				X
MOUNTAIN COUNTIES AIR BASIN				
Amador County			X	
Calaveras County			X	
El Dorado County (portion)			X	
Mariposa County			X	
Nevada County			X	
Placer County (portion)			X	
Plumas County				X
Sierra County			X	
Tuolumne County				X
NORTH CENTRAL COAST AIR BASIN				
Monterey County				X
San Benito County			X	
Santa Cruz County			X	
NORTH COAST AIR BASIN				
Del Norte County			X	
Humboldt County				X
Mendocino County				X
Sonoma County (portion)			X	
Trinity County			X	
NORTHEAST PLATEAU AIR BASIN			X	

	N	NA-T	U	A
SACRAMENTO VALLEY AIR BASIN				
Butte County				X
Colusa County			X	
Glenn County			X	
Placer County (portion)				X
Sacramento County				X
Shasta County			X	
Solano County (portion)				X
Sutter County				X
Tehama County			X	
Yolo County				X
Yuba County			X	
SALTON SEA AIR BASIN				X
SAN DIEGO AIR BASIN				X
SAN FRANCISCO BAY AREA AIR BASIN				X
SAN JOAQUIN VALLEY AIR BASIN				
Fresno County				X
Kern County (portion)				X
Kings County			X	
Madera County			X	
Merced County			X	
San Joaquin County				X
Stanislaus County				X
Tulare County				X
SOUTH CENTRAL COAST AIR BASIN				X
SOUTH COAST AIR BASIN				X

* The area designated for carbon monoxide is a county or portion of a county

FIGURE 5



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 5

California Ambient Air Quality Standards
Area Designations for Nitrogen Dioxide

	N	U	A
GREAT BASIN VALLEYS AIR BASIN			X
LAKE COUNTY AIR BASIN			X
LAKE TAHOE AIR BASIN			X
MOJAVE DESERT AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X
SACRAMENTO VALLEY AIR BASIN			X
SALTON SEA AIR BASIN			X
SAN DIEGO AIR BASIN			X
SAN FRANCISCO BAY AREA AIR BASIN			X
SAN JOAQUIN VALLEY AIR BASIN			X
SOUTH CENTRAL COAST AIR BASIN			X
SOUTH COAST AIR BASIN			
CA 60 Near-road Portion of San Bernardino, Riverside, and Los Angeles Counties	X		
Remainder of Air Basin			X

FIGURE 6



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 6

California Ambient Air Quality Standards
Area Designation for Sulfur Dioxide*

	N	A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOJAVE DESERT AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X

	N	A
SACRAMENTO VALLEY AIR BASIN		X
SALTON SEA AIR BASIN		X
SAN DIEGO AIR BASIN		X
SAN FRANCISCO BAY AREA AIR BASIN		X
SAN JOAQUIN VALLEY AIR BASIN		X
SOUTH CENTRAL COAST AIR BASIN		X
SOUTH COAST AIR BASIN		X

* The area designated for sulfur dioxide is a county or portion of a county. Since all areas in the State are in attainment for this standard, air basins are indicated here for simplicity.

FIGURE 7



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 7

California Ambient Air Quality Standards
Area Designation for Sulfates

	N	U	A
GREAT BASIN VALLEYS AIR BASIN			X
LAKE COUNTY AIR BASIN			X
LAKE TAHOE AIR BASIN			X
MOJAVE DESERT AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X

	N	U	A
SACRAMENTO VALLEY AIR BASIN			X
SALTON SEA AIR BASIN			X
SAN DIEGO AIR BASIN			X
SAN FRANCISCO BAY AREA AIR BASIN			X
SAN JOAQUIN VALLEY AIR BASIN			X
SOUTH CENTRAL COAST AIR BASIN			X
SOUTH COAST AIR BASIN			X

FIGURE 8



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 8

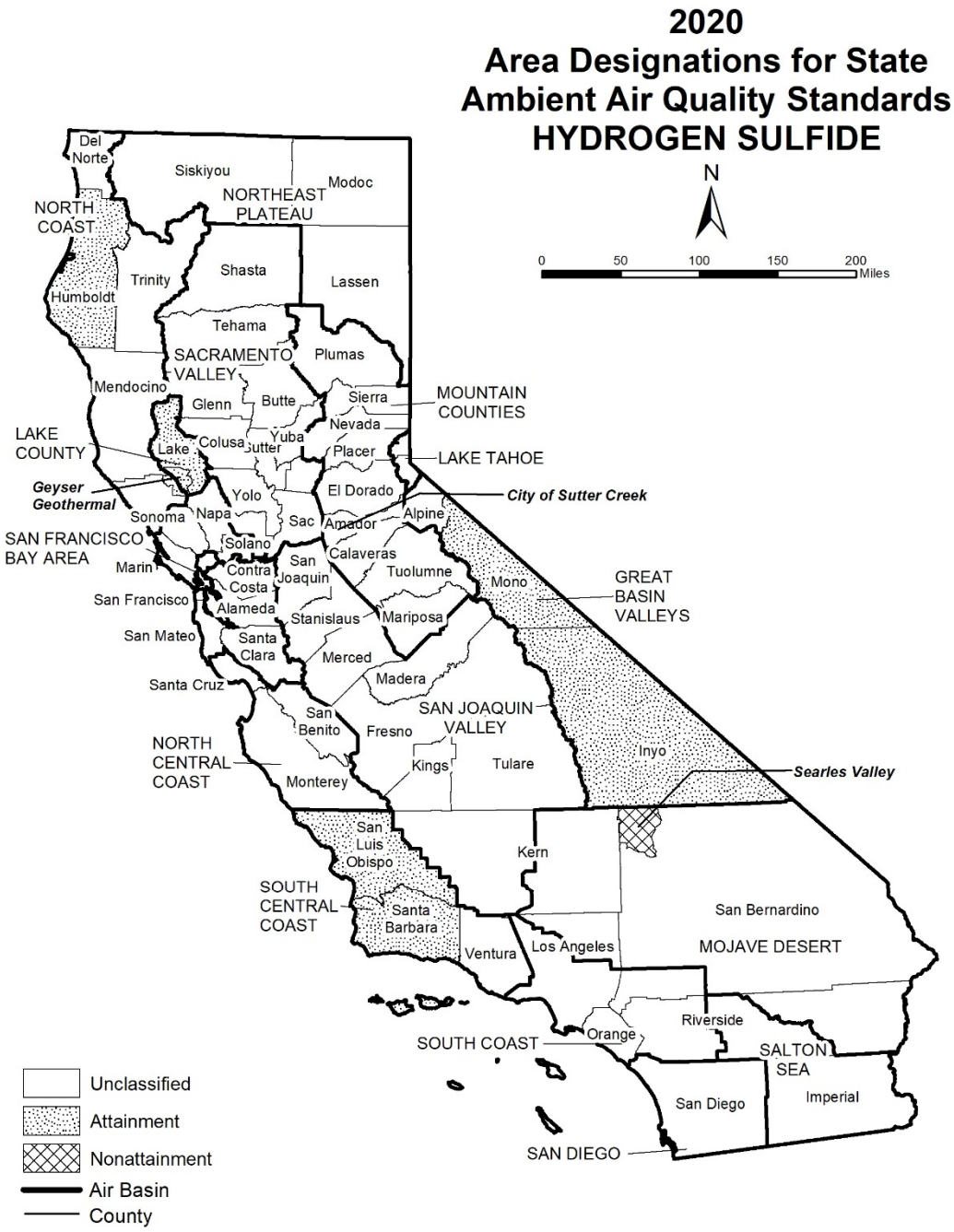
California Ambient Air Quality Standards
Area Designations for Lead (particulate)*

	N	U	A
GREAT BASIN VALLEYS AIR BASIN			X
LAKE COUNTY AIR BASIN			X
LAKE TAHOE AIR BASIN			X
MOJAVE DESERT AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X
SACRAMENTO VALLEY AIR BASIN			X

	N	U	A
SALTON SEA AIR BASIN			X
SAN DIEGO AIR BASIN			X
SAN FRANCISCO BAY AREA AIR BASIN			X
SAN JOAQUIN VALLEY AIR BASIN			X
SOUTH CENTRAL COAST AIR BASIN			X
SOUTH COAST AIR BASIN			X

* The area designated for lead is a county or portion of a county. Since all areas in the State are in attainment for this standard, air basins are indicated here for simplicity.

FIGURE 9



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 9

California Ambient Air Quality Standards
Area Designation for Hydrogen Sulfide*

	N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN				
Alpine County			X	
Inyo County				X
Mono County				X
LAKE COUNTY AIR BASIN				X
LAKE TAHOE AIR BASIN			X	
MOJAVE DESERT AIR BASIN				
Kern County (portion)			X	
Los Angeles County (portion)			X	
Riverside County (portion)			X	
San Bernardino County (portion)				
- Searles Valley Planning Area[1]	X			
- Remainder of County			X	
MOUNTAIN COUNTIES AIR BASIN				
Amador County				
- City of Sutter Creek	X			
- Remainder of County			X	
Calaveras County			X	
El Dorado County (portion)			X	
Mariposa County			X	
Nevada County			X	
Placer County (portion)			X	
Plumas County			X	
Sierra County			X	
Tuolumne County			X	

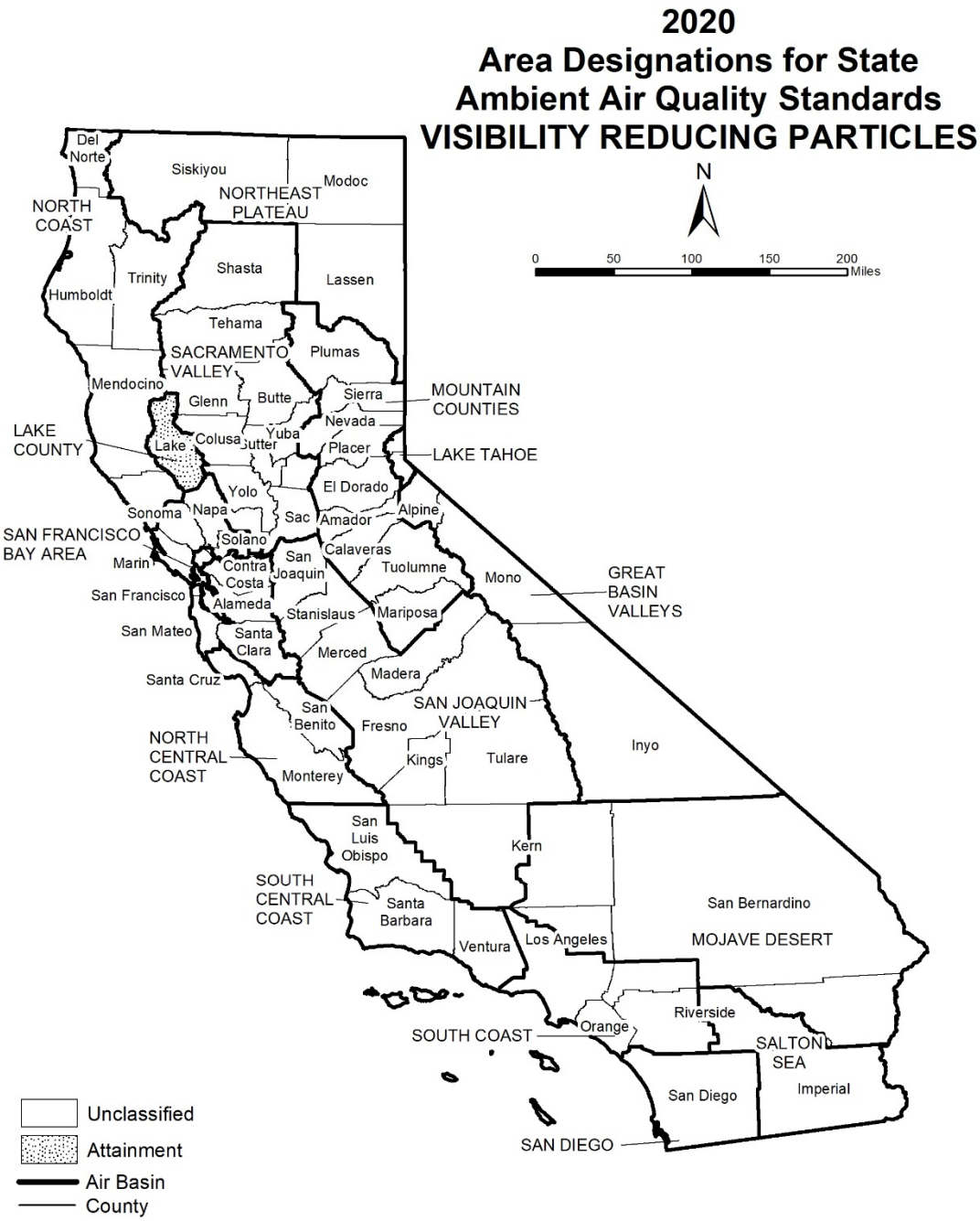
	N	NA-T	U	A
NORTH CENTRAL COAST AIR BASIN			X	
NORTH COAST AIR BASIN				
Del Norte County			X	
Humboldt County				X
Mendocino County			X	
Sonoma County (portion)				
- Geyser Geothermal Area[2]				X
- Remainder of County			X	
Trinity County			X	
NORTHEAST PLATEAU AIR BASIN			X	
SACRAMENTO VALLEY AIR BASIN			X	
SALTON SEA AIR BASIN			X	
SAN DIEGO AIR BASIN			X	
SAN FRANCISCO BAY AREA AIR BASIN			X	
SAN JOAQUIN VALLEY AIR BASIN			X	
SOUTH CENTRAL COAST AIR BASIN				
San Luis Obispo County				X
Santa Barbara County				X
Ventura County			X	
SOUTH COAST AIR BASIN			X	

* The area designated for hydrogen sulfide is a county or portion of a county

[1] 52 Federal Register 29384 (August 7, 1987)

[2] California Code of Regulations, title 17, section 60200(d)

FIGURE 10



Last Updated: October 2020
Air Quality Planning and Science Division, CARB

TABLE 10

California Ambient Air Quality Standards
Area Designation for Visibility Reducing Particles

	N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN			X	
LAKE COUNTY AIR BASIN				X
LAKE TAHOE AIR BASIN			X	
MOJAVE DESERT AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN			X	
NORTH CENTRAL COAST AIR BASIN			X	
NORTH COAST AIR BASIN			X	
NORTHEAST PLATEAU AIR BASIN			X	

	N	NA-T	U	A
SACRAMENTO VALLEY AIR BASIN			X	
SALTON SEA AIR BASIN			X	
SAN DIEGO AIR BASIN			X	
SAN FRANCISCO BAY AREA AIR BASIN			X	
SAN JOAQUIN VALLEY AIR BASIN			X	
SOUTH CENTRAL COAST AIR BASIN			X	
SOUTH COAST AIR BASIN			X	

Area Designations for the National Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a national ambient air quality standard. Additional information about the federal area designations is available on the U.S. EPA website:

https://www.epa.gov/green-book

Over the last several years, U.S. EPA has been reviewing the levels of the various national standards. The agency has already promulgated new standard levels for some pollutants and is considering revising the levels for others. Information about the status of these reviews is available on the U.S. EPA website:

https://www.epa.gov/criteria-air-pollutants

Designation Categories

Suspended Particulate Matter (PM_{10}). The U.S. EPA uses three categories to designate areas with respect to PM_{10}:

- Attainment (A)
- Nonattainment (N)
- Unclassifiable (U)

Ozone, Fine Suspended Particulate Matter ($PM_{2.5}$), Carbon Monoxide (CO), and Nitrogen Dioxide (NO_2). The U.S. EPA uses two categories to designate areas with respect to these standards:

- Nonattainment (N)
- Unclassifiable/Attainment (U/A)

The national 1-hour ozone standard was revoked effective June 15, 2005, and the area designations map reflects the 2015 national 8-hour ozone standard of 0.070 ppm. Area designations were finalized on August 3, 2018.

On December 14, 2012, the U.S. EPA established a new national annual primary $PM_{2.5}$ standard of 12.0 µg/m^3. Area designations were finalized in December 2014. The current designation map reflects the most recently revised (2012) annual average standard of 12.0 µg/m^3 as well as the 24-hour standard of 35 µg/m^3, revised in 2006.

On January 22, 2010, the U.S. EPA established a new national 1-hour NO_2 standard of 100 parts per billion (ppb) and retained the annual average standard of 53 ppb. Designations for the primary NO_2 standard became effective on February 29, 2012. All areas of California meet this standard.

Sulfur Dioxide (SO_2). The U.S. EPA uses three categories to designate areas with respect to the 24-hour and annual average sulfur dioxide standards. These designation categories are:

- Nonattainment (N),
- Unclassifiable (U), and
- Unclassifiable/Attainment (U/A).

On June 2, 2010, the U.S. EPA established a new primary 1-hour SO_2 standard of 75 parts per billion (ppb). At the same time, U.S. EPA revoked the 24-hour and annual

average standards. Area designations for the 1-hour SO_2 standard were finalized on December 21, 2017 and are reflected in the area designations map.

Lead (particulate). The U.S. EPA promulgated a new rolling 3-month average lead standard in October 2008 of 0.15 µg/m^3. Designations were made for this standard in November 2010.

Designation Areas

From time to time, the boundaries of the California air basins have been changed to facilitate the planning process. CARB generally initiates these changes, and they are not always reflected in the U.S. EPA's area designations. For purposes of consistency, the maps in this attachment reflect area designation boundaries and nomenclature as promulgated by the U.S. EPA. In some cases, these may not be the same as those adopted by CARB. For example, the national area designations reflect the former Southeast Desert Air Basin. In accordance with Health and Safety Code section 39606.1, CARB redefined this area in 1996 to be the Mojave Desert Air Basin and Salton Sea Air Basin. The definitions and boundaries for all areas designated for the national standards can be found in Title 40, Code of Federal Regulations (CFR), Chapter I, Subchapter C, Part 81.305. They are available on the web at:

https://ecfr.io/Title-40/se40.20.81_1305

FIGURE 11



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 11

National Ambient Air Quality Standards
Area Designations for 8-Hour Ozone*

	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		
Amador County	X	
Calaveras County	X	
El Dorado County (portion)[1]	X	
Mariposa County	X	
Nevada County		
- Western Nevada County	X	
- Remainder of County		X
Placer County (portion)[1]	X	
Plumas County		X
Sierra County		X
Tuolumne County	X	
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X
SACRAMENTO VALLEY AIR BASIN		
Butte County	X	
Colusa County		X
Glenn County		X
Sacramento Metro Area[1]	X	
Shasta County		X
Sutter County		
- Sutter Buttes	X	
- Southern portion of Sutter County[1]	X	
- Remainder of Sutter County		X
Tehama County		
- Tuscan Buttes	X	
- Remainder of Tehama County		X

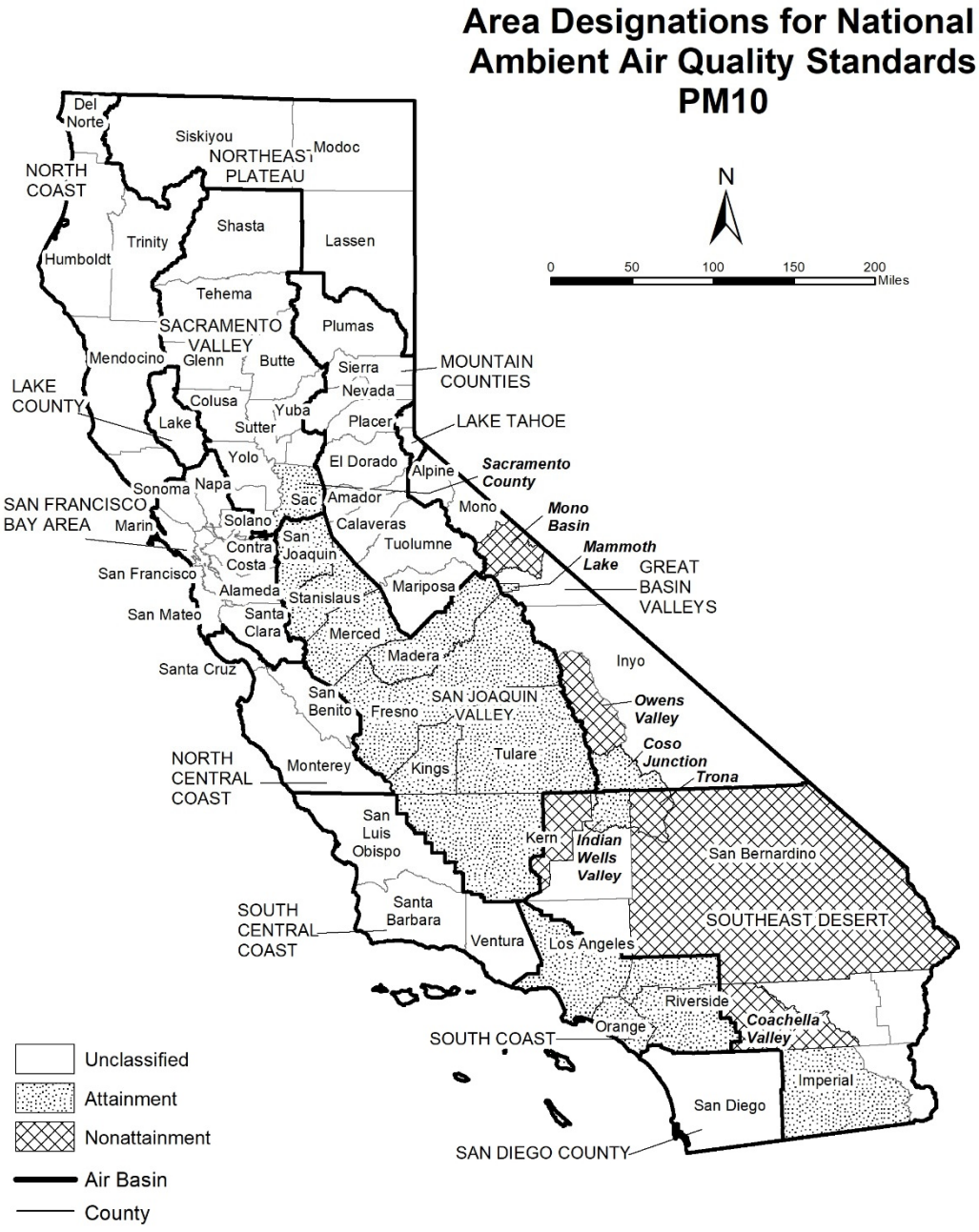
	N	U/A
SACRAMENTO VALLEY AIR BASIN (cont.)		
Yolo County[1]	X	
Yuba County		X
SAN DIEGO COUNTY	X	
SAN FRANCISCO BAY AREA AIR BASIN	X	
SAN JOAQUIN VALLEY AIR BASIN	X	
SOUTH CENTRAL COAST AIR BASIN[2]		
San Luis Obispo County		
- Eastern San Luis Obispo County	X	
- Remainder of County		X
Santa Barbara County		X
Ventura County		
- Area excluding Anacapa and San Nicolas Islands	X	
- Channel Islands[2]		X
SOUTH COAST AIR BASIN[2]	X	
SOUTHEAST DESERT AIR BASIN		
Kern County (portion)	X	
- Indian Wells Valley		X
Imperial County	X	
Los Angeles County (portion)	X	
Riverside County (portion)		
- Coachella Valley	X	
- Non-AQMA portion		X
San Bernardino County		
- Western portion (AQMA)	X	
- Eastern portion (non-AQMA)		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.
NOTE: This map and table reflect the 2015 8-hour ozone standard of 0.070 ppm.

[1] For this purpose, the Sacramento Metro Area comprises all of Sacramento and Yolo Counties, the Sacramento Valley Air Basin portion of Solano County, the southern portion of Sutter County, and the Sacramento Valley and Mountain Counties Air Basins portions of Placer and El Dorado counties.

[2] South Central Coast Air Basin Channel Islands:
Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.
Ventura County includes Anacapa and San Nicolas Islands.
South Coast Air Basin:
Los Angeles County includes San Clemente and Santa Catalina Islands.

FIGURE 12



Source Date:
October 2020
Air Quality Planning and Science Division

TABLE 12

National Ambient Air Quality Standards
Area Designations for Suspended Particulate Matter (PM_{10})*

	N	U	A
GREAT BASIN VALLEYS AIR BASIN			
Alpine County		X	
Inyo County			
- Owens Valley Planning Area	X		
- Coso Junction			X
- Remainder of County		X	
Mono County			
- Mammoth Lake Planning Area			X
- Mono Lake Basin	X		
- Remainder of County		X	
LAKE COUNTY AIR BASIN		X	
LAKE TAHOE AIR BASIN		X	
MOUNTAIN COUNTIES AIR BASIN			
Placer County (portion)[1]		X	
Remainder of Air Basin		X	
NORTH CENTRAL COAST AIR BASIN		X	
NORTH COAST AIR BASIN		X	
NORTHEAST PLATEAU AIR BASIN		X	
SACRAMENTO VALLEY AIR BASIN			
Butte County		X	
Colusa County		X	
Glenn County		X	
Placer County (portion)[1]		X	
Sacramento County[2]			X
Shasta County		X	
Solano County (portion)		X	
Sutter County		X	
Tehama County		X	
Yolo County		X	
Yuba County		X	

	N	U	A
SAN DIEGO COUNTY		X	
SAN FRANCISCO BAY AREA AIR BASIN		X	
SAN JOAQUIN VALLEY AIR BASIN			X
SOUTH CENTRAL COAST AIR BASIN		X	
SOUTH COAST AIR BASIN			X
SOUTHEAST DESERT AIR BASIN			
Eastern Kern County			
- Indian Wells Valley			X
- Portion within San Joaquin Valley Planning Area	X		
- Remainder of County		X	
Imperial County			
- Imperial Valley Planning Area[3]			X
- Remainder of County		X	
Los Angeles County (portion)		X	
Riverside County (portion)			
- Coachella Valley[4]	X		
- Non-AQMA portion		X	
San Bernardino County			
- Trona	X		
- Remainder of County	X		

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

[1] U.S. EPA designation puts the Sacramento Valley Air Basin portion of Placer County in the Mountain Counties Air Basin.

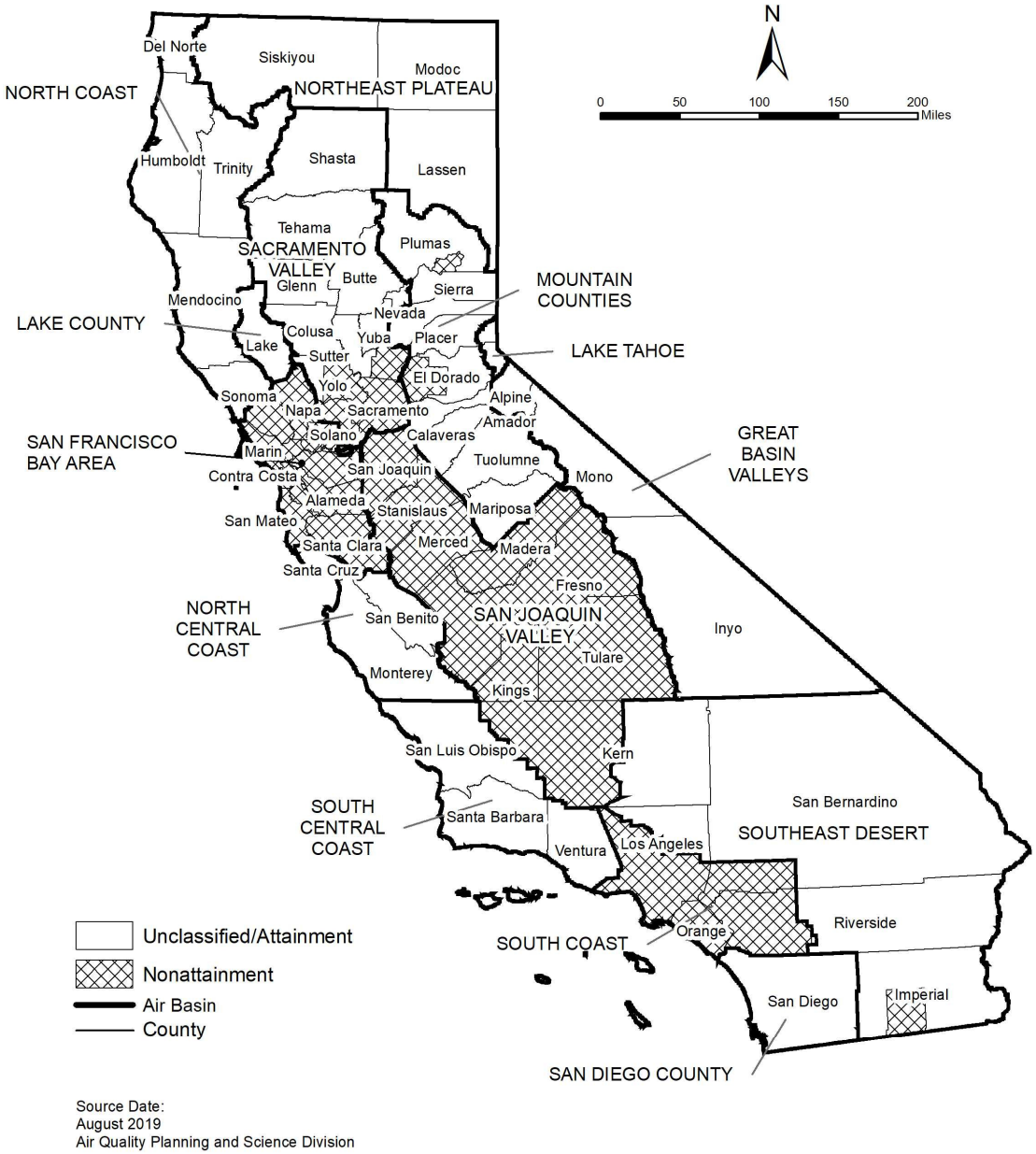
[2] Air quality in Sacramento County meets the national PM_{10} standards. The request for redesignation to attainment was approved by U.S. EPA in September 2013.

[3] The request for redesignation to attainment for the Imperial Valley Planning Area was approved by U.S. EPA and in September 2020, effective October 2020.

[4] Air quality in Coachella Valley meets the national PM_{10} standards. A request for redesignation to attainment has been submitted to U.S. EPA.

FIGURE 13

Area Designations for National Ambient Air Quality Standards PM2.5



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 13

National Ambient Air Quality Standards
Area Designations for Fine Particulate Matter ($PM_{2.5}$)

	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		
Plumas County		
- Portola Valley Portion of Plumas	X	
- Remainder of Plumas County		X
Remainder of Air Basin		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X
SACRAMENTO VALLEY AIR BASIN		
Sacramento Metro Area[1]	X	
Sutter County		X
Yuba County (portion)		X
Remainder of Air Basin		X

	N	U/A
SAN DIEGO COUNTY		X
SAN FRANCISCO BAY AREA AIR BASIN[2]	X	
SAN JOAQUIN VALLEY AIR BASIN	X	
SOUTH CENTRAL COAST AIR BASIN		X
SOUTH COAST AIR BASIN[3]	X	
SOUTHEAST DESERT AIR BASIN		
Imperial County (portion)[4]	X	
Remainder of Air Basin		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305. This map reflects the 2006 24-hour $PM_{2.5}$ standard as well as the 1997 and 2012 $PM_{2.5}$ annual standards.

[1] For this purpose, Sacramento Metro Area comprises all of Sacramento and portions of El Dorado, Placer, Solano, and Yolo Counties. Air quality in this area meets the national $PM_{2.5}$ standards. A Determination of Attainment for the 2006 24-hour $PM_{2.5}$ standard was made by U.S. EPA in June 2017.

[2] Air quality in this area meets the national $PM_{2.5}$ standards. A Determination of Attainment for the 2006 24-hour $PM_{2.5}$ standard was made by U.S. EPA in June 2017.

[3] Those lands of the Santa Rosa Band of Cahulla Mission Indians in Riverside County are designated Unclassifiable/Attainment.

[4] That portion of Imperial County encompassing the urban and surrounding areas of Brawley, Calexico, El Centro, Heber, Holtville, Imperial, Seeley, and Westmorland. Air quality in this area meets the national $PM_{2.5}$ standards. A Determination of Attainment for the 2006 24-hour $PM_{2.5}$ standard was made by U.S. EPA in June 2017.

FIGURE 14



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 14

National Ambient Air Quality Standards
Area Designations for Carbon Monoxide*

	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X

	N	U/A
SACRAMENTO VALLEY AIR BASIN		X
SAN DIEGO COUNTY		X
SAN FRANCISCO BAY AREA AIR BASIN		X
SAN JOAQUIN VALLEY AIR BASIN		X
SOUTH CENTRAL COAST AIR BASIN		X
SOUTH COAST AIR BASIN		X
SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 15



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 15

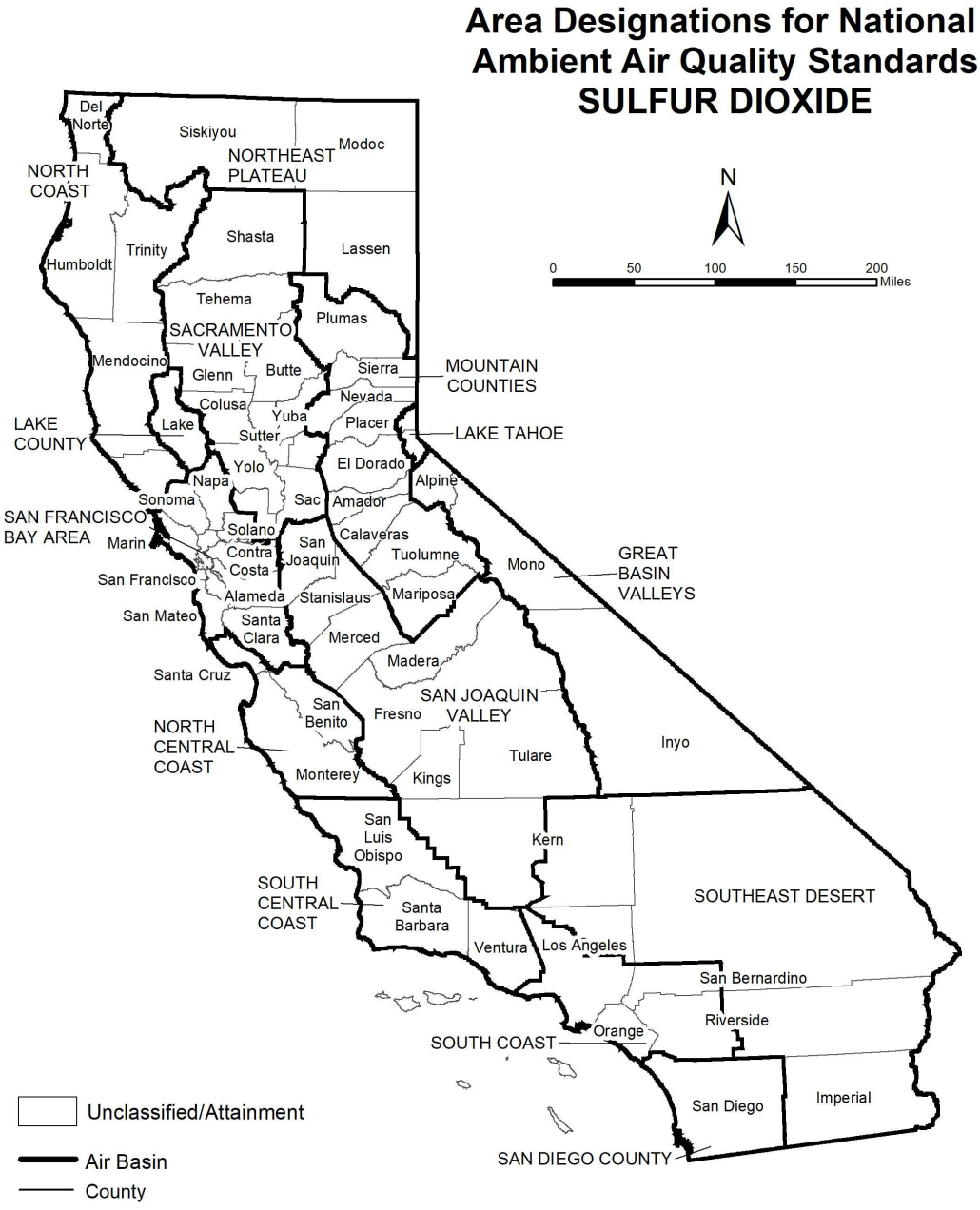
National Ambient Air Quality Standards
Area Designations for Nitrogen Dioxide*

	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X

	N	U/A
SACRAMENTO VALLEY AIR BASIN		X
SAN DIEGO COUNTY		X
SAN FRANCISCO BAY AREA AIR BASIN		X
SAN JOAQUIN VALLEY AIR BASIN		X
SOUTH CENTRAL COAST AIR BASIN		X
SOUTH COAST AIR BASIN		X
SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 16



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 16

National Ambient Air Quality Standards
Area Designations for Sulfur Dioxide*

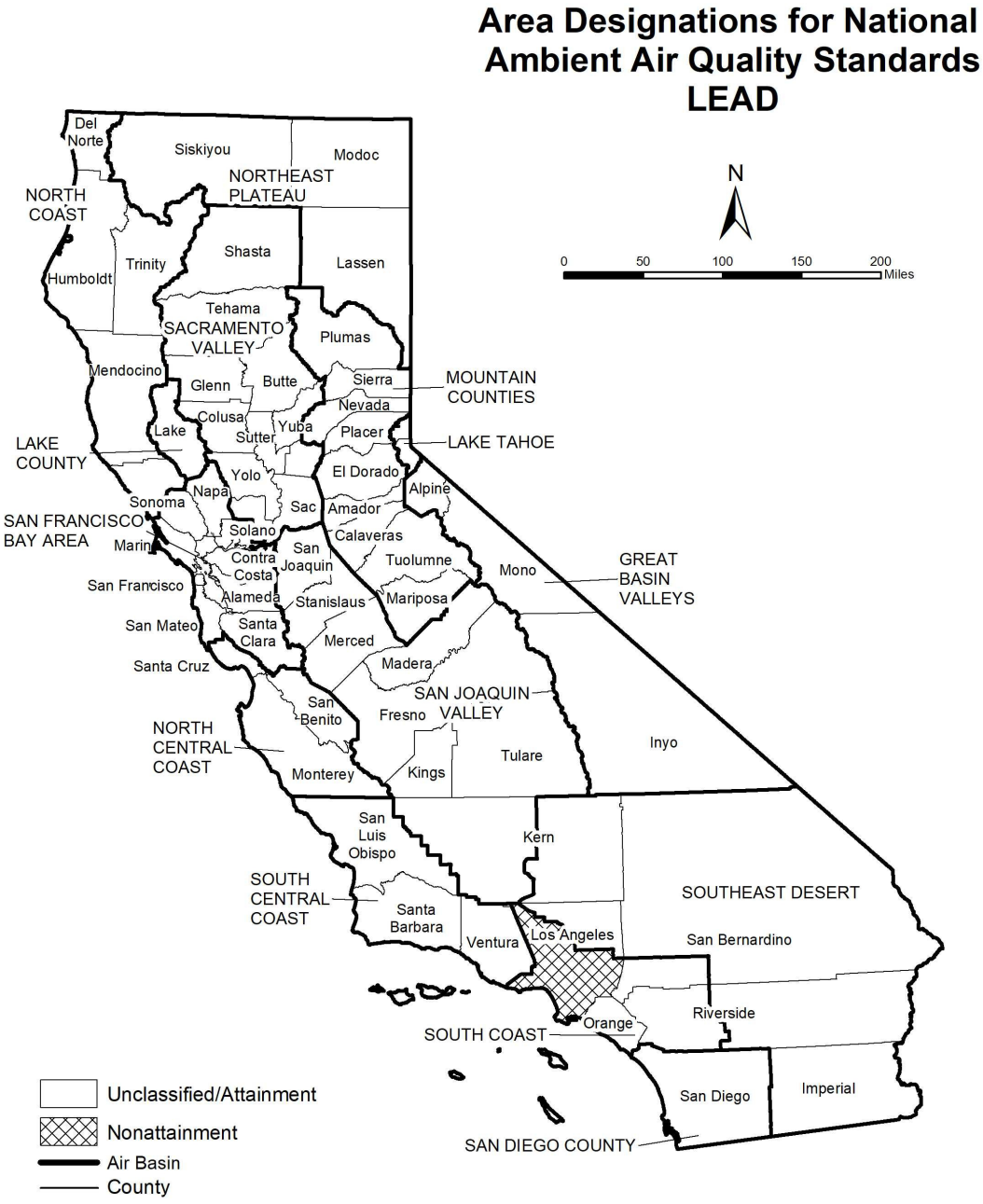
	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X
SACRAMENTO VALLEY AIR BASIN		X
SAN DIEGO COUNTY		X
SAN FRANCISCO BAY AREA AIR BASIN		X
SAN JOAQUIN VALLEY AIR BASIN		
Fresno County		X
Kern County (portion)		X
Kings County		X
Madera County		X
Merced County		X
San Joaquin County		X
Stanislaus County		X
Tulare County		X

	N	U/A
SOUTH CENTRAL COAST AIR BASIN		
San Luis Obispo County		X
Santa Barbara County		X
Ventura County		X
Channel Islands[1]		X
SOUTH COAST AIR BASIN		X
SOUTHEAST DESERT AIR BASIN		
Imperial County		X
Remainder of Air Basin		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.
NOTE: This map and table reflect the 2010 1-hour SO_2 standard of 75 ppb.

[1] South Central Coast Air Basin Channel Islands:
Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.
Ventura County includes Anacapa and San Nicolas Islands.
Note that the San Clemente and Santa Catalina Islands are considered part of Los Angeles County, and therefore, are included as part of the South Coast Air Basin.

FIGURE 17



Source Date:
August 2019
Air Quality Planning and Science Division

TABLE 17

National Ambient Air Quality Standards
Area Designations for Lead (particulate)

	N	U/A
GREAT BASIN VALLEYS AIR BASIN		X
LAKE COUNTY AIR BASIN		X
LAKE TAHOE AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X
SACRAMENTO VALLEY AIR BASIN		X

	N	U/A
SAN DIEGO COUNTY		X
SAN FRANCISCO BAY AREA AIR BASIN		X
SAN JOAQUIN VALLEY AIR BASIN		X
SOUTH CENTRAL COAST AIR BASIN		X
SOUTH COAST AIR BASIN		
Los Angeles County (portion)[1]	X	
Remainder of Air Basin		X
SOUTHEAST DESERT AIR BASIN		X

[1] Portion of County in Air Basin, not including Channel Islands

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APPENDIX 3.1:

CALEEMOD PROJECT EMISSIONS MODEL OUTPUTS

15203-160 N. Cactus Avenue Detailed Report

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Data Field	Value
Project Name	15203-160 N. Cactus Avenue
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	14.2
Location	160 N Cactus Ave, Rialto, CA 92376, USA
County	San Bernardino-South Coast
City	Rialto
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5330
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Unrefrigerated Warehouse-No Rail	160	1000sqft	3.67	159,680	0.00	—	—	—
Parking Lot	127	Space	1.14	0.00	4,979	—	—	—

Other Asphalt Surfaces	3.00	Acre	3.00	0.00	0.00	—	—	—
User Defined Industrial	160	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.94	34.8	47.2	39.6	0.06	2.53	5.90	8.44	2.33	2.74	5.07	—	7,961	7,961	0.64	0.72	9.96	8,201
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.37	2.84	25.6	22.7	0.03	1.49	2.47	3.96	1.37	0.99	2.36	—	4,050	4,050	0.19	0.13	0.15	4,094
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.84	2.86	6.35	7.91	0.01	0.31	0.69	1.00	0.29	0.23	0.52	—	1,618	1,618	0.07	0.05	0.86	1,635
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.15	0.52	1.16	1.44	< 0.005	0.06	0.13	0.18	0.05	0.04	0.10	—	268	268	0.01	0.01	0.14	271

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	5.94	5.00	47.2	39.6	0.06	2.53	5.90	8.44	2.33	2.74	5.07	—	7,961	7,961	0.64	0.72	9.96	8,201
2024	1.99	34.8	13.1	20.2	0.03	0.55	1.02	1.56	0.50	0.24	0.75	—	4,107	4,107	0.19	0.13	5.29	4,156
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	3.37	2.84	25.6	22.7	0.03	1.49	2.47	3.96	1.37	0.99	2.36	—	4,050	4,050	0.19	0.13	0.15	4,094
2024	1.97	1.64	13.2	18.8	0.03	0.55	1.02	1.56	0.50	0.24	0.75	—	4,027	4,027	0.19	0.13	0.14	4,071
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.84	0.69	6.35	6.21	0.01	0.31	0.69	1.00	0.29	0.23	0.52	—	1,202	1,202	0.07	0.05	0.48	1,218
2024	0.80	2.86	5.48	7.91	0.01	0.22	0.38	0.60	0.21	0.09	0.30	—	1,618	1,618	0.07	0.05	0.86	1,635
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.15	0.13	1.16	1.13	< 0.005	0.06	0.13	0.18	0.05	0.04	0.10	—	199	199	0.01	0.01	0.08	202
2024	0.15	0.52	1.00	1.44	< 0.005	0.04	0.07	0.11	0.04	0.02	0.05	—	268	268	0.01	0.01	0.14	271

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.09	5.61	12.9	18.4	0.11	0.23	1.89	2.13	0.23	0.42	0.65	152	13,985	14,137	16.5	1.93	194	15,317
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.81	4.43	13.4	10.7	0.11	0.22	1.89	2.12	0.22	0.42	0.64	152	13,891	14,042	16.5	1.93	164	15,194

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.19	5.01	10.1	12.9	0.08	0.19	1.39	1.57	0.18	0.31	0.50	152	10,716	10,868	16.2	1.46	173	11,882
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	0.91	1.85	2.35	0.02	0.03	0.25	0.29	0.03	0.06	0.09	25.1	1,774	1,799	2.69	0.24	28.6	1,967

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.76	0.78	12.0	10.7	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,997	11,997	0.96	1.74	30.9	12,571
Area	1.23	4.79	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	3.09	5.61	12.9	18.4	0.11	0.23	1.89	2.13	0.23	0.42	0.65	152	13,985	14,137	16.5	1.93	194	15,317
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.72	0.74	12.5	10.1	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,931	11,931	0.97	1.75	0.80	12,476
Area	—	3.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163

Total	1.81	4.43	13.4	10.7	0.11	0.22	1.89	2.12	0.22	0.42	0.64	152	13,891	14,042	16.5	1.93	164	15,194
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.26	0.54	9.28	7.46	0.08	0.12	1.39	1.50	0.11	0.31	0.42	—	8,737	8,737	0.71	1.28	9.76	9,145
Area	0.85	4.43	0.04	4.76	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.6	19.6	< 0.005	< 0.005	—	19.6
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	2.19	5.01	10.1	12.9	0.08	0.19	1.39	1.57	0.18	0.31	0.50	152	10,716	10,868	16.2	1.46	173	11,882
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.23	0.10	1.69	1.36	0.01	0.02	0.25	0.27	0.02	0.06	0.08	—	1,447	1,447	0.12	0.21	1.62	1,514
Area	0.15	0.81	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25
Energy	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	285	285	0.03	< 0.005	—	286
Water	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.21	0.03	—	90.3
Waste	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9
Total	0.40	0.91	1.85	2.35	0.02	0.03	0.25	0.29	0.03	0.06	0.09	25.1	1,774	1,799	2.69	0.24	28.6	1,967

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.39	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	3.27	3.27	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.12	0.97	< 0.005	0.05	—	0.05	0.05	—	0.05	—	141	141	0.01	< 0.005	—	141
Demolition	—	—	—	—	—	—	0.13	0.13	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.21	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.3	23.3	< 0.005	< 0.005	—	23.4
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.39	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	220	220	0.01	0.01	0.94	224
Vendor	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.9	46.9	< 0.005	0.01	0.13	49.2
Hauling	0.59	0.09	5.39	3.00	0.03	0.05	1.11	1.16	0.05	0.30	0.36	—	4,269	4,269	0.49	0.68	8.89	4,492

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.42	8.42	< 0.005	< 0.005	0.02	8.53
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.93	1.93	< 0.005	< 0.005	< 0.005	2.02
Hauling	0.02	< 0.005	0.23	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	175	175	0.02	0.03	0.16	184
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.39	1.39	< 0.005	< 0.005	< 0.005	1.41
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Hauling	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.0	29.0	< 0.005	< 0.005	0.03	30.5

3.3. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.83	4.90	47.0	38.0	0.05	2.53	—	2.53	2.33	—	2.33	—	5,530	5,530	0.22	0.04	—	5,549
Dust From Material Movement	—	—	—	—	—	—	5.66	5.66	—	2.69	2.69	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.93	1.56	< 0.005	0.10	—	0.10	0.10	—	0.10	—	227	227	0.01	< 0.005	—	228
Dust From Material Movement	—	—	—	—	—	—	0.23	0.23	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.35	0.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	37.6	37.6	< 0.005	< 0.005	—	37.8
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.62	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	257	257	0.01	0.01	1.10	261
Vendor	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.9	46.9	< 0.005	0.01	0.13	49.2
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.82	9.82	< 0.005	< 0.005	0.02	9.96
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.93	1.93	< 0.005	< 0.005	< 0.005	2.02

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.63	1.63	< 0.005	< 0.005	< 0.005	1.65
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Hauling	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	0.00

3.5. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.28	2.76	25.4	21.6	0.03	1.49	—	1.49	1.37	—	1.37	—	3,134	3,134	0.13	0.03	—	3,144
Dust From Material Movement	—	—	—	—	—	—	2.26	2.26	—	0.94	0.94	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.28	2.76	25.4	21.6	0.03	1.49	—	1.49	1.37	—	1.37	—	3,134	3,134	0.13	0.03	—	3,144
Dust From Material Movement	—	—	—	—	—	—	2.26	2.26	—	0.94	0.94	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.60	1.36	< 0.005	0.09	—	0.09	0.09	—	0.09	—	197	197	0.01	< 0.005	—	198
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	32.7	32.7	< 0.005	< 0.005	—	32.8
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.39	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	220	220	0.01	0.01	0.94	224
Vendor	0.01	< 0.005	0.09	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.9	71.9	0.01	0.01	0.20	75.4
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.04	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	204
Vendor	0.01	< 0.005	0.09	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	72.0	72.0	0.01	0.01	0.01	75.3
Hauling	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.03	13.1
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.53	4.53	< 0.005	< 0.005	0.01	4.75
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.14	2.14	< 0.005	< 0.005	< 0.005	2.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.75	0.75	< 0.005	< 0.005	< 0.005	0.79
Hauling	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	0.00

3.7. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.62	1.36	12.8	14.3	0.03	0.60	—	0.60	0.55	—	0.55	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.33	1.48	< 0.005	0.06	—	0.06	0.06	—	0.06	—	273	273	0.01	< 0.005	—	274
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.03	0.24	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	45.2	45.2	< 0.005	< 0.005	—	45.3
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.41	4.67	0.00	0.00	0.88	0.88	0.00	0.21	0.21	—	903	903	0.04	0.03	0.11	914
Vendor	0.06	0.01	0.64	0.34	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	517	517	0.04	0.08	0.04	541
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.51	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	95.0	95.0	< 0.005	< 0.005	0.19	96.3
Vendor	0.01	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	53.6	53.6	< 0.005	0.01	0.06	56.2
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.7	15.7	< 0.005	< 0.005	0.03	15.9
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.88	8.88	< 0.005	< 0.005	0.01	9.30
Hauling	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	0.00

3.9. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	12.2	14.2	0.03	0.54	—	0.54	0.49	—	0.49	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	12.2	14.2	0.03	0.54	—	0.54	0.49	—	0.49	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	4.24	4.96	0.01	0.19	—	0.19	0.17	—	0.17	—	916	916	0.04	0.01	—	919
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.77	0.90	< 0.005	0.03	—	0.03	0.03	—	0.03	—	152	152	0.01	< 0.005	—	152
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.33	5.67	0.00	0.00	0.88	0.88	0.00	0.21	0.21	—	966	966	0.04	0.03	3.86	980
Vendor	0.05	0.01	0.59	0.31	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	511	511	0.04	0.08	1.43	536
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.38	4.29	0.00	0.00	0.88	0.88	0.00	0.21	0.21	—	885	885	0.04	0.03	0.10	896
Vendor	0.05	0.01	0.61	0.32	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	512	512	0.04	0.08	0.04	535
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.13	1.57	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	313	313	0.01	0.01	0.58	317
Vendor	0.02	< 0.005	0.21	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	178	178	0.01	0.03	0.21	187
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	51.8	51.8	< 0.005	< 0.005	0.10	52.5
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.5	29.5	< 0.005	< 0.005	0.04	30.9
Hauling	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	0.00

3.11. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.09	10.2	13.9	0.02	0.50	—	0.50	0.46	—	0.46	—	2,093	2,093	0.08	0.02	—	2,100
Paving	—	0.49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.84	< 0.005	0.03	—	0.03	0.03	—	0.03	—	126	126	0.01	< 0.005	—	127
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	20.9	20.9	< 0.005	< 0.005	—	21.0
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	1.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	288	288	0.01	0.01	1.15	292
Vendor	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	68.0	68.0	0.01	0.01	0.19	71.4
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.03	16.4
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.10	4.10	< 0.005	< 0.005	< 0.005	4.30
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.67	2.67	< 0.005	< 0.005	< 0.005	2.71
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.68	0.68	< 0.005	< 0.005	< 0.005	0.71
Hauling	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	0.00

3.13. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	4.11	4.66	0.01	0.06	—	0.06	0.06	—	0.06	—	768	768	0.03	0.01	—	771
Architectural Coatings	—	34.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.26	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	48.4	48.4	< 0.005	< 0.005	—	48.6
Architectural Coatings	—	2.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.05	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.02	8.02	< 0.005	< 0.005	—	8.04
Architectural Coatings	—	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.13	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	193	193	0.01	0.01	0.77	196
Vendor	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.2	71.2	0.01	0.01	0.20	74.7
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	11.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.49	4.49	< 0.005	< 0.005	0.01	4.70
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.87	1.87	< 0.005	< 0.005	< 0.005	1.90
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.74	0.74	< 0.005	< 0.005	< 0.005	0.78
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.63	0.59	0.26	4.68	0.01	< 0.005	0.30	0.31	< 0.005	0.05	0.06	—	867	867	0.04	0.03	3.35	879
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	1.14	0.19	11.7	6.05	0.10	0.16	1.59	1.75	0.15	0.37	0.52	—	11,130	11,130	0.92	1.72	27.6	11,692
Total	1.76	0.78	12.0	10.7	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,997	11,997	0.96	1.74	30.9	12,571
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.59	0.56	0.29	3.99	0.01	< 0.005	0.30	0.31	< 0.005	0.05	0.06	—	799	799	0.05	0.03	0.09	809
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00

User Defined Industrial	1.13	0.18	12.2	6.07	0.10	0.16	1.59	1.75	0.15	0.37	0.52	—	11,132	11,132	0.92	1.72	0.71	11,668
Total	1.72	0.74	12.5	10.1	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,931	11,931	0.97	1.75	0.80	12,476
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.08	0.07	0.04	0.55	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	98.1	98.1	0.01	< 0.005	0.18	99.5
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	0.15	0.03	1.65	0.81	0.01	0.02	0.21	0.23	0.02	0.05	0.07	—	1,348	1,348	0.11	0.21	1.44	1,415
Total	0.23	0.10	1.69	1.36	0.01	0.02	0.25	0.27	0.02	0.06	0.08	—	1,447	1,447	0.12	0.21	1.62	1,514

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	704	704	0.07	0.01	—	709

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	41.7	41.7	< 0.005	< 0.005	—	41.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	746	746	0.07	0.01	—	750
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	704	704	0.07	0.01	—	709
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	41.7	41.7	< 0.005	< 0.005	—	41.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	746	746	0.07	0.01	—	750
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	117	117	0.01	< 0.005	—	117
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	6.90	6.90	< 0.005	< 0.005	—	6.94

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	124	124	0.01	< 0.005	—	124

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	161	161	0.01	< 0.005	—	162
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	161	161	0.01	< 0.005	—	162

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	3.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.23	1.14	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Total	1.23	4.79	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	3.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	3.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.15	0.14	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25
Total	0.15	0.81	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	70.8	240	311	7.28	0.18	—	545
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.41	0.41	< 0.005	< 0.005	—	0.41
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	70.8	240	311	7.28	0.18	—	545
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.41	0.41	< 0.005	< 0.005	—	0.41

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.20	0.03	—	90.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.07	0.07	< 0.005	< 0.005	—	0.07
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.21	0.03	—	90.3

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehou Rail	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	8/16/2023	9/5/2023	5.00	15.0	—
Site Preparation	Site Preparation	9/6/2023	9/26/2023	5.00	15.0	—
Grading	Grading	9/27/2023	10/27/2023	5.00	23.0	—
Building Construction	Building Construction	11/9/2023	6/26/2024	5.00	165	—
Paving	Paving	6/27/2024	7/27/2024	5.00	22.0	—
Architectural Coating	Architectural Coating	7/29/2024	8/28/2024	5.00	23.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40

Site Preparation	Crawler Tractors	Diesel	Average	4.00	8.00	87.0	0.43
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Paving	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Architectural Coating	Aerial Lifts	Diesel	Average	4.00	8.00	46.0	0.31

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	1.48	10.2	HHDT,MHDT
Demolition	Hauling	59.7	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT

Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	1.48	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	2.27	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	67.1	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	16.3	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	2.17	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.4	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	2.27	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	239,520	79,840	10,831

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	77,900	—
Site Preparation	—	—	52.5	0.00	—
Grading	—	—	57.5	0.00	—
Paving	0.00	0.00	0.00	0.00	4.14

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Unrefrigerated Warehouse-No Rail	0.00	0%
Parking Lot	1.14	100%

Other Asphalt Surfaces	3.00	100%
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	349	0.03	< 0.005
2024	0.00	349	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	164	14.4	5.75	43,804	1,135	99.4	39.8	303,044
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User Defined Industrial	110	9.58	3.83	29,383	3,518	306	123	939,670

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	239,520	79,840	10,831

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	737,515	349	0.0330	0.0040	3,035,625
Parking Lot	43,615	349	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	349	0.0330	0.0040	0.00
User Defined Industrial	0.00	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	36,926,000	0.00
Parking Lot	0.00	79,957
Other Asphalt Surfaces	0.00	0.00
User Defined Industrial	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	150	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00
User Defined Industrial	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Unrefrigerated Warehouse-No Rail	Cold storage	User Defined	150	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	26.4	annual days of extreme heat
Extreme Precipitation	4.90	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	98.7
AQ-PM	83.5
AQ-DPM	41.9

Drinking Water	88.0
Lead Risk Housing	49.2
Pesticides	0.00
Toxic Releases	77.0
Traffic	34.1
Effect Indicators	—
CleanUp Sites	28.4
Groundwater	0.00
Haz Waste Facilities/Generators	78.1
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	80.5
Cardio-vascular	92.8
Low Birth Weights	39.9
Socioeconomic Factor Indicators	—
Education	80.3
Housing	91.0
Linguistic	59.0
Poverty	82.1
Unemployment	90.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	13.28114975

Employed	12.60105223
Median HI	20.74939048
Education	—
Bachelor's or higher	18.02900038
High school enrollment	5.042987296
Preschool enrollment	10.36827922
Transportation	—
Auto Access	25.2662646
Active commuting	68.0354164
Social	—
2-parent households	59.89991018
Voting	5.82574105
Neighborhood	—
Alcohol availability	22.87950725
Park access	10.90722443
Retail density	49.30065443
Supermarket access	72.71910689
Tree canopy	40.72885923
Housing	—
Homeownership	23.81624535
Housing habitability	26.52380341
Low-inc homeowner severe housing cost burden	87.25779546
Low-inc renter severe housing cost burden	9.508533299
Uncrowded housing	21.00603105
Health Outcomes	—
Insured adults	24.03438984
Arthritis	63.4

Asthma ER Admissions	13.3
High Blood Pressure	65.9
Cancer (excluding skin)	91.6
Asthma	3.8
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	25.1
Diagnosed Diabetes	28.6
Life Expectancy at Birth	6.3
Cognitively Disabled	28.0
Physically Disabled	18.7
Heart Attack ER Admissions	1.9
Mental Health Not Good	8.9
Chronic Kidney Disease	55.3
Obesity	9.6
Pedestrian Injuries	96.9
Physical Health Not Good	16.6
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	66.7
Current Smoker	10.9
No Leisure Time for Physical Activity	18.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	23.1
Elderly	81.9
English Speaking	37.7

Foreign-born	42.0
Outdoor Workers	21.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	59.1
Traffic Density	27.9
Traffic Access	23.0
Other Indices	—
Hardship	90.4
Other Decision Support	—
2016 Voting	15.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0
Healthy Places Index Score for Project Location (b)	7.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Taken from site plan
Construction: Off-Road Equipment	Client Provided/Confirmed equipment list T/L/B replaced with Crawler Tractor to accurately calculate disturbance for Site Preparation and Grading phases Standard 8-hour work day
Construction: Architectural Coatings	SCAQMD Rule 1113
Construction: Trips and VMT	Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for Demolition, Site Preparation, Grading, Building Construction, Paving and Architectural Coatings
Operations: Vehicle Data	Trip Characteristics based on information provided in the Traffic Analysis
Operations: Fleet Mix	Passenger Car Mix estimated based on CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, MCY). Truck Fleet Mix based on 2, 3 and 4 axle trucks.
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively.

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APPENDIX 3.2:

CALEEMOD PROJECT LOCALIZED OPERATIONAL EMISSIONS MODEL OUTPUTS

15203-160 N. Cactus Avenue (Operational LSTs) Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	15203-160 N. Cactus Avenue (Operational LSTs)
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	14.2
Location	160 N Cactus Ave, Rialto, CA 92376, USA
County	San Bernardino-South Coast
City	Rialto
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5330
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Unrefrigerated Warehouse-No Rail	160	1000sqft	3.67	159,680	0.00	—	—	—
Parking Lot	127	Space	1.14	0.00	4,979	—	—	—

Other Asphalt Surfaces	3.00	Acre	3.00	0.00	0.00	—	—	—
User Defined Industrial	160	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.99	5.38	2.26	9.77	0.01	0.07	0.02	0.09	0.08	< 0.005	0.08	152	2,244	2,396	15.6	0.23	163	3,019
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.72	4.21	2.26	3.04	0.01	0.06	0.02	0.08	0.06	< 0.005	0.07	152	2,216	2,368	15.6	0.23	163	2,991
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.39	4.85	1.89	7.15	0.01	0.07	0.01	0.08	0.07	< 0.005	0.07	152	2,166	2,318	15.6	0.22	163	2,937
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.25	0.88	0.35	1.30	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	25.1	359	384	2.58	0.04	27.0	486

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.66	0.55	1.38	2.14	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	256	256	0.12	0.05	0.23	273
Area	1.23	4.79	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	1.99	5.38	2.26	9.77	0.01	0.07	0.02	0.09	0.08	< 0.005	0.08	152	2,244	2,396	15.6	0.23	163	3,019
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.63	0.51	1.44	2.35	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	257	257	0.12	0.05	0.01	274
Area	—	3.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	0.72	4.21	2.26	3.04	0.01	0.06	0.02	0.08	0.06	< 0.005	0.07	152	2,216	2,368	15.6	0.23	163	2,991
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.46	0.37	1.04	1.71	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	187	187	0.09	0.03	0.07	200
Area	0.85	4.43	0.04	4.76	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.6	19.6	< 0.005	< 0.005	—	19.6
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163

Total	1.39	4.85	1.89	7.15	0.01	0.07	0.01	0.08	0.07	< 0.005	0.07	152	2,166	2,318	15.6	0.22	163	2,937
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.08	0.07	0.19	0.31	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	31.0	31.0	0.02	0.01	0.01	33.1
Area	0.15	0.81	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25
Energy	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	285	285	0.03	< 0.005	—	286
Water	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.21	0.03	—	90.3
Waste	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9
Total	0.25	0.88	0.35	1.30	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	25.1	359	384	2.58	0.04	27.0	486

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.51	0.50	0.10	1.12	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	48.6	48.6	0.03	0.01	0.08	53.0
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00

User Defined Industrial	0.16	0.06	1.28	1.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	208	208	0.09	0.03	0.15	220
Total	0.66	0.55	1.38	2.14	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	256	256	0.12	0.05	0.23	273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.48	0.46	0.11	1.29	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	47.3	47.3	0.03	0.01	< 0.005	51.8
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	0.15	0.05	1.33	1.06	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	210	210	0.09	0.03	< 0.005	222
Total	0.63	0.51	1.44	2.35	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	257	257	0.12	0.05	0.01	274
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.06	0.06	0.01	0.17	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.76	5.76	< 0.005	< 0.005	< 0.005	6.31
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	0.02	0.01	0.17	0.14	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	25.3	25.3	0.01	< 0.005	0.01	26.8
Total	0.08	0.07	0.19	0.31	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	31.0	31.0	0.02	0.01	0.01	33.1

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	704	704	0.07	0.01	—	709
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	41.7	41.7	< 0.005	< 0.005	—	41.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	746	746	0.07	0.01	—	750
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	704	704	0.07	0.01	—	709
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	41.7	41.7	< 0.005	< 0.005	—	41.9

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	746	746	0.07	0.01	—	750
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	117	117	0.01	< 0.005	—	117
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	6.90	6.90	< 0.005	< 0.005	—	6.94
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	124	124	0.01	< 0.005	—	124

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976

Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	161	161	0.01	< 0.005	—	162
Parking Lot	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

Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	161	161	0.01	< 0.005	—	162

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	3.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.23	1.14	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Total	1.23	4.79	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	3.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	3.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.15	0.14	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25
Total	0.15	0.81	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	70.8	240	311	7.28	0.18	—	545
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.41	0.41	< 0.005	< 0.005	—	0.41

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	70.8	240	311	7.28	0.18	—	545
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.41	0.41	< 0.005	< 0.005	—	0.41
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.20	0.03	—	90.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.07	0.07	< 0.005	< 0.005	—	0.07
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.21	0.03	—	90.3

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	164	14.4	5.75	43,804	27.9	2.44	0.98	7,447
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User Defined Industrial	110	9.58	3.83	29,383	18.7	1.63	0.65	4,995

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	239,520	79,840	10,831

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	737,515	349	0.0330	0.0040	3,035,625
Parking Lot	43,615	349	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	349	0.0330	0.0040	0.00
User Defined Industrial	0.00	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	36,926,000	0.00
Parking Lot	0.00	79,957
Other Asphalt Surfaces	0.00	0.00
User Defined Industrial	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	150	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00
User Defined Industrial	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Unrefrigerated Warehouse-No Rail	Cold storage	User Defined	150	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	26.4	annual days of extreme heat
Extreme Precipitation	4.90	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A

Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	98.7
AQ-PM	83.5
AQ-DPM	41.9
Drinking Water	88.0
Lead Risk Housing	49.2
Pesticides	0.00
Toxic Releases	77.0
Traffic	34.1
Effect Indicators	—
CleanUp Sites	28.4
Groundwater	0.00
Haz Waste Facilities/Generators	78.1

Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	80.5
Cardio-vascular	92.8
Low Birth Weights	39.9
Socioeconomic Factor Indicators	—
Education	80.3
Housing	91.0
Linguistic	59.0
Poverty	82.1
Unemployment	90.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	13.28114975
Employed	12.60105223
Median HI	20.74939048
Education	—
Bachelor's or higher	18.02900038
High school enrollment	5.042987296
Preschool enrollment	10.36827922
Transportation	—
Auto Access	25.2662646
Active commuting	68.0354164

Social	—
2-parent households	59.89991018
Voting	5.82574105
Neighborhood	—
Alcohol availability	22.87950725
Park access	10.90722443
Retail density	49.30065443
Supermarket access	72.71910689
Tree canopy	40.72885923
Housing	—
Homeownership	23.81624535
Housing habitability	26.52380341
Low-inc homeowner severe housing cost burden	87.25779546
Low-inc renter severe housing cost burden	9.508533299
Uncrowded housing	21.00603105
Health Outcomes	—
Insured adults	24.03438984
Arthritis	63.4
Asthma ER Admissions	13.3
High Blood Pressure	65.9
Cancer (excluding skin)	91.6
Asthma	3.8
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	25.1
Diagnosed Diabetes	28.6
Life Expectancy at Birth	6.3
Cognitively Disabled	28.0

Physically Disabled	18.7
Heart Attack ER Admissions	1.9
Mental Health Not Good	8.9
Chronic Kidney Disease	55.3
Obesity	9.6
Pedestrian Injuries	96.9
Physical Health Not Good	16.6
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	66.7
Current Smoker	10.9
No Leisure Time for Physical Activity	18.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	23.1
Elderly	81.9
English Speaking	37.7
Foreign-born	42.0
Outdoor Workers	21.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	59.1
Traffic Density	27.9
Traffic Access	23.0
Other Indices	—
Hardship	90.4
Other Decision Support	—

2016 Voting	15.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0
Healthy Places Index Score for Project Location (b)	7.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Taken from site plan
Construction: Off-Road Equipment	Client Provided/Confirmed equipment list T/L/B replaced with Crawler Tractor to accurately calculate disturbance for Site Preparation and Grading phases Standard 8-hour work day
Construction: Architectural Coatings	SCAQMD Rule 1113

Construction: Trips and VMT	Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for Demolition, Site Preparation, Grading, Building Construction, Paving and Architectural Coatings
Operations: Vehicle Data	Trip Characteristics based on information provided in the Traffic Analysis
Operations: Fleet Mix	Passenger Car Mix estimated based on CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, MCY). Truck Fleet Mix based on 2, 3 and 4 axle trucks.
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively.

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APPENDIX 3.3:

CALEEMOD EXISTING OPERATIONAL EMISSIONS MODEL OUTPUTS

15203-160 N Cactus Avenue (Existing) Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	15203-160 N Cactus Avenue (Existing)
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	14.2
Location	160 N Cactus Ave, Rialto, CA 92376, USA
County	San Bernardino-South Coast
City	Rialto
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5330
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Unrefrigerated Warehouse-No Rail	77.9	1000sqft	1.79	77,900	0.00	—	—	—
User Defined Industrial	77.9	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.76	3.10	5.53	11.5	0.05	0.10	1.02	1.12	0.10	0.22	0.33	74.0	5,632	5,706	7.90	0.64	99.2	6,194
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.12	2.51	5.75	7.47	0.05	0.10	1.02	1.12	0.10	0.22	0.32	74.0	5,556	5,630	7.91	0.64	79.9	6,099
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.42	2.82	5.31	9.21	0.04	0.10	0.92	1.01	0.09	0.20	0.30	74.0	5,121	5,195	7.87	0.59	87.1	5,654
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.26	0.51	0.97	1.68	0.01	0.02	0.17	0.19	0.02	0.04	0.05	12.2	848	860	1.30	0.10	14.4	936

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	1.11	0.76	5.11	7.83	0.04	0.07	1.02	1.09	0.07	0.22	0.29	—	4,683	4,683	0.33	0.55	19.8	4,874
Area	0.60	2.32	0.03	3.39	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	13.9	13.9	< 0.005	< 0.005	—	14.3
Energy	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	818	818	0.07	< 0.005	—	822
Water	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
Waste	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Total	1.76	3.10	5.53	11.5	0.05	0.10	1.02	1.12	0.10	0.22	0.33	74.0	5,632	5,706	7.90	0.64	99.2	6,194
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.08	0.72	5.35	7.13	0.04	0.07	1.02	1.09	0.07	0.22	0.29	—	4,621	4,621	0.34	0.55	0.51	4,794
Area	—	1.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	818	818	0.07	< 0.005	—	822
Water	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
Waste	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Total	1.12	2.51	5.75	7.47	0.05	0.10	1.02	1.12	0.10	0.22	0.32	74.0	5,556	5,630	7.91	0.64	79.9	6,099
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.97	0.65	4.89	6.55	0.04	0.06	0.92	0.98	0.06	0.20	0.26	—	4,176	4,176	0.30	0.50	7.69	4,339
Area	0.41	2.15	0.02	2.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.54	9.54	< 0.005	< 0.005	—	9.82
Energy	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	818	818	0.07	< 0.005	—	822
Water	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
Waste	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Total	1.42	2.82	5.31	9.21	0.04	0.10	0.92	1.01	0.09	0.20	0.30	74.0	5,121	5,195	7.87	0.59	87.1	5,654
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.18	0.12	0.89	1.20	0.01	0.01	0.17	0.18	0.01	0.04	0.05	—	691	691	0.05	0.08	1.27	718
Area	0.08	0.39	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.58	1.58	< 0.005	< 0.005	—	1.63

Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	135	135	0.01	< 0.005	—	136
Water	—	—	—	—	—	—	—	—	—	—	—	5.72	19.4	25.1	0.59	0.01	—	44.0
Waste	—	—	—	—	—	—	—	—	—	—	—	6.53	0.00	6.53	0.65	0.00	—	22.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.1	13.1
Total	0.26	0.51	0.97	1.68	0.01	0.02	0.17	0.19	0.02	0.04	0.05	12.2	848	860	1.30	0.10	14.4	936

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.60	0.56	0.26	4.54	0.01	< 0.005	0.27	0.28	< 0.005	0.05	0.05	—	801	801	0.04	0.03	3.37	813
User Defined Industrial	0.52	0.20	4.84	3.28	0.04	0.07	0.75	0.81	0.06	0.18	0.24	—	3,882	3,882	0.29	0.52	16.4	4,062
Total	1.11	0.76	5.11	7.83	0.04	0.07	1.02	1.09	0.07	0.22	0.29	—	4,683	4,683	0.33	0.55	19.8	4,874
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No Rail	0.56	0.53	0.29	3.86	0.01	< 0.005	0.27	0.28	< 0.005	0.05	0.05	—	738	738	0.04	0.03	0.09	747
User Defined Industrial	0.51	0.20	5.06	3.27	0.04	0.07	0.75	0.81	0.06	0.18	0.24	—	3,883	3,883	0.29	0.52	0.42	4,047
Total	1.08	0.72	5.35	7.13	0.04	0.07	1.02	1.09	0.07	0.22	0.29	—	4,621	4,621	0.34	0.55	0.51	4,794
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.09	0.09	0.05	0.66	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	112	112	0.01	< 0.005	0.22	113
User Defined Industrial	0.08	0.03	0.84	0.54	0.01	0.01	0.12	0.13	0.01	0.03	0.04	—	580	580	0.04	0.08	1.06	605
Total	0.18	0.12	0.89	1.20	0.01	0.01	0.17	0.18	0.01	0.04	0.05	—	691	691	0.05	0.08	1.27	718

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	344	344	0.03	< 0.005	—	346

User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	344	344	0.03	< 0.005	—	346
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	344	344	0.03	< 0.005	—	346
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	344	344	0.03	< 0.005	—	346
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	56.9	56.9	0.01	< 0.005	—	57.2
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	56.9	56.9	0.01	< 0.005	—	57.2

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrige Warehouse-No Rail	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	475	475	0.04	< 0.005	—	476
User Defined Industrial	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
Total	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	475	475	0.04	< 0.005	—	476
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	475	475	0.04	< 0.005	—	476
User Defined Industrial	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
Total	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	475	475	0.04	< 0.005	—	476
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.6	78.6	0.01	< 0.005	—	78.8
User Defined Industrial	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
Total	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.6	78.6	0.01	< 0.005	—	78.8

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.67	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.60	0.56	0.03	3.39	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	13.9	13.9	< 0.005	< 0.005	—	14.3
Total	0.60	2.32	0.03	3.39	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	13.9	13.9	< 0.005	< 0.005	—	14.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.67	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.07	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.58	1.58	< 0.005	< 0.005	—	1.63

Total	0.08	0.39	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.58	1.58	< 0.005	< 0.005	—	1.63

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated	—	—	—	—	—	—	—	—	—	—	—	5.72	19.4	25.1	0.59	0.01	—	44.0
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.72	19.4	25.1	0.59	0.01	—	44.0

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138

User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	6.53	0.00	6.53	0.65	0.00	—	22.9
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	6.53	0.00	6.53	0.65	0.00	—	22.9

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.1	13.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.1	13.1

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	148	98.5	95.7	48,713	1,024	681	662	337,003
User Defined Industrial	65.0	43.2	42.1	21,386	1,652	1,099	1,069	543,633

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	116,850	38,950	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	359,797	349	0.0330	0.0040	1,480,932
User Defined Industrial	0.00	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	18,014,375	0.00
User Defined Industrial	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	73.2	0.00
User Defined Industrial	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Unrefrigerated Warehouse-No Rail	Cold storage	User Defined	150	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	26.4	annual days of extreme heat
Extreme Precipitation	4.90	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth

Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3

Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	98.7
AQ-PM	83.5
AQ-DPM	41.9
Drinking Water	88.0
Lead Risk Housing	49.2
Pesticides	0.00
Toxic Releases	77.0
Traffic	34.1

Effect Indicators	—
CleanUp Sites	28.4
Groundwater	0.00
Haz Waste Facilities/Generators	78.1
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	80.5
Cardio-vascular	92.8
Low Birth Weights	39.9
Socioeconomic Factor Indicators	—
Education	80.3
Housing	91.0
Linguistic	59.0
Poverty	82.1
Unemployment	90.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	13.28114975
Employed	12.60105223
Median HI	20.74939048
Education	—
Bachelor's or higher	18.02900038
High school enrollment	5.042987296

Preschool enrollment	10.36827922
Transportation	—
Auto Access	25.2662646
Active commuting	68.0354164
Social	—
2-parent households	59.89991018
Voting	5.82574105
Neighborhood	—
Alcohol availability	22.87950725
Park access	10.90722443
Retail density	49.30065443
Supermarket access	72.71910689
Tree canopy	40.72885923
Housing	—
Homeownership	23.81624535
Housing habitability	26.52380341
Low-inc homeowner severe housing cost burden	87.25779546
Low-inc renter severe housing cost burden	9.508533299
Uncrowded housing	21.00603105
Health Outcomes	—
Insured adults	24.03438984
Arthritis	63.4
Asthma ER Admissions	13.3
High Blood Pressure	65.9
Cancer (excluding skin)	91.6
Asthma	3.8
Coronary Heart Disease	69.4

Chronic Obstructive Pulmonary Disease	25.1
Diagnosed Diabetes	28.6
Life Expectancy at Birth	6.3
Cognitively Disabled	28.0
Physically Disabled	18.7
Heart Attack ER Admissions	1.9
Mental Health Not Good	8.9
Chronic Kidney Disease	55.3
Obesity	9.6
Pedestrian Injuries	96.9
Physical Health Not Good	16.6
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	66.7
Current Smoker	10.9
No Leisure Time for Physical Activity	18.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	23.1
Elderly	81.9
English Speaking	37.7
Foreign-born	42.0
Outdoor Workers	21.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	59.1
Traffic Density	27.9

Traffic Access	23.0
Other Indices	—
Hardship	90.4
Other Decision Support	—
2016 Voting	15.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0
Healthy Places Index Score for Project Location (b)	7.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	Trip Characteristics based on information provided in the Traffic Analysis

Operations: Fleet Mix	Passenger Car Mix estimated based on CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, MCY). Truck Fleet Mix based on 2, 3 and 4 axle trucks.
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Refrigerants	R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively

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Appendix B

Mobile Source Health Risk Assessment

160 N. Cactus Avenue

MOBILE SOURCE HEALTH RISK ASSESSMENT

CITY OF RIALTO

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FEBRUARY 7, 2023

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LIST OF ABBREVIATED TERMS

(1)	Reference
µg	Microgram
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AQMD	Air Quality Management District
ARB	Air Resources Board
CEQA	California Environmental Quality Act
CPF	Cancer Potency Factor
DPM	Diesel Particulate Matter
EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
HHD	Heavy Heavy-Duty
HI	Hazard Index
HRA	Health Risk Assessment
LHD	Light Heavy-Duty
MATES	Multiple Air Toxics Exposure Study
MEIR	Maximally Exposed Individual Receptor
MEISC	Maximally Exposed Individual School Child
MEIW	Maximally Exposed Individual Worker
MHD	Medium Heavy-Duty
NAD	North American Datum
OEHHA	Office of Environmental Health Hazard Assessment
PM_{10}	Particulate Matter 10 microns in diameter or less
Project	160 N. Cactus Avenue
REL	Reference Exposure Level
RM	Recommended Measures
SCAQMD	South Coast Air Quality Management District
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
TA	Traffic Analysis
URF	Unit Risk Factor
UTM	Universal Transverse Mercator
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

This report evaluates the potential mobile-source emissions health risk impacts associated with the development of the proposed Project. More specifically, potential health risk impacts that could result from exposure to Toxic Air Contaminants (TACs), in this case, diesel particulate matter (DPM) generated by heavy-duty diesel trucks accessing the site. This section summarizes the significance criteria and Project health risks.

The results of the health risk assessment from Project-generated DPM emissions are provided in Table ES-1, ES-2, and ES-3, presented subsequently.

CONSTRUCTION IMPACTS

The land use with the greatest potential exposure to Project construction-source DPM emissions is Location R2 which is located approximately 91 feet north of the Project site at an existing residence located at 189 N. Fillmore Avenue. R2 is placed in the residential structure where an individual could remain for 24-hours At the Maximally Exposed Individual Resident (MEIR), the maximum incremental cancer risk attributable to Project construction-source DPM emissions is estimated at 6.30 in one million, which is less than the SCAQMD's significance threshold of 10 in one million. At this same location, non-cancer risks were estimated to be <0.01, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent land uses as a result of Project construction activity. All other receptors during construction activity would experience less risk than what is identified for this location. The nearest modeled receptors are illustrated on Exhibit 2-D. It should be noted that construction impacts are identical under both alternatives.

OPERATIONAL IMPACTS

Residential Exposure Scenario:

The residential land use with the greatest potential exposure to Project operational-source DPM emissions is Location R2 which is located approximately 91 feet north of the Project site at an existing residence located at 189 N. Fillmore Avenue. R2 is placed in the residential structure where an individual could remain for 24-hours. At the MEIR, the maximum incremental cancer risk attributable to Project operational-source DPM emissions is estimated at 0.12 in one million, which is less than the SCAQMD's significance threshold of 10 in one million. At this same location, non-cancer risks were estimated to be <0.01, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are exposed to lesser concentrations and are located at a greater distance from the Project site than the MEIR analyzed herein, and TACs generally dissipates with distance from the source, all other residential receptors in the vicinity of the Project site would be exposed to less emissions and therefore less risk than the MEIR identified herein. As such, the Project will not cause a significant human health or cancer risk to nearby residences. The nearest modeled receptors are illustrated on Exhibit 2-D.

Worker Exposure Scenario[1]*:*

The worker receptor land use with the greatest potential exposure to Project operational-source DPM emissions is Location R5, which represents the potential worker receptor located approximately 33 feet west of the Project site at Bob Murphy Community School at 149 N Arrowhead Avenue. At the Maximally Exposed Individual Worker (MEIW), the maximum incremental cancer risk impact is 0.05 in one million which is less than the SCAQMD's threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be <0.01, which would not exceed the applicable significance threshold of 1.0. Because all other modeled worker receptors are located at a greater distance than the MEIW analyzed herein, and DPM dissipates with distance from the source, all other worker receptors in the vicinity of the Project would be exposed to less emissions and therefore less risk than the MEIW identified herein. As such, the Project will not cause a significant human health or cancer risk to adjacent workers. The nearest modeled receptors are illustrated on Exhibit 2-D.

School Child Exposure Scenario:

The nearest school is Bob Murphy Community School, which is located approximately 33 feet west of the Project site. At the maximally exposed individual school child (MEISC), the maximum incremental cancer risk impact attributable to the Project is calculated to be 0.11 in one million, which is less than the significance threshold of 10 in one million. At this same location, non-cancer risks attributable to the Project were calculated to be <0.01, which would not exceed the applicable significance threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to nearby school children.

CONSTRUCTION AND OPERATIONAL IMPACTS

The land use with the greatest potential increased cancer risk due to exposure to Project construction-source and operational-source DPM emissions is Location R2. As shown in Table ES-3, at this location, the maximum incremental cancer risk attributable to Project construction and operational DPM source emissions is estimated at 6.30 in one million, which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be <0.01, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent land uses as a result of Project construction and operational activity. All other receptors during construction and operational activity would experience less risk than what is identified for this location. The nearest modeled receptors are illustrated on Exhibit 2-D.

1 SCAQMD guidance does not require assessment of the potential health risk to on-site workers. Excerpts from the document OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines—The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2003), also indicate that it is not necessary to examine the health effects to on-site workers unless required by RCRA (Resource Conservation and Recovery Act) / CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) or the worker resides on-site.

TABLE ES-1: SUMMARY OF CONSTRUCTION CANCER AND NON-CANCER RISKS

Time Period	Location	Maximum Lifetime Cancer Risk (Risk per Million)	Significance Threshold (Risk per Million)	Exceeds Significance Threshold
1.04 Year Exposure	Maximum Exposed Sensitive Receptor	6.30	10	NO
Time Period	**Location**	**Maximum Hazard Index**	**Significance Threshold**	**Exceeds Significance Threshold**
Annual Average	Maximum Exposed Sensitive Receptor	≤0.01	1.0	NO

TABLE ES-2: SUMMARY OF OPERATIONAL CANCER AND NON-CANCER RISKS

Time Period	Location	Maximum Lifetime Cancer Risk (Risk per Million)	Significance Threshold (Risk per Million)	Exceeds Significance Threshold
30 Year Exposure	Maximum Exposed Sensitive Receptor	0.12	10	NO
25 Year Exposure	Maximum Exposed Worker Receptor	0.05	10	NO
9 Year Exposure	Maximum Exposed Individual School Child	0.11	10	NO
Time Period	**Location**	**Maximum Hazard Index**	**Significance Threshold**	**Exceeds Significance Threshold**
Annual Average	Maximum Exposed Sensitive Receptor	≤0.01	1.0	NO
Annual Average	Maximum Exposed Worker Receptor	≤0.01	1.0	NO
Annual Average	Maximum Exposed Worker Receptor	≤0.01	1.0	NO

TABLE ES-3: SUMMARY OF CONSTRUCTION AND OPERATIONAL CANCER AND NON-CANCER RISKS

Time Period	Location	Maximum Lifetime Cancer Risk (Risk per Million)	Significance Threshold (Risk per Million)	Exceeds Significance Threshold
30 Year Exposure	Maximum Exposed Sensitive Receptor	6.36	10	NO
Time Period	**Location**	**Maximum Hazard Index**	**Significance Threshold**	**Exceeds Significance Threshold**
Annual Average	Maximum Exposed Sensitive Receptor	≤0.01	1.0	NO

1 INTRODUCTION

The South Coast Air Quality Management District (SCAQMD) typically issues a comment letter on the Notice of Preparation of a CEQA Document. Per the SCAQMD's typical comment letter, if a proposed Project is expected to generate/attract diesel trucks, which emit diesel particulate matter (DPM) or other Toxic Air Contaminants (TACs), preparation of a HRA is necessary. This document serves to meet the SCAQMD's request for preparation of a HRA. This HRA has been prepared in accordance with the document Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1) and is comprised of all relevant and appropriate procedures presented by the United States Environmental Protection Agency (U.S. EPA), California EPA and SCAQMD. Cancer risk is expressed in terms of expected incremental incidence per million population. The SCAQMD has established an incidence rate of ten (10) persons per million as the maximum acceptable incremental cancer risk due to TAC exposure from a project such as the proposed Project. This threshold serves to determine whether or not a given project has a potentially significant development-specific and cumulatively considerable impact.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (2). In this report the AQMD states (Page D-3):

"…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

The SCAQMD has also established non-carcinogenic risk parameters for use in HRAs. Non-carcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. In this HRA, non-carcinogenic exposures of less than 1.0 are considered less-than-significant. Both the cancer risk and non-carcinogenic risk thresholds are applied to the nearest sensitive receptors below.

1.1 SITE LOCATION

The 160 N. Cactus Avenue Project is located on the northwest corner of North Cactus Avenue and W. Rialto Avenue in the City of Rialto as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of a single 159,680 square foot warehouse building as shown on Exhibit 1-B. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2024.

EXHIBIT 1-A: LOCATION MAP

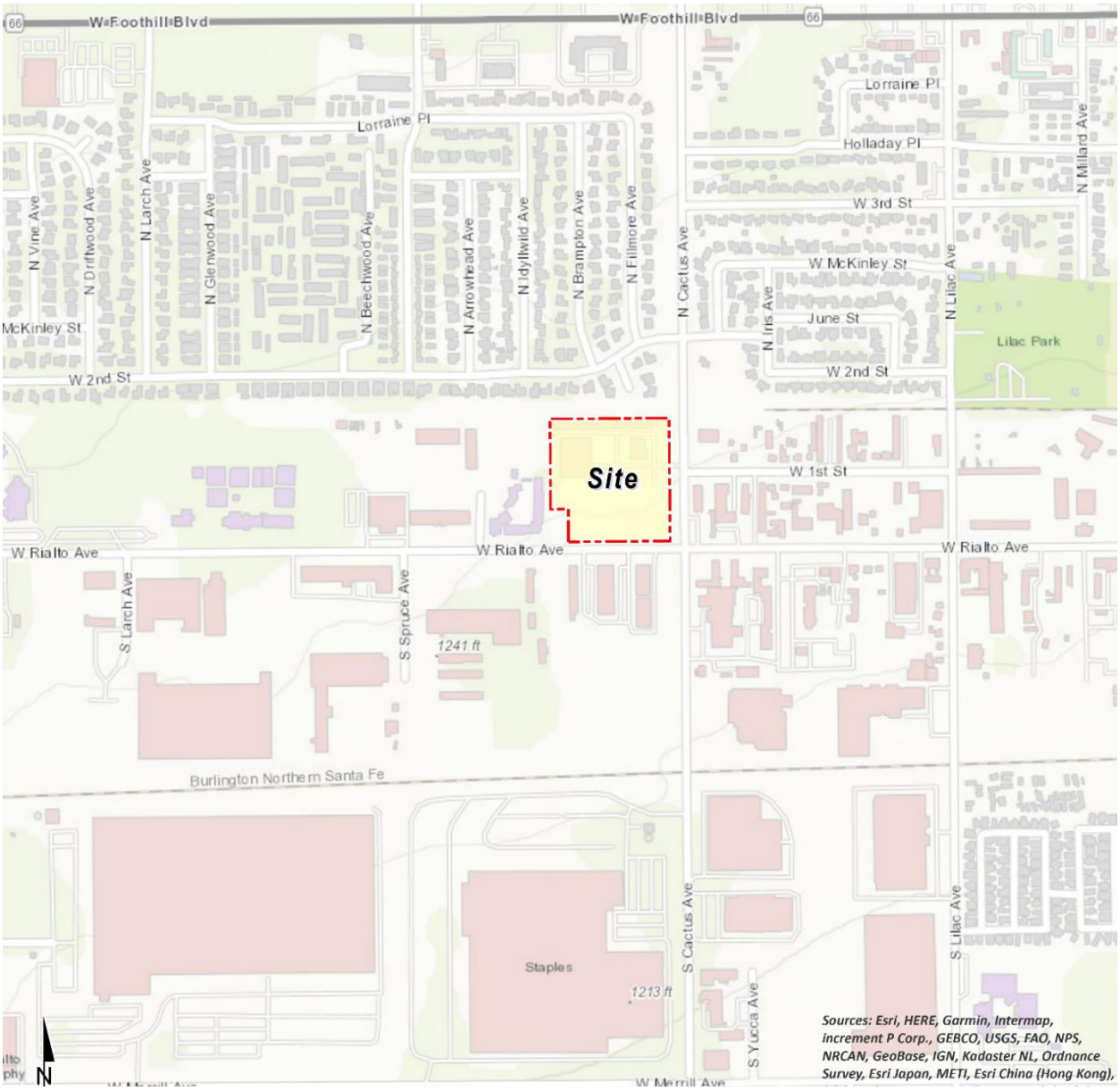
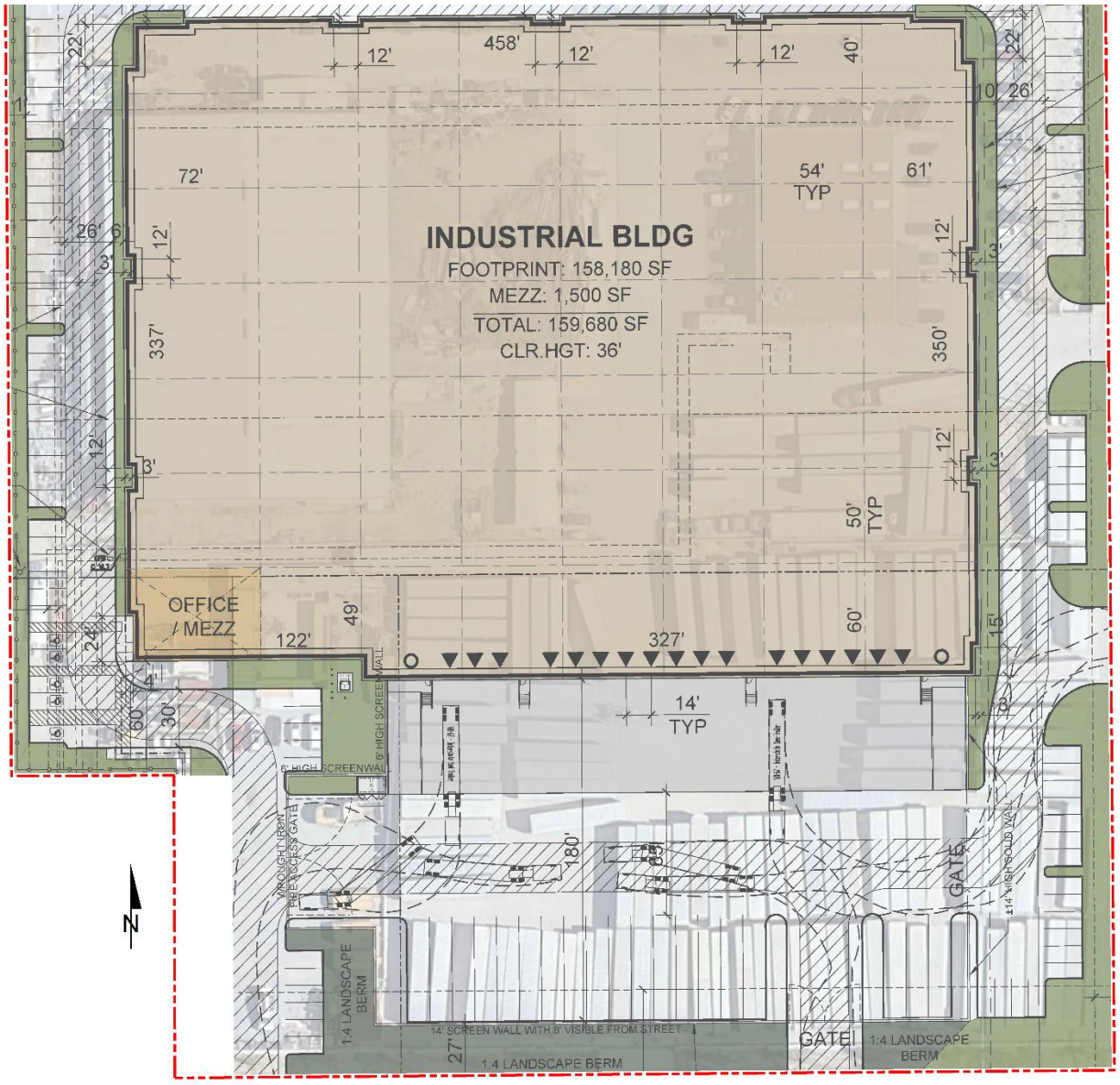


EXHIBIT 1-B: SITE PLAN



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2 BACKGROUND

2.1 BACKGROUND ON RECOMMENDED METHODOLOGY

This HRA is based on SCAQMD guidelines to produce conservative estimates of human health risk posed by exposure to DPM. The conservative nature of this analysis is due primarily to the following factors:

- The ARB-adopted diesel exhaust Unit Risk Factor (URF) of 300 in one million per $\mu g/m^3$ is based upon the upper 95 percentile of estimated risk for each of the epidemiological studies utilized to develop the URF. Using the 95th percentile URF represents a very conservative (health-protective) risk posed by DPM because it represents breathing rates that are high for the human body.
- The emissions derived assume that every truck accessing the Project site will idle for 15 minutes under the unmitigated scenario, and this is an overestimation of actual idling times and thus conservative.[2] The California Air Resources Board (CARB's) anti-idling requirements impose a 5-minute maximum idling time and therefore the analysis conservatively overestimates DPM emissions from idling by a factor of 3.

2.2 CONSTRUCTION HEALTH RISK ASSESSMENT

2.2.1 EMISSIONS CALCULATIONS

The emissions calculations for the construction HRA component are based on an assumed mix of construction equipment and hauling activity as presented in the *160 N. Cactus Avenue Air Quality Impact Analysis* ("technical study") prepared by Urban Crossroads, Inc. (3).

Construction related DPM emissions are expected to occur primarily as a function of heavy-duty construction equipment that would be operating on-site.

As discussed in the technical study, the Project would result in approximately 271 total working-days of construction activity. The construction duration by phase is shown on Table 2-1. A detailed summary of construction equipment assumptions by phase is provided at Table 2-2. The CalEEMod emissions outputs are presented in Appendix 2.1. The modeled emission sources for construction activity are illustrated on Exhibit 2-A.

[2] Although the Project is required to comply with ARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions should be estimated for 15 minutes of truck idling (personal communication, in person, with Jillian Wong, December 22, 2016), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc.

TABLE 2-1: CONSTRUCTION DURATION

Construction Activity	Start Date	End Date	Days
Demolition	8/16/2023	9/5/2023	15
Site Preparation	9/6/2023	9/26/2023	15
Grading	9/27/2023	10/27/2023	23
Building Construction	11/9/2023	6/26/2024	165
Paving	6/27/2024	7/27/2024	22
Architectural Coating	7/29/2024	8/28/2024	23

TABLE 2-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Activity	Equipment[1]	Amount	Hours Per Day
Demolition/Crushing	Concrete/Industrial Saws	1	8
	Excavators	3	8
	Rubber Tired Dozers	2	8
Site Preparation	Rubber Tired Dozers	3	8
	Crawler Tractors	4	8
Grading	Excavators	1	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Crawler Tractors	3	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
	Tractors/Loaders/Backhoes	2	8
Architectural Coating	Air Compressors	1	8
	Aerial Lifts	4	8

EXHIBIT 2-A: MODELED CONSTRUCTION EMISSION SOURCES

2.3 OPERATIONAL HEALTH RISK ASSESSMENT

2.3.1 ON-SITE AND OFF-SITE TRUCK ACTIVITY

Vehicle DPM emissions were calculated using emission factors for particulate matter less than 10µm in diameter (PM_{10}) generated with the 2021 version of the EMission FACtor model (EMFAC) developed by the CARB. EMFAC 2021 is a mathematical model that CARB developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the ARB to project changes in future emissions from on-road mobile sources (4). The most recent version of this model, EMFAC 2021, incorporates regional motor vehicle data, information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

Several distinct emission processes are included in EMFAC 2021. Emission factors calculated using EMFAC 2021 are expressed in units of grams per vehicle miles traveled (g/VMT) or grams per idle-hour (g/idle-hr), depending on the emission process. The emission processes and corresponding emission factor units associated with diesel particulate exhaust for this Project are presented below.

For this Project, annual average PM_{10} emission factors were generated by running EMFAC 2021 in EMFAC Mode for vehicles in the San Bernardino County jurisdiction. The EMFAC Mode generates emission factors in terms of grams of pollutant emitted per vehicle activity and can calculate a matrix of emission factors at specific values of temperature, relative humidity, and vehicle speed. The model was run for speeds traveled in the vicinity of the Project. The vehicle travel speeds for each segment modeled are summarized below.

- Idling – on-site loading/unloading and truck gate
- 5 miles per hour – on-site vehicle movement including driving and maneuvering
- 25 miles per hour – off-site vehicle movement including driving and maneuvering.

Calculated emission factors are shown at Table 2-3. As a conservative measure, a 2024 EMFAC 2021 run was conducted and a static 2024 emissions factor data set was used for the entire duration of analysis herein (e.g., 30 years). Use of 2024 emission factors would overstate potential impacts since this approach assumes that emission factors remain “static” and do not change over time due to fleet turnover or cleaner technology with lower emissions that would be incorporated into vehicles after 2024. Additionally, based on EMFAC 2021, Light-Heavy-Duty Trucks are comprised of 51.2% diesel, Medium-Heavy-Duty Trucks are comprised of 91.1% diesel, and Heavy-Heavy-Duty Trucks are comprised of 85.2% diesel. Trucks fueled by diesel are accounted for by these percentages accordingly in the emissions factor generation. Appendix 2.2 includes additional details on the emissions estimates from EMFAC.

The vehicle DPM exhaust emissions were calculated for running exhaust emissions. The running exhaust emissions were calculated by applying the running exhaust PM_{10} emission factor (g/VMT) from EMFAC over the total distance traveled. The following equation was used to estimate off-site emissions for each of the different vehicle classes comprising the mobile sources (5):

$Emissions_{speedA}$ (g/s) = $EF_{RunExhaust}$ (g/VMT) * Distance (VMT/trip) * Number of Trips (trips/day) / seconds per day

Where:

$Emissions_{speedA}$ (g/s): Vehicle emissions at a given speed A;

$EF_{RunExhaust}$ (g/VMT): EMFAC running exhaust PM_{10} emission factor at speed A;

Distance (VMT/trip): Total distance traveled per trip.

Similar to off-site traffic, on-site vehicle running emissions were calculated by applying the running exhaust PM_{10} emission factor (g/VMT) from EMFAC and the total vehicle trip number over the length of the driving path using the same formula presented above for on-site emissions. In addition, on-site vehicle idling exhaust emissions were calculated by applying the idle exhaust PM_{10} emission factor (g/idle-hr) from EMFAC and the total truck trip over the total assumed idle time (15 minutes). The following equation was used to estimate the on-site vehicle idling emissions for each of the different vehicle classes (5):

$Emissions_{idle}$ (g/s) = EF_{idle} (g/hr) * Number of Trips (trips/day) * Idling Time (min/trip) *

60 minutes per hour / seconds per day

Where:

$Emissions_{idle}$ (g/s): Vehicle emissions during idling;

EF_{idle}(g/s): EMFAC idle exhaust PM_{10} emission factor.

TABLE 2-3: 2024 WEIGHTED AVERAGE DPM EMISSIONS FACTORS

Speed	Weighted Average
0 (idling)	0.03060 (g/idle-hr)
5	0.01761 (g/s)
25	0.00672 (g/s)

Each roadway was modeled as a line source (made up of multiple adjacent volume sources). Due to the large number of volume sources modeled for this analysis, the corresponding coordinates of each volume source have not been included in this report but are included in Appendix 2.3. The DPM emission rate for each volume source was calculated by multiplying the emission factor (based on the average travel speed along the roadway) by the number of trips and the distance traveled along each roadway segment and dividing the result by the number of volume sources along that roadway, as illustrated on Table 2-4. The modeled emission sources are illustrated on Exhibit 2-B for on-site sources and Exhibit 2-C for off-site sources. The modeling domain is limited to the Project's primary truck route and includes off-site sources in the study area for more than ¾ mile. This modeling domain is more inclusive and conservative than using only a ¼ mile modeling domain which is the distance supported by several reputable studies which conclude that the greatest potential risks occur within a ¼ mile of the primary source of emissions (6) (in the case of the Project, the primary source of emissions is the on-site idling and on-site travel).

EXHIBIT 2-B: MODELED ON-SITE EMISSION SOURCES

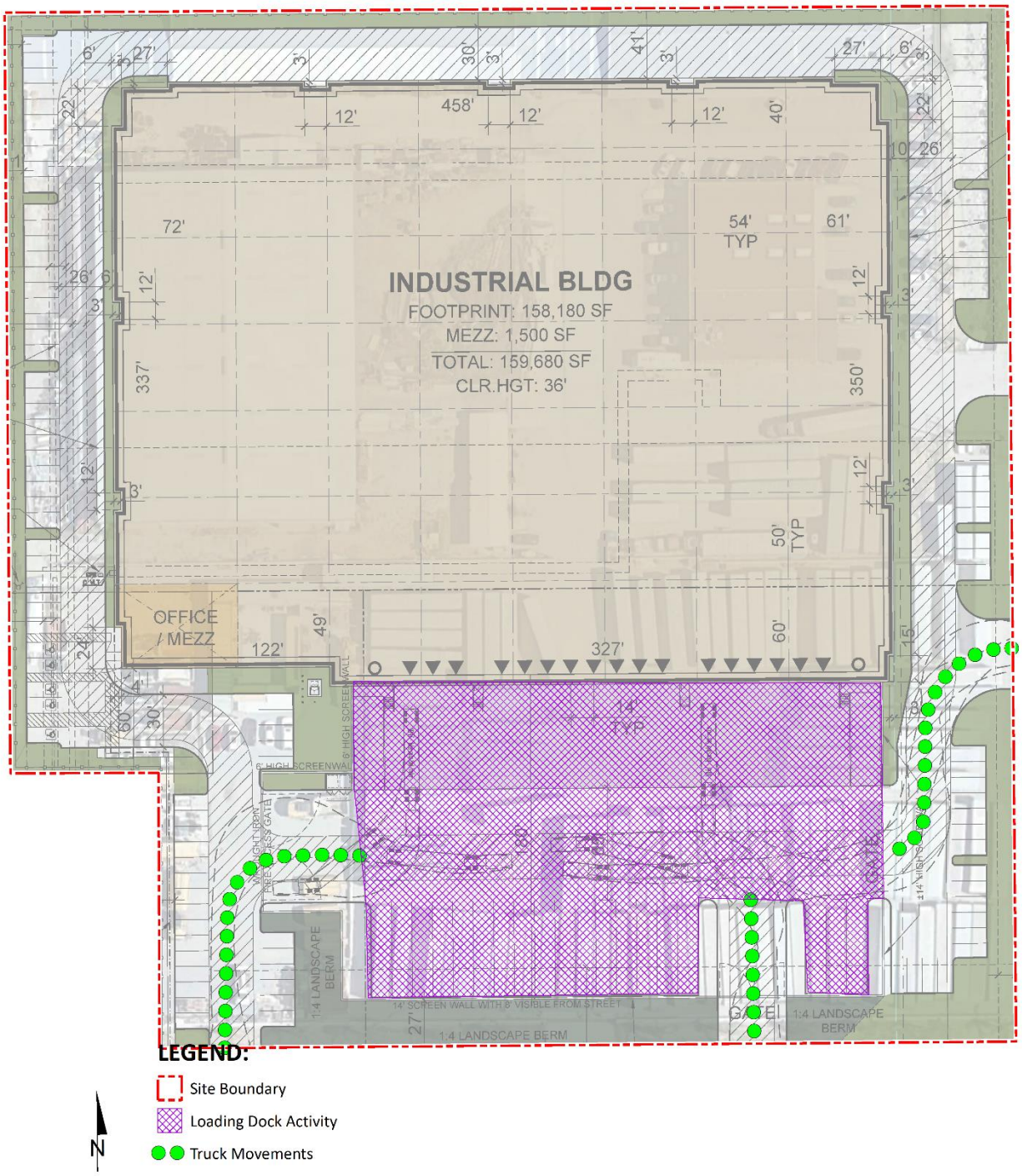


EXHIBIT 2-C: MODELED OFF-SITE EMISSION SOURCES

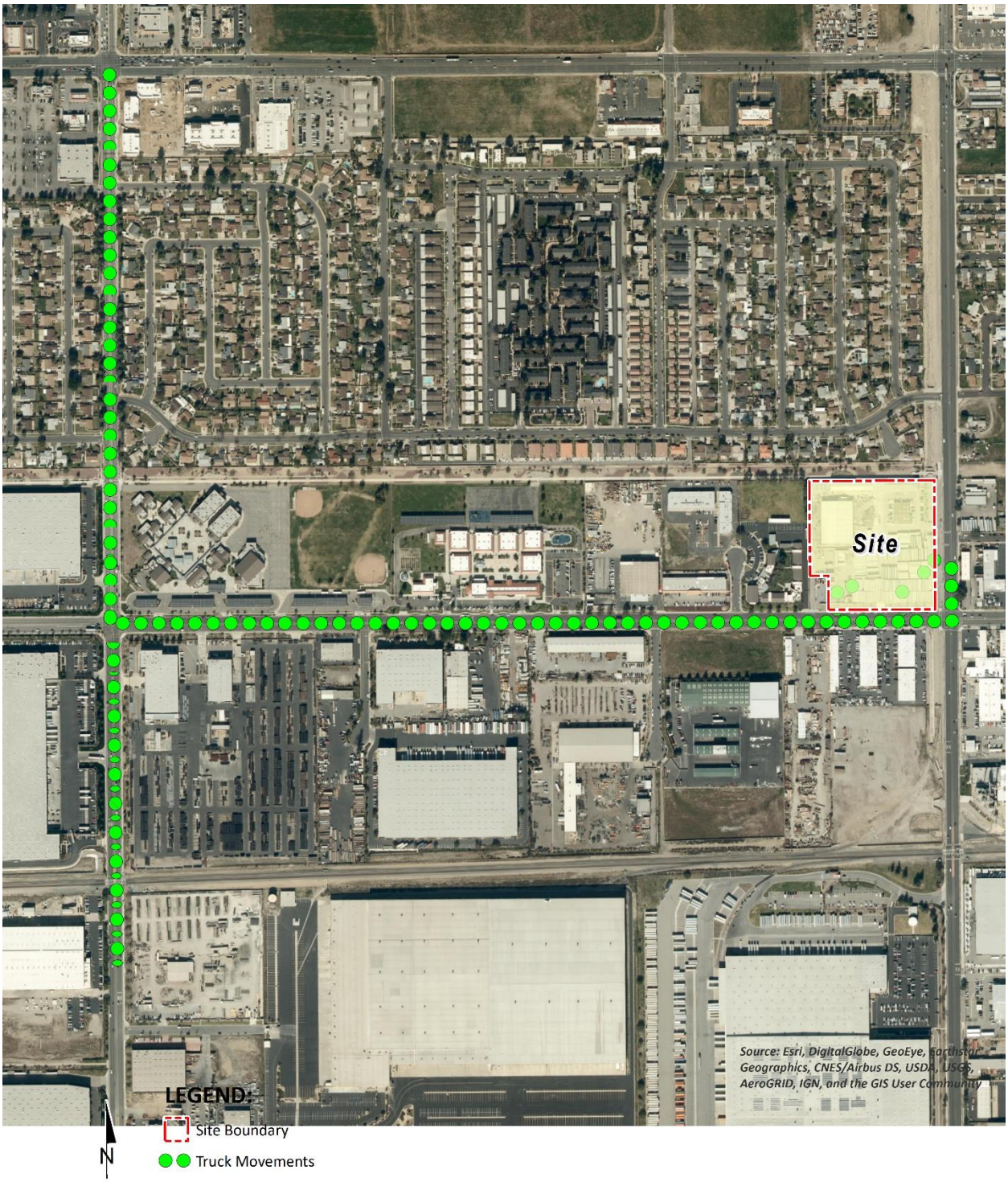


TABLE 2-4: DPM EMISSIONS FROM PROJECT TRUCKS (2024 ANALYSIS YEAR)

Truck Emission Rates						
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Modeled Emission Rates (g/second)
On-Site Idling	55			0.0306	0.42	4.870E-06
On-Site Travel	110	12.96	0.0176		0.23	2.642E-06
Off-Site Travel - Cactus/Rialto Avenue 100% Inbound/Outbound	110	88.08	0.0067		0.59	6.848E-06
Off-Site Travel - Cedar Avenue 25% Inbound/Outbound	28	13.75	0.0067		0.09	1.069E-06
Off-Site Travel - Cedar Avenue 75% Inbound/Outbound	83	180.22	0.0067		1.21	1.401E-05

[a] Vehicle miles traveled are for modeled truck route only.

[b] Emission rates determined using EMFAC 2021. Idle emission rates are expressed in grams per idle hour rather than grams per mile.

[c] This column includes the total truck travel and truck idle emissions. For idle emissions this column includes emissions based on the assumption that each truck idles for 15 minutes.

On-site truck idling was estimated to occur as trucks enter and travel through the Project site. Although the Project's diesel-fueled truck and equipment operators will be required by State law to comply with CARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions be calculated assuming 15 minutes of truck idling (7), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc. As such, this analysis calculates truck idling at 15 minutes, consistent with SCAQMD's recommendation.

As summarized in the *160 N. Cactus Avenue Trip Generation Assessment*, the proposed Project is expected to generate a total of approximately 274 vehicular trip-ends (actual vehicles) per day (137 vehicles inbound + 137 vehicles outbound) which includes 164 two-way passenger car trip-ends (82 passenger cars inbound + 82 passenger cars outbound) and 110 two-way truck trip-ends per day (55 trucks inbound + 55 trucks outbound) (8).

2.4 EXPOSURE QUANTIFICATION

The analysis herein has been conducted in accordance with the guidelines in the Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1). SCAQMD recommends using the Environmental Protection Agency's (U.S. EPA's) AERMOD model. For purposes of this analysis, the Lakes AERMOD View (Version 11.0.0) was used to calculate annual average particulate concentrations associated with site operations. Lakes AERMOD View was utilized to incorporate the U.S. EPA's latest AERMOD Version 22112 (9).

The model offers additional flexibility by allowing the user to assign an initial release height and vertical dispersion parameters for mobile sources representative of a roadway. For this HRA, the roadways were modeled as adjacent volume sources. Roadways were modeled using the U.S. EPA's haul route methodology for modeling of on-site and off-site truck movement. More specifically, the Haul Road Volume Source Calculator in Lakes AERMOD View has been utilized to determine the release height parameters. Based on the US EPA methodology, the Project's modeled sources would result in a release height of 3.49 meters, and an initial lateral dimension of 4.0 meters, and an initial vertical dimension of 3.25 meters.

SCAQMD-recommended model parameters are presented in Table 2-5 (10). The model requires additional input parameters including emission data and local meteorology. Meteorological data from the SCAQMD's Fontana monitoring station was used to represent local weather conditions and prevailing winds (10).

TABLE 2-5: AERMOD MODEL PARAMETERS

Dispersion Coefficient (Urban/Rural)	Urban (Population 2,035,210)
Terrain (Flat/Elevated)	Elevated (Regulatory Default)
Averaging Time	1 year (5-year Meteorological Data Set)
Receptor Height	0 meters (Regulatory Default)

Universal Transverse Mercator (UTM) coordinates for World Geodetic System (WGS) 84 were used to locate the Project site boundaries, each volume source location, and receptor locations

in the Project site's vicinity. The AERMOD dispersion model summary output files for the proposed Project are presented in Appendix 2.3. Modeled sensitive receptors were placed at residential and non-residential locations.

Receptors may be placed at applicable structure locations for residential and worker property and not necessarily the boundaries of the properties containing these uses because the human receptors (residents and workers) spend a majority of their time at the residence or in the workplace's building, and not on the property line. It should be noted that the primary purpose of receptor placement is focused on long-term exposure. For example, the HRA evaluates the potential health risks to residents and workers over a period of 30 or 25 years of exposure, respectively. Notwithstanding, as a conservative measure, receptors were placed at either the outdoor living area or the building façade, whichever is closer to the Project site.

For purposes of this HRA, receptors include both residential and non-residential (worker) land uses in the vicinity of the Project. These receptors are included in the HRA since residents and workers may be exposed at these locations over a long-term duration of 30 and 25 years, respectively. This methodology is consistent with SCAQMD and OEHHA recommended guidance.

Any impacts to residents or workers located further away from the Project site than the modeled residential and workers would have a lesser impact than what has already been disclosed in the HRA at the MEIR and MEIW because concentrations dissipate with distance.

Consistent with SCAQMD modeling guidance, all receptors were set to existing elevation height so that only ground-level concentrations are analyzed (11). United States Geological Survey (USGS) Digital Elevation Model (DEM) terrain data based on a 7.5-minute topographic quadrangle map series using AERMAP was utilized in the HRA modeling to set elevations (12).

Discrete variants for daily breathing rates, exposure frequency, and exposure duration were obtained from relevant distribution profiles presented in the 2015 OEHHA Guidelines. Tables 2-6 through 2-9 summarize the Exposure Parameters for residents, workers, and school children based on 2015 OEHHA Guidelines. Appendix 2.4 includes the detailed risk calculation.

TABLE 2-6: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (CONSTRUCTION ACTIVITY)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Fraction of Time at Home	Exposure Frequency (days/year)	Exposure Time (hours/day)
0 to 2	1,090	10	1.11	1.0	260	8

TABLE 2-7: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (30 YEAR RESIDENTIAL)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Fraction of Time at Home	Exposure Frequency (days/year)	Exposure Time (hours/day)
-0.25 to 0	361	10	0.25	0.85	350	24

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Fraction of Time at Home	Exposure Frequency (days/year)	Exposure Time (hours/day)
0 to 2	1,090	10	2	0.85	350	24
2 to 16	572	3	14	0.72	350	24
16 to 30	261	1	14	0.73	350	24

TABLE 2-8: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (25 YEAR WORKER)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Exposure Frequency (days/year)	Exposure Time (hours/day)
16 to 41	230	1	25	250	12

TABLE 2-9: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (9 YEAR SCHOOL CHILD)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Exposure Frequency (days/year) [a]	Exposure Time (hours/day)
4 to 13	631	3	9	180	12

[a] To represent the unique characteristics of the school-based population, the assessment employed the U.S. Environmental Protection Agency's guidance to develop viable dose estimates based on reasonable maximum exposures (RME). RME's are defined as the "highest exposure that is reasonably expected to occur" for a given receptor population. As a result, lifetime risk values for the student population were adjusted to account for an exposure duration of 180 days per year for nine (9) years. The 9 year exposure duration is also consistent with OEHHA Recommendations and consistent with the exposure duration utilized in school-based risk assessments for various schools within the Los Angeles County Unified School District (LAUSD) that have been accepted by the SCAQMD.

2.5 CARCINOGENIC CHEMICAL RISK

The SCAQMD CEQA Air Quality Handbook (1993) states that emissions of toxic air contaminants (TACs) are considered significant if a HRA shows an increased risk of greater than 10 in one million. Based on guidance from the SCAQMD in the document Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1), for purposes of this analysis, 10 in one million is used as the cancer risk threshold for the proposed Project.

Excess cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens over a specified exposure duration. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor (CPF). A risk level of 10 in one million implies a likelihood that up to 10 people, out of one million equally exposed

people would contract cancer if exposed continuously (24 hours per day) to the levels of toxic air contaminants over a specified duration of time.

Guidance from CARB and the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) recommends a refinement to the standard point estimate approach when alternate human body weights and breathing rates are utilized to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose. Once determined, contaminant dose is multiplied by the cancer potency factor (CPF) in units of inverse dose expressed in milligrams per kilogram per day $(mg/kg/day)^{-1}$ to derive the cancer risk estimate. Therefore, to assess exposures, the following dose algorithm was utilized.

$$DOSE_{air} = (C_{air} \times [BR/BW] \times A \times EF) \times (1 \times 10^{-6})$$

Where:

$DOSE_{air}$ = chronic daily intake (mg/kg/day)

Cair = concentration of contaminant in air (ug/m^3)

[BR/BW] = daily breathing rate normalized to body weight (L/kg BW-day)

A = inhalation absorption factor

EF = exposure frequency (days/365 days)

BW = body weight (kg)

1×10^{-6}= conversion factors (µg to mg, L to m^3)

$$RISK_{air} = DOSE_{air} \times CPF \times ED/AT$$

Where:

$DOSE_{air}$ = chronic daily intake (mg/kg/day)

CPF = cancer potency factor

ED = number of years within particular age group

AT = averaging time

2.6 NON-CARCINOGENIC EXPOSURES

An evaluation of the potential noncarcinogenic effects of chronic exposures was also conducted. Adverse health effects are evaluated by comparing a compound's annual concentration with its toxicity factor or Reference Exposure Level (REL). The REL for diesel particulates was obtained from OEHHA for this analysis. The chronic reference exposure level (REL) for DPM was established by OEHHA as 5 $\mu g/m^3$ (13).

The non-cancer hazard index was calculated (consistent with SCAQMD methodology) as follows:

The relationship for the non-cancer health effects of DPM is given by the following equation:

$$HI_{DPM} = C_{DPM}/REL_{DPM}$$

Where:

HI_{DPM} = Hazard Index; an expression of the potential for non-cancer health effects.

C_{DPM} = Annual average DPM concentration ($\mu g/m^3$).

REL_{DPM} = Reference exposure level (REL) for DPM; the DPM concentration at which no adverse health effects are anticipated.

2.7 POTENTIAL PROJECT-RELATED DPM SOURCE CANCER AND NON-CANCER RISKS

CONSTRUCTION IMPACTS

The land use with the greatest potential exposure to Project construction-source DPM emissions is Location R2 which is located approximately 91 feet north of the Project site at an existing residence located at 189 N. Fillmore Avenue. R2 is placed in the residential structure where an individual could remain for 24-hours At the MEIR, the maximum incremental cancer risk attributable to Project construction-source DPM emissions is estimated at 6.30 in one million, which is less than the SCAQMD's significance threshold of 10 in one million. At this same location, non-cancer risks were estimated to be <0.01, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent land uses as a result of Project construction activity. All other receptors during construction activity would experience less risk than what is identified for this location. The nearest modeled receptors are illustrated on Exhibit 2-D. It should be noted that construction impacts are identical under both alternatives.

OPERATIONAL IMPACTS

Residential Exposure Scenario:

The residential land use with the greatest potential exposure to Project operational-source DPM emissions is Location R2 which is located approximately 91 feet north of the Project site at an existing residence located at 189 N. Fillmore Avenue. R2 is placed in the residential structure where an individual could remain for 24-hours. At the MEIR, the maximum incremental cancer risk attributable to Project operational-source DPM emissions is estimated at 0.12 in one million, which is less than the SCAQMD's significance threshold of 10 in one million. At this same location, non-cancer risks were estimated to be <0.01, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are exposed to lesser concentrations and are located at a greater distance from the Project site than the MEIR analyzed herein, and TACs generally dissipates with distance from the source, all other residential receptors in the vicinity of the Project site would be exposed to less emissions and therefore less risk than the MEIR identified herein. As such, the Project will not cause a significant human health

or cancer risk to nearby residences. The nearest modeled receptors are illustrated on Exhibit 2-D.

Worker Exposure Scenario[3]*:*

The worker receptor land use with the greatest potential exposure to Project operational-source DPM emissions is Location R5, which represents the potential worker receptor located approximately 33 feet west of the Project site at Bob Murphy Community School at 149 N Arrowhead Avenue. At the MEIW, the maximum incremental cancer risk impact is 0.05 in one million which is less than the SCAQMD's threshold of 10 in one million. Maximum non-cancer risks at this same location were estimated to be <0.01, which would not exceed the applicable significance threshold of 1.0. Because all other modeled worker receptors are located at a greater distance than the MEIW analyzed herein, and DPM dissipates with distance from the source, all other worker receptors in the vicinity of the Project would be exposed to less emissions and therefore less risk than the MEIW identified herein. As such, the Project will not cause a significant human health or cancer risk to adjacent workers. The nearest modeled receptors are illustrated on Exhibit 2-D.

School Child Exposure Scenario:

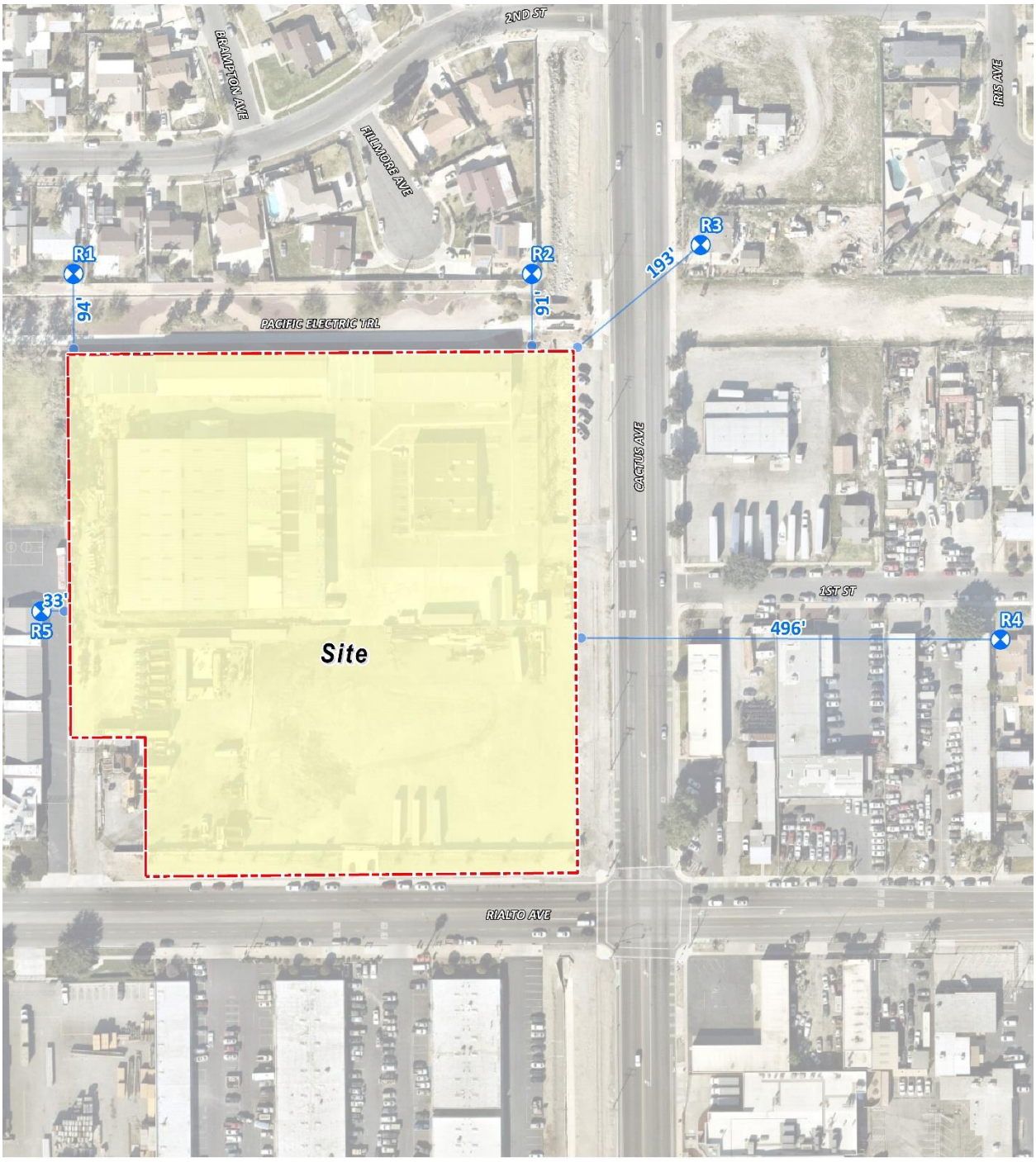
The nearest school is Bob Murphy Community School, which is located approximately 33 feet west of the Project site. At the MEISC, the maximum incremental cancer risk impact attributable to the Project is calculated to be 0.11 in one million, which is less than the significance threshold of 10 in one million. At this same location, non-cancer risks attributable to the Project were calculated to be <0.01, which would not exceed the applicable significance threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to nearby school children.

CONSTRUCTION AND OPERATIONAL IMPACTS

The land use with the greatest potential increased cancer risk due to exposure to Project construction-source and operational-source DPM emissions is Location R2. As shown in Table ES-3, at this location, the maximum incremental cancer risk attributable to Project construction and operational DPM source emissions is estimated at 6.30 in one million, which is less than the threshold of 10 in one million. At this same location, non-cancer risks were estimated to be <0.01, which would not exceed the applicable threshold of 1.0. As such, the Project will not cause a significant human health or cancer risk to adjacent land uses as a result of Project construction and operational activity. All other receptors during construction and operational activity would experience less risk than what is identified for this location. The nearest modeled receptors are illustrated on Exhibit 2-D. It should be noted that the receptors presented in Exhibit 2-D do not represent all modeled receptors.

3 SCAQMD guidance does not require assessment of the potential health risk to on-site workers. Excerpts from the document OEHHA Air Toxics Hot Spots Program Risk Assessment Guidelines—The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2003), also indicate that it is not necessary to examine the health effects to on-site workers unless required by RCRA (Resource Conservation and Recovery Act) / CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) or the worker resides on-site.

EXHIBIT 2-D: RECEPTOR LOCATIONS



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4 CERTIFICATIONS

The contents of this health risk assessment represent an accurate depiction of the impacts to sensitive receptors associated with the proposed 160 N. Cactus Avenue Project. The information contained in this health risk assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me at (949) 660-1994.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June 2013
Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 2.1:

CALEEMOD OUTPUTS

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15203-160 N. Cactus Avenue Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	15203-160 N. Cactus Avenue
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	14.2
Location	160 N Cactus Ave, Rialto, CA 92376, USA
County	San Bernardino-South Coast
City	Rialto
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5330
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Unrefrigerated Warehouse-No Rail	160	1000sqft	3.67	159,680	0.00	—	—	—
Parking Lot	127	Space	1.14	0.00	4,979	—	—	—

Other Asphalt Surfaces	3.00	Acre	3.00	0.00	0.00	—	—	—
User Defined Industrial	160	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.94	34.8	47.2	39.6	0.06	2.53	5.90	8.44	2.33	2.74	5.07	—	7,961	7,961	0.64	0.72	9.96	8,201
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.37	2.84	25.6	22.7	0.03	1.49	2.47	3.96	1.37	0.99	2.36	—	4,050	4,050	0.19	0.13	0.15	4,094
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.84	2.86	6.35	7.91	0.01	0.31	0.69	1.00	0.29	0.23	0.52	—	1,618	1,618	0.07	0.05	0.86	1,635
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.15	0.52	1.16	1.44	< 0.005	0.06	0.13	0.18	0.05	0.04	0.10	—	268	268	0.01	0.01	0.14	271

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	5.94	5.00	47.2	39.6	0.06	2.53	5.90	8.44	2.33	2.74	5.07	—	7,961	7,961	0.64	0.72	9.96	8,201
2024	1.99	34.8	13.1	20.2	0.03	0.55	1.02	1.56	0.50	0.24	0.75	—	4,107	4,107	0.19	0.13	5.29	4,156
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	3.37	2.84	25.6	22.7	0.03	1.49	2.47	3.96	1.37	0.99	2.36	—	4,050	4,050	0.19	0.13	0.15	4,094
2024	1.97	1.64	13.2	18.8	0.03	0.55	1.02	1.56	0.50	0.24	0.75	—	4,027	4,027	0.19	0.13	0.14	4,071
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.84	0.69	6.35	6.21	0.01	0.31	0.69	1.00	0.29	0.23	0.52	—	1,202	1,202	0.07	0.05	0.48	1,218
2024	0.80	2.86	5.48	7.91	0.01	0.22	0.38	0.60	0.21	0.09	0.30	—	1,618	1,618	0.07	0.05	0.86	1,635
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.15	0.13	1.16	1.13	< 0.005	0.06	0.13	0.18	0.05	0.04	0.10	—	199	199	0.01	0.01	0.08	202
2024	0.15	0.52	1.00	1.44	< 0.005	0.04	0.07	0.11	0.04	0.02	0.05	—	268	268	0.01	0.01	0.14	271

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.09	5.61	12.9	18.4	0.11	0.23	1.89	2.13	0.23	0.42	0.65	152	13,985	14,137	16.5	1.93	194	15,317
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.81	4.43	13.4	10.7	0.11	0.22	1.89	2.12	0.22	0.42	0.64	152	13,891	14,042	16.5	1.93	164	15,194

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.19	5.01	10.1	12.9	0.08	0.19	1.39	1.57	0.18	0.31	0.50	152	10,716	10,868	16.2	1.46	173	11,882
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	0.91	1.85	2.35	0.02	0.03	0.25	0.29	0.03	0.06	0.09	25.1	1,774	1,799	2.69	0.24	28.6	1,967

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.76	0.78	12.0	10.7	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,997	11,997	0.96	1.74	30.9	12,571
Area	1.23	4.79	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	3.09	5.61	12.9	18.4	0.11	0.23	1.89	2.13	0.23	0.42	0.65	152	13,985	14,137	16.5	1.93	194	15,317
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.72	0.74	12.5	10.1	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,931	11,931	0.97	1.75	0.80	12,476
Area	—	3.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163

Total	1.81	4.43	13.4	10.7	0.11	0.22	1.89	2.12	0.22	0.42	0.64	152	13,891	14,042	16.5	1.93	164	15,194
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.26	0.54	9.28	7.46	0.08	0.12	1.39	1.50	0.11	0.31	0.42	—	8,737	8,737	0.71	1.28	9.76	9,145
Area	0.85	4.43	0.04	4.76	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.6	19.6	< 0.005	< 0.005	—	19.6
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	2.19	5.01	10.1	12.9	0.08	0.19	1.39	1.57	0.18	0.31	0.50	152	10,716	10,868	16.2	1.46	173	11,882
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.23	0.10	1.69	1.36	0.01	0.02	0.25	0.27	0.02	0.06	0.08	—	1,447	1,447	0.12	0.21	1.62	1,514
Area	0.15	0.81	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25
Energy	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	285	285	0.03	< 0.005	—	286
Water	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.21	0.03	—	90.3
Waste	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9
Total	0.40	0.91	1.85	2.35	0.02	0.03	0.25	0.29	0.03	0.06	0.09	25.1	1,774	1,799	2.69	0.24	28.6	1,967

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.39	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	3.27	3.27	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.12	0.97	< 0.005	0.05	—	0.05	0.05	—	0.05	—	141	141	0.01	< 0.005	—	141
Demolition	—	—	—	—	—	—	0.13	0.13	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.21	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.3	23.3	< 0.005	< 0.005	—	23.4
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.39	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	220	220	0.01	0.01	0.94	224
Vendor	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.9	46.9	< 0.005	0.01	0.13	49.2
Hauling	0.59	0.09	5.39	3.00	0.03	0.05	1.11	1.16	0.05	0.30	0.36	—	4,269	4,269	0.49	0.68	8.89	4,492

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.42	8.42	< 0.005	< 0.005	0.02	8.53
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.93	1.93	< 0.005	< 0.005	< 0.005	2.02
Hauling	0.02	< 0.005	0.23	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	175	175	0.02	0.03	0.16	184
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.39	1.39	< 0.005	< 0.005	< 0.005	1.41
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Hauling	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.0	29.0	< 0.005	< 0.005	0.03	30.5

3.3. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.83	4.90	47.0	38.0	0.05	2.53	—	2.53	2.33	—	2.33	—	5,530	5,530	0.22	0.04	—	5,549
Dust From Material Movement	—	—	—	—	—	—	5.66	5.66	—	2.69	2.69	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.93	1.56	< 0.005	0.10	—	0.10	0.10	—	0.10	—	227	227	0.01	< 0.005	—	228
Dust From Material Movement	—	—	—	—	—	—	0.23	0.23	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.35	0.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	37.6	37.6	< 0.005	< 0.005	—	37.8
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.62	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	257	257	0.01	0.01	1.10	261
Vendor	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.9	46.9	< 0.005	0.01	0.13	49.2
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.82	9.82	< 0.005	< 0.005	0.02	9.96
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.93	1.93	< 0.005	< 0.005	< 0.005	2.02

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.63	1.63	< 0.005	< 0.005	< 0.005	1.65
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Hauling	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	0.00

3.5. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.28	2.76	25.4	21.6	0.03	1.49	—	1.49	1.37	—	1.37	—	3,134	3,134	0.13	0.03	—	3,144
Dust From Material Movement	—	—	—	—	—	—	2.26	2.26	—	0.94	0.94	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.28	2.76	25.4	21.6	0.03	1.49	—	1.49	1.37	—	1.37	—	3,134	3,134	0.13	0.03	—	3,144
Dust From Material Movement	—	—	—	—	—	—	2.26	2.26	—	0.94	0.94	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.60	1.36	< 0.005	0.09	—	0.09	0.09	—	0.09	—	197	197	0.01	< 0.005	—	198
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	32.7	32.7	< 0.005	< 0.005	—	32.8
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.39	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	220	220	0.01	0.01	0.94	224
Vendor	0.01	< 0.005	0.09	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.9	71.9	0.01	0.01	0.20	75.4
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.04	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	204
Vendor	0.01	< 0.005	0.09	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	72.0	72.0	0.01	0.01	0.01	75.3
Hauling	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.03	13.1
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.53	4.53	< 0.005	< 0.005	0.01	4.75
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.14	2.14	< 0.005	< 0.005	< 0.005	2.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.75	0.75	< 0.005	< 0.005	< 0.005	0.79
Hauling	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	0.00

3.7. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.62	1.36	12.8	14.3	0.03	0.60	—	0.60	0.55	—	0.55	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.33	1.48	< 0.005	0.06	—	0.06	0.06	—	0.06	—	273	273	0.01	< 0.005	—	274
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.03	0.24	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	45.2	45.2	< 0.005	< 0.005	—	45.3
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.41	4.67	0.00	0.00	0.88	0.88	0.00	0.21	0.21	—	903	903	0.04	0.03	0.11	914
Vendor	0.06	0.01	0.64	0.34	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	517	517	0.04	0.08	0.04	541
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.51	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	95.0	95.0	< 0.005	< 0.005	0.19	96.3
Vendor	0.01	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	53.6	53.6	< 0.005	0.01	0.06	56.2
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.7	15.7	< 0.005	< 0.005	0.03	15.9
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.88	8.88	< 0.005	< 0.005	0.01	9.30
Hauling	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	0.00

3.9. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	12.2	14.2	0.03	0.54	—	0.54	0.49	—	0.49	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	12.2	14.2	0.03	0.54	—	0.54	0.49	—	0.49	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	4.24	4.96	0.01	0.19	—	0.19	0.17	—	0.17	—	916	916	0.04	0.01	—	919
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.77	0.90	< 0.005	0.03	—	0.03	0.03	—	0.03	—	152	152	0.01	< 0.005	—	152
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.33	5.67	0.00	0.00	0.88	0.88	0.00	0.21	0.21	—	966	966	0.04	0.03	3.86	980
Vendor	0.05	0.01	0.59	0.31	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	511	511	0.04	0.08	1.43	536
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.38	4.29	0.00	0.00	0.88	0.88	0.00	0.21	0.21	—	885	885	0.04	0.03	0.10	896
Vendor	0.05	0.01	0.61	0.32	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	512	512	0.04	0.08	0.04	535
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.13	1.57	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	313	313	0.01	0.01	0.58	317
Vendor	0.02	< 0.005	0.21	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	178	178	0.01	0.03	0.21	187
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	51.8	51.8	< 0.005	< 0.005	0.10	52.5
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.5	29.5	< 0.005	< 0.005	0.04	30.9
Hauling	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	0.00

3.11. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.09	10.2	13.9	0.02	0.50	—	0.50	0.46	—	0.46	—	2,093	2,093	0.08	0.02	—	2,100
Paving	—	0.49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.84	< 0.005	0.03	—	0.03	0.03	—	0.03	—	126	126	0.01	< 0.005	—	127
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	20.9	20.9	< 0.005	< 0.005	—	21.0
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	1.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	288	288	0.01	0.01	1.15	292
Vendor	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	68.0	68.0	0.01	0.01	0.19	71.4
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.03	16.4
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.10	4.10	< 0.005	< 0.005	< 0.005	4.30
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.67	2.67	< 0.005	< 0.005	< 0.005	2.71
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.68	0.68	< 0.005	< 0.005	< 0.005	0.71
Hauling	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	0.00

3.13. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	4.11	4.66	0.01	0.06	—	0.06	0.06	—	0.06	—	768	768	0.03	0.01	—	771
Architectural Coatings	—	34.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.26	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	48.4	48.4	< 0.005	< 0.005	—	48.6
Architectural Coatings	—	2.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.05	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.02	8.02	< 0.005	< 0.005	—	8.04
Architectural Coatings	—	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.13	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	193	193	0.01	0.01	0.77	196
Vendor	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.2	71.2	0.01	0.01	0.20	74.7
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	11.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.49	4.49	< 0.005	< 0.005	0.01	4.70
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.87	1.87	< 0.005	< 0.005	< 0.005	1.90
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.74	0.74	< 0.005	< 0.005	< 0.005	0.78
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.63	0.59	0.26	4.68	0.01	< 0.005	0.30	0.31	< 0.005	0.05	0.06	—	867	867	0.04	0.03	3.35	879
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	1.14	0.19	11.7	6.05	0.10	0.16	1.59	1.75	0.15	0.37	0.52	—	11,130	11,130	0.92	1.72	27.6	11,692
Total	1.76	0.78	12.0	10.7	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,997	11,997	0.96	1.74	30.9	12,571
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.59	0.56	0.29	3.99	0.01	< 0.005	0.30	0.31	< 0.005	0.05	0.06	—	799	799	0.05	0.03	0.09	809
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00

User Defined Industrial	1.13	0.18	12.2	6.07	0.10	0.16	1.59	1.75	0.15	0.37	0.52	—	11,132	11,132	0.92	1.72	0.71	11,668
Total	1.72	0.74	12.5	10.1	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,931	11,931	0.97	1.75	0.80	12,476
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.08	0.07	0.04	0.55	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	98.1	98.1	0.01	< 0.005	0.18	99.5
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	0.15	0.03	1.65	0.81	0.01	0.02	0.21	0.23	0.02	0.05	0.07	—	1,348	1,348	0.11	0.21	1.44	1,415
Total	0.23	0.10	1.69	1.36	0.01	0.02	0.25	0.27	0.02	0.06	0.08	—	1,447	1,447	0.12	0.21	1.62	1,514

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	704	704	0.07	0.01	—	709

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	41.7	41.7	< 0.005	< 0.005	—	41.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	746	746	0.07	0.01	—	750
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	704	704	0.07	0.01	—	709
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	41.7	41.7	< 0.005	< 0.005	—	41.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	746	746	0.07	0.01	—	750
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	117	117	0.01	< 0.005	—	117
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	6.90	6.90	< 0.005	< 0.005	—	6.94

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	124	124	0.01	< 0.005	—	124

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	161	161	0.01	< 0.005	—	162
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	161	161	0.01	< 0.005	—	162

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	3.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.23	1.14	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Total	1.23	4.79	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	3.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	3.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.15	0.14	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25
Total	0.15	0.81	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	70.8	240	311	7.28	0.18	—	545
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.41	0.41	< 0.005	< 0.005	—	0.41
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	70.8	240	311	7.28	0.18	—	545
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.41	0.41	< 0.005	< 0.005	—	0.41

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.20	0.03	—	90.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.07	0.07	< 0.005	< 0.005	—	0.07
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.21	0.03	—	90.3

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehou Rail	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	8/16/2023	9/5/2023	5.00	15.0	—
Site Preparation	Site Preparation	9/6/2023	9/26/2023	5.00	15.0	—
Grading	Grading	9/27/2023	10/27/2023	5.00	23.0	—
Building Construction	Building Construction	11/9/2023	6/26/2024	5.00	165	—
Paving	Paving	6/27/2024	7/27/2024	5.00	22.0	—
Architectural Coating	Architectural Coating	7/29/2024	8/28/2024	5.00	23.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40

Site Preparation	Crawler Tractors	Diesel	Average	4.00	8.00	87.0	0.43
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Paving	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Architectural Coating	Aerial Lifts	Diesel	Average	4.00	8.00	46.0	0.31

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	1.48	10.2	HHDT,MHDT
Demolition	Hauling	59.7	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT

Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	1.48	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	2.27	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	67.1	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	16.3	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	2.17	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.4	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	2.27	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	239,520	79,840	10,831

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	77,900	—
Site Preparation	—	—	52.5	0.00	—
Grading	—	—	57.5	0.00	—
Paving	0.00	0.00	0.00	0.00	4.14

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Unrefrigerated Warehouse-No Rail	0.00	0%
Parking Lot	1.14	100%

Other Asphalt Surfaces	3.00	100%
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	349	0.03	< 0.005
2024	0.00	349	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	164	14.4	5.75	43,804	1,135	99.4	39.8	303,044
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User Defined Industrial	110	9.58	3.83	29,383	3,518	306	123	939,670

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	239,520	79,840	10,831

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	737,515	349	0.0330	0.0040	3,035,625
Parking Lot	43,615	349	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	349	0.0330	0.0040	0.00
User Defined Industrial	0.00	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	36,926,000	0.00
Parking Lot	0.00	79,957
Other Asphalt Surfaces	0.00	0.00
User Defined Industrial	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	150	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00
User Defined Industrial	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Unrefrigerated Warehouse-No Rail	Cold storage	User Defined	150	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	26.4	annual days of extreme heat
Extreme Precipitation	4.90	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	98.7
AQ-PM	83.5
AQ-DPM	41.9

Drinking Water	88.0
Lead Risk Housing	49.2
Pesticides	0.00
Toxic Releases	77.0
Traffic	34.1
Effect Indicators	—
CleanUp Sites	28.4
Groundwater	0.00
Haz Waste Facilities/Generators	78.1
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	80.5
Cardio-vascular	92.8
Low Birth Weights	39.9
Socioeconomic Factor Indicators	—
Education	80.3
Housing	91.0
Linguistic	59.0
Poverty	82.1
Unemployment	90.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	13.28114975

Employed	12.60105223
Median HI	20.74939048
Education	—
Bachelor's or higher	18.02900038
High school enrollment	5.042987296
Preschool enrollment	10.36827922
Transportation	—
Auto Access	25.2662646
Active commuting	68.0354164
Social	—
2-parent households	59.89991018
Voting	5.82574105
Neighborhood	—
Alcohol availability	22.87950725
Park access	10.90722443
Retail density	49.30065443
Supermarket access	72.71910689
Tree canopy	40.72885923
Housing	—
Homeownership	23.81624535
Housing habitability	26.52380341
Low-inc homeowner severe housing cost burden	87.25779546
Low-inc renter severe housing cost burden	9.508533299
Uncrowded housing	21.00603105
Health Outcomes	—
Insured adults	24.03438984
Arthritis	63.4

Asthma ER Admissions	13.3
High Blood Pressure	65.9
Cancer (excluding skin)	91.6
Asthma	3.8
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	25.1
Diagnosed Diabetes	28.6
Life Expectancy at Birth	6.3
Cognitively Disabled	28.0
Physically Disabled	18.7
Heart Attack ER Admissions	1.9
Mental Health Not Good	8.9
Chronic Kidney Disease	55.3
Obesity	9.6
Pedestrian Injuries	96.9
Physical Health Not Good	16.6
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	66.7
Current Smoker	10.9
No Leisure Time for Physical Activity	18.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	23.1
Elderly	81.9
English Speaking	37.7

Foreign-born	42.0
Outdoor Workers	21.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	59.1
Traffic Density	27.9
Traffic Access	23.0
Other Indices	—
Hardship	90.4
Other Decision Support	—
2016 Voting	15.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0
Healthy Places Index Score for Project Location (b)	7.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Taken from site plan
Construction: Off-Road Equipment	Client Provided/Confirmed equipment list T/L/B replaced with Crawler Tractor to accurately calculate disturbance for Site Preparation and Grading phases Standard 8-hour work day
Construction: Architectural Coatings	SCAQMD Rule 1113
Construction: Trips and VMT	Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for Demolition, Site Preparation, Grading, Building Construction, Paving and Architectural Coatings
Operations: Vehicle Data	Trip Characteristics based on information provided in the Traffic Analysis
Operations: Fleet Mix	Passenger Car Mix estimated based on CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, MCY). Truck Fleet Mix based on 2, 3 and 4 axle trucks.
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively.

Emissions	Phase	Lb/Day	# Days	Emissions	Avg/Lb Day	Avg/Hourly
On-Site	Demolition	1.2	15	18	1.2	0.15
Exhaust PM-10	Site Preparation	2.53	15	37.95	2.53	0.31625
	Grading	1.49	23	34.27	1.49	0.18625
	Building Construction	0.57	165	94.05	0.57	0.07125
	Paving	0.50	22	11	0.5	0.0625
	Architectural Coatings	0.06	23	1.38	0.06	0.0075
		6.35	271	196.65	0.725645756	0.09070572
Off-Site	Demolition	5.00E-02	15	0.75	0.05	0.00625
Exhaust PM-10	Site Preparation	5.00E-03	15	0.075	0.005	0.000625
	Grading	5.00E-03	23	0.115	0.005	0.000625
	Building Construction	1.00E-02	165	1.65	0.01	0.00125
	Paving	5.00E-03	22	0.11	0.005	0.000625
	Architectural Coatings	5.00E-03	23	0.115	0.005	0.000625
		8.00E-02	271	2.815	0.010387454	0.001298432

Phase	Start Date	End Date	No. Days
Demolition	8/16/2023	9/5/2023	15
Site Preparation	9/6/2023	9/26/2023	15
Grading	9/27/2023	10/27/2023	23
Building Construction	11/9/2023	6/26/2024	165
Paving	6/27/2024	7/27/2024	22
Arch Coatings	7/29/2024	8/28/2024	23
		Total Days of Construction	**271**

APPENDIX 2.2:

EMFAC EMISSIONS SUMMARY

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AVERAGE EMISSION FACTOR
SAN BERNARDINO COUNTY 2024

Speed	LHD1	LHD2	MHD	HHD
0	0.316954	0.498613	0.051812	0.01310
5	0.039143	0.05572	0.030547	0.01151
25	0.01796	0.026556	0.00817	0.00576

Speed	**Weighted Average Emissions**
0	**0.03060**
5	**0.01761**
25	**0.00672**

Truck Emission Rates						
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Modeled Emission Rates (g/second)
On-Site Idling	55			0.0306	0.42	4.870E-06
On-Site Travel	110	12.96	0.0176		0.23	2.642E-06
Off-Site Travel - Cactus/Rialto Avenue 100% Inbound/Outbound	110	88.08	0.0067		0.59	6.848E-06
Off-Site Travel - Cedar Avenue 25% Inbound/Outbound	28	13.75	0.0067		0.09	1.069E-06
Off-Site Travel - Cedar Avenue 75% Inbound/Outbound	83	180.22	0.0067		1.21	1.401E-05

[a] Vehicle miles traveled are for modeled truck route only.

[b] Emission rates determined using EMFAC 2021. Idle emission rates are expressed in grams per idle hour rather than grams per mile.

[c] This column includes the total truck travel and truck idle emissions. For idle emissions this column includes emissions based on the assumption that each truck idles for 15 minutes.

Source: EMFAC2021 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: San Bernardino (SC)
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar `	Vehicle C	Model Yea	Speed	Fuel	Population
San Berna	2024	HHDT	Aggregate	Aggregate	Gasoline	5.56599
San Berna	2024	HHDT	Aggregate	Aggregate	Diesel	14232
San Berna	2024	HHDT	Aggregate	Aggregate	Natural Ga	2469.47
San Berna	2024	LHDT1	Aggregate	Aggregate	Gasoline	17179.5
San Berna	2024	LHDT1	Aggregate	Aggregate	Diesel	11382.1
San Berna	2024	LHDT2	Aggregate	Aggregate	Gasoline	2883.7
San Berna	2024	LHDT2	Aggregate	Aggregate	Diesel	4825.53
San Berna	2024	MHDT	Aggregate	Aggregate	Gasoline	1460.6
San Berna	2024	MHDT	Aggregate	Aggregate	Diesel	14946.5
San Berna	2024	MHDT	Aggregate	Aggregate	Natural Ga	195.676

HHDT% GAS/NG	0.14814
HHDT% DSL	0.85186
LHDT1% GAS	0.60149
LHDT1% DSL	0.39851
LHDT2% GAS	0.37406
LHDT2% DSL	0.62594
MHDT% GAS	0.08902
MHDT% DSL	0.91098

APPENDIX 2.3:

AERMOD MODEL INPUT/OUTPUT

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```
**
**************************************
**
** AERMOD INPUT PRODUCED BY:
** AERMOD VIEW VER. 11.2.0
** LAKES ENVIRONMENTAL SOFTWARE INC.
** DATE: 2/7/2023
** FILE: C:\LAKES\AERMOD VIEW\15203 HRA\15203 CONSTRUCTION\15203 CONSTRUCTION.ADI
**
**************************************
**
**
**************************************
** AERMOD CONTROL PATHWAY
**************************************
**
**
CO STARTING
   MODELOPT DFAULT CONC
   AVERTIME ANNUAL
   URBANOPT 2035210 SAN_BERNARDINO_COUNTY
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "15203 CONSTRUCTION.ERR"
CO FINISHED
**
**************************************
** AERMOD SOURCE PATHWAY
**************************************
**
**
SO STARTING
** SOURCE LOCATION **
** SOURCE ID - TYPE - X COORD. - Y COORD. **
** ------------------------------------------------------------------------
** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES
** LINE VOLUME SOURCE ID = SLINE4
** DESCRSRC
** PREFIX
** LENGTH OF SIDE = 14.00
** CONFIGURATION = ADJACENT
** EMISSION RATE = 0.0001635997
** VERTICAL DIMENSION = 6.99
** SZINIT = 3.25
** NODES = 19
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** 463423.783, 3773260.243, 382.04, 3.49, 6.51
** 463423.754, 3773249.282, 381.93, 3.49, 6.51
** 463423.972, 3773230.630, 381.93, 3.49, 6.51
** 463421.319, 3773068.238, 379.00, 3.49, 6.51
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** 463421.319, 3772235.388, 365.80, 3.49, 6.51
** 463421.007, 3771865.788, 360.00, 3.49, 6.51
** 463421.007, 3771581.720, 356.00, 3.49, 6.51
** 463420.382, 3771181.215, 350.00, 3.49, 6.51
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** 463419.446, 3770388.947, 339.00, 3.49, 6.51
** 463417.885, 3770285.933, 338.00, 3.49, 6.51
** 463430.996, 3770193.533, 336.48, 3.49, 6.51
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LOCATION L0000335 VOLUME 463452.502 3769751.772 341.40

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** END OF LINE VOLUME SOURCE ID = SLINE4
   LOCATION VOL1         VOLUME     464478.080  3773399.440      378.440
   LOCATION VOL2         VOLUME     464548.347  3773399.064      378.160
   LOCATION VOL3         VOLUME     464476.393  3773324.153      377.000
   LOCATION VOL4         VOLUME     464547.362  3773325.631      377.000
** SOURCE PARAMETERS **
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SRCPARAM L0000293     0.0000004884      3.49      6.51      3.25
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   SRCPARAM L0000296     0.0000004884      3.49      6.51      3.25
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   SRCPARAM L0000298     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000299     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000300     0.0000004884      3.49      6.51      3.25
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   SRCPARAM L0000303     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000304     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000305     0.0000004884      3.49      6.51      3.25
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   SRCPARAM L0000307     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000308     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000309     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000310     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000311     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000312     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000313     0.0000004884      3.49      6.51      3.25
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   SRCPARAM L0000315     0.0000004884      3.49      6.51      3.25
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   SRCPARAM L0000317     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000318     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000319     0.0000004884      3.49      6.51      3.25
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   SRCPARAM L0000323     0.0000004884      3.49      6.51      3.25
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   SRCPARAM L0000325     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000326     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000327     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000328     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000329     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000330     0.0000004884      3.49      6.51      3.25
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   SRCPARAM L0000332     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000333     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000334     0.0000004884      3.49      6.51      3.25
   SRCPARAM L0000335     0.0000004884      3.49      6.51      3.25
** ------------------------------------------------------------------
   SRCPARAM VOL1         0.0028571821     5.000    25.444     1.400
   SRCPARAM VOL2         0.0028571821     5.000    25.444     1.400
   SRCPARAM VOL3         0.0028571821     5.000    25.444     1.400
   SRCPARAM VOL4         0.0028571821     5.000    25.444     1.400
   URBANSRC ALL

** VARIABLE EMISSIONS TYPE: "BY HOUR / DAY (HRDOW)"
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** VARIABLE EMISSION SCENARIO: "SCENARIO 1"
** WEEKDAYS:
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 1.0 1.0 1.0 1.0
   EMISFACT L0000001     HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 1.0 1.0 1.0 1.0
   EMISFACT L0000002     HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000003     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000003     HRDOW 0.0 0.0 1.0 1.0 1.0 1.0
   EMISFACT L0000003     HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
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   EMISFACT L0000004     HRDOW 0.0 0.0 1.0 1.0 1.0 1.0
   EMISFACT L0000004     HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
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   EMISFACT L0000005     HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
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   EMISFACT L0000012     HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
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EMISFACT L0000322     HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
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EMISFACT L0000325     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000325     HRDOW 0.0 0.0 1.0 1.0 1.0 1.0
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** SATURDAY:
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   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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** SUNDAY:
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   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000004     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000297     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000298     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000298     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000299     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000299     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000299     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000300     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000301     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000302     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000305     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000330     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000330     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000330     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000330     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000331     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000332     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000333     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000333     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000333     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000334     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000335     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000335     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** WEEKDAYS:
   EMISFACT VOL1         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL1         HRDOW 0.0 0.0 1.0 1.0 1.0 1.0
   EMISFACT VOL1         HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
   EMISFACT VOL1         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** SATURDAY:
   EMISFACT VOL1         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL1         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL1         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL1         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** SUNDAY:
   EMISFACT VOL1         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL1         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL1         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL1         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** WEEKDAYS:
   EMISFACT VOL2         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL2         HRDOW 0.0 0.0 1.0 1.0 1.0 1.0
   EMISFACT VOL2         HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
   EMISFACT VOL2         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** SATURDAY:
   EMISFACT VOL2         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL2         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL2         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL2         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** SUNDAY:
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   EMISFACT VOL2         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL2         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL2         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL2         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** WEEKDAYS:
   EMISFACT VOL3         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL3         HRDOW 0.0 0.0 1.0 1.0 1.0 1.0
   EMISFACT VOL3         HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
   EMISFACT VOL3         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** SATURDAY:
   EMISFACT VOL3         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL3         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL3         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL3         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** SUNDAY:
   EMISFACT VOL3         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL3         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL3         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL3         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** WEEKDAYS:
   EMISFACT VOL4         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL4         HRDOW 0.0 0.0 1.0 1.0 1.0 1.0
   EMISFACT VOL4         HRDOW 1.0 1.0 1.0 1.0 0.0 0.0
   EMISFACT VOL4         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** SATURDAY:
   EMISFACT VOL4         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL4         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL4         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL4         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** SUNDAY:
   EMISFACT VOL4         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL4         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL4         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT VOL4         HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD RECEPTOR PATHWAY
**************************************
**
**
RE STARTING
   INCLUDED "15203 CONSTRUCTION.ROU"
RE FINISHED
**
**************************************
** AERMOD METEOROLOGY PATHWAY
**************************************
**
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**
ME STARTING
   SURFFILE FONT_V9_ADJU\FONT_V9.SFC
   PROFFILE FONT_V9_ADJU\FONT_V9.PFL
   SURFDATA 3102 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 367.0 METERS
ME FINISHED
**
**************************************
** AERMOD OUTPUT PATHWAY
**************************************
**
**
OU STARTING
** AUTO-GENERATED PLOTFILES
   PLOTFILE   ANNUAL ALL "15203 CONSTRUCTION.AD\AN00GALL.PLT" 31
   SUMMFILE "15203 CONSTRUCTION.SUM"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W186    4860       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187    4860       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************

↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

***   MODEL SETUP OPTIONS SUMMARY
 ***
- - - -

```
          Model Outputs Tables of ANNUAL Averages by Receptor
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing
Hours
                                                                 b for Both Calm
and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =   367.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                                ;
Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.8 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out


 **Detailed Error/Message File:   15203 CONSTRUCTION.ERR

 **File for Summary of Results:   15203 CONSTRUCTION.SUM

↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE   2
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - -

 L0000001         0   0.48840E-06  464588.8 3773259.3   375.8     3.49     6.51
```

3.25	YES	HRDOW						
L0000002		0	0.48840E-06	464574.8	3773259.3	375.9	3.49	6.51
3.25	YES	HRDOW						
L0000003		0	0.48840E-06	464560.8	3773259.3	376.0	3.49	6.51
3.25	YES	HRDOW						
L0000004		0	0.48840E-06	464546.8	3773259.3	375.9	3.49	6.51
3.25	YES	HRDOW						
L0000005		0	0.48840E-06	464532.8	3773259.3	375.8	3.49	6.51
3.25	YES	HRDOW						
L0000006		0	0.48840E-06	464518.8	3773259.3	375.9	3.49	6.51
3.25	YES	HRDOW						
L0000007		0	0.48840E-06	464504.8	3773259.4	376.0	3.49	6.51
3.25	YES	HRDOW						
L0000008		0	0.48840E-06	464490.8	3773259.4	376.0	3.49	6.51
3.25	YES	HRDOW						
L0000009		0	0.48840E-06	464476.8	3773259.4	376.0	3.49	6.51
3.25	YES	HRDOW						
L0000010		0	0.48840E-06	464462.8	3773259.4	376.2	3.49	6.51
3.25	YES	HRDOW						
L0000011		0	0.48840E-06	464448.8	3773259.4	376.5	3.49	6.51
3.25	YES	HRDOW						
L0000012		0	0.48840E-06	464434.8	3773259.4	376.8	3.49	6.51
3.25	YES	HRDOW						
L0000013		0	0.48840E-06	464420.8	3773259.4	376.8	3.49	6.51
3.25	YES	HRDOW						
L0000014		0	0.48840E-06	464406.8	3773259.4	376.8	3.49	6.51
3.25	YES	HRDOW						
L0000015		0	0.48840E-06	464392.8	3773259.4	376.8	3.49	6.51
3.25	YES	HRDOW						
L0000016		0	0.48840E-06	464378.8	3773259.5	376.8	3.49	6.51
3.25	YES	HRDOW						
L0000017		0	0.48840E-06	464364.8	3773259.5	376.9	3.49	6.51
3.25	YES	HRDOW						
L0000018		0	0.48840E-06	464350.8	3773259.5	377.0	3.49	6.51
3.25	YES	HRDOW						
L0000019		0	0.48840E-06	464336.8	3773259.5	377.0	3.49	6.51
3.25	YES	HRDOW						
L0000020		0	0.48840E-06	464322.8	3773259.5	377.0	3.49	6.51
3.25	YES	HRDOW						
L0000021		0	0.48840E-06	464308.8	3773259.5	377.3	3.49	6.51
3.25	YES	HRDOW						
L0000022		0	0.48840E-06	464294.8	3773259.5	377.6	3.49	6.51
3.25	YES	HRDOW						
L0000023		0	0.48840E-06	464280.8	3773259.5	377.8	3.49	6.51
3.25	YES	HRDOW						
L0000024		0	0.48840E-06	464266.8	3773259.6	377.9	3.49	6.51
3.25	YES	HRDOW						
L0000025		0	0.48840E-06	464252.8	3773259.6	378.0	3.49	6.51
3.25	YES	HRDOW						
L0000026		0	0.48840E-06	464238.8	3773259.6	378.0	3.49	6.51

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3.25     YES   HRDOW
 L0000027         0   0.48840E-06  464224.8 3773259.6   378.1     3.49     6.51
3.25     YES   HRDOW
 L0000028         0   0.48840E-06  464210.8 3773259.6   378.5     3.49     6.51
3.25     YES   HRDOW
 L0000029         0   0.48840E-06  464196.8 3773259.6   378.8     3.49     6.51
3.25     YES   HRDOW
 L0000030         0   0.48840E-06  464182.8 3773259.6   378.8     3.49     6.51
3.25     YES   HRDOW
 L0000031         0   0.48840E-06  464168.8 3773259.6   378.8     3.49     6.51
3.25     YES   HRDOW
 L0000032         0   0.48840E-06  464154.8 3773259.6   378.8     3.49     6.51
3.25     YES   HRDOW
 L0000033         0   0.48840E-06  464140.8 3773259.7   378.8     3.49     6.51
3.25     YES   HRDOW
 L0000034         0   0.48840E-06  464126.8 3773259.7   378.8     3.49     6.51
3.25     YES   HRDOW
 L0000035         0   0.48840E-06  464112.8 3773259.7   378.8     3.49     6.51
3.25     YES   HRDOW
 L0000036         0   0.48840E-06  464098.8 3773259.7   378.8     3.49     6.51
3.25     YES   HRDOW
 L0000037         0   0.48840E-06  464084.8 3773259.7   378.8     3.49     6.51
3.25     YES   HRDOW
 L0000038         0   0.48840E-06  464070.8 3773259.7   378.8     3.49     6.51
3.25     YES   HRDOW
 L0000039         0   0.48840E-06  464056.8 3773259.7   378.9     3.49     6.51
3.25     YES   HRDOW
 L0000040         0   0.48840E-06  464042.8 3773259.7   379.0     3.49     6.51
3.25     YES   HRDOW
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
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 L0000041         0   0.48840E-06  464028.8 3773259.7   379.0     3.49     6.51
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3.25 YES HRDOW
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3.25 YES HRDOW
L0000043 0 0.48840E-06 464000.8 3773259.8 379.0 3.49 6.51
3.25 YES HRDOW
L0000044 0 0.48840E-06 463986.8 3773259.8 379.1 3.49 6.51
3.25 YES HRDOW
L0000045 0 0.48840E-06 463972.8 3773259.8 379.4 3.49 6.51
3.25 YES HRDOW
L0000046 0 0.48840E-06 463958.8 3773259.8 379.8 3.49 6.51
3.25 YES HRDOW
L0000047 0 0.48840E-06 463944.8 3773259.8 379.8 3.49 6.51
3.25 YES HRDOW
L0000048 0 0.48840E-06 463930.8 3773259.8 379.8 3.49 6.51
3.25 YES HRDOW
L0000049 0 0.48840E-06 463916.8 3773259.8 379.9 3.49 6.51
3.25 YES HRDOW
L0000050 0 0.48840E-06 463902.8 3773259.8 380.0 3.49 6.51
3.25 YES HRDOW
L0000051 0 0.48840E-06 463888.8 3773259.9 380.0 3.49 6.51
3.25 YES HRDOW
L0000052 0 0.48840E-06 463874.8 3773259.9 380.0 3.49 6.51
3.25 YES HRDOW
L0000053 0 0.48840E-06 463860.8 3773259.9 380.0 3.49 6.51
3.25 YES HRDOW
L0000054 0 0.48840E-06 463846.8 3773259.9 380.0 3.49 6.51
3.25 YES HRDOW
L0000055 0 0.48840E-06 463832.8 3773259.9 380.0 3.49 6.51
3.25 YES HRDOW
L0000056 0 0.48840E-06 463818.8 3773259.9 380.0 3.49 6.51
3.25 YES HRDOW
L0000057 0 0.48840E-06 463804.8 3773259.9 380.0 3.49 6.51
3.25 YES HRDOW
L0000058 0 0.48840E-06 463790.8 3773259.9 380.0 3.49 6.51
3.25 YES HRDOW
L0000059 0 0.48840E-06 463776.8 3773260.0 380.0 3.49 6.51
3.25 YES HRDOW
L0000060 0 0.48840E-06 463762.8 3773260.0 380.0 3.49 6.51
3.25 YES HRDOW
L0000061 0 0.48840E-06 463748.8 3773260.0 380.0 3.49 6.51
3.25 YES HRDOW
L0000062 0 0.48840E-06 463734.8 3773260.0 380.4 3.49 6.51
3.25 YES HRDOW
L0000063 0 0.48840E-06 463720.8 3773260.0 380.8 3.49 6.51
3.25 YES HRDOW
L0000064 0 0.48840E-06 463706.8 3773260.0 380.8 3.49 6.51
3.25 YES HRDOW
L0000065 0 0.48840E-06 463692.8 3773260.0 380.8 3.49 6.51
3.25 YES HRDOW
L0000066 0 0.48840E-06 463678.8 3773260.0 380.8 3.49 6.51

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3.25     YES   HRDOW
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3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000069         0   0.48840E-06  463636.8 3773260.1   380.8     3.49     6.51
3.25     YES   HRDOW
 L0000070         0   0.48840E-06  463622.8 3773260.1   380.8     3.49     6.51
3.25     YES   HRDOW
 L0000071         0   0.48840E-06  463608.8 3773260.1   380.9     3.49     6.51
3.25     YES   HRDOW
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3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000074         0   0.48840E-06  463566.8 3773260.1   381.1     3.49     6.51
3.25     YES   HRDOW
 L0000075         0   0.48840E-06  463552.8 3773260.1   381.4     3.49     6.51
3.25     YES   HRDOW
 L0000076         0   0.48840E-06  463538.8 3773260.1   381.8     3.49     6.51
3.25     YES   HRDOW
 L0000077         0   0.48840E-06  463524.8 3773260.2   381.8     3.49     6.51
3.25     YES   HRDOW
 L0000078         0   0.48840E-06  463510.8 3773260.2   381.8     3.49     6.51
3.25     YES   HRDOW
 L0000079         0   0.48840E-06  463496.8 3773260.2   381.8     3.49     6.51
3.25     YES   HRDOW
 L0000080         0   0.48840E-06  463482.8 3773260.2   381.8     3.49     6.51
3.25     YES   HRDOW
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                      *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
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 L0000081         0   0.48840E-06  463468.8 3773260.2   381.9     3.49     6.51
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3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000083         0   0.48840E-06  463440.8 3773260.2   382.0     3.49     6.51
3.25     YES   HRDOW
 L0000084         0   0.48840E-06  463426.8 3773260.2   382.0     3.49     6.51
3.25     YES   HRDOW
 L0000085         0   0.48840E-06  463423.8 3773249.2   382.0     3.49     6.51
3.25     YES   HRDOW
 L0000086         0   0.48840E-06  463423.9 3773235.2   382.0     3.49     6.51
3.25     YES   HRDOW
 L0000087         0   0.48840E-06  463423.8 3773221.2   381.5     3.49     6.51
3.25     YES   HRDOW
 L0000088         0   0.48840E-06  463423.6 3773207.2   381.0     3.49     6.51
3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000090         0   0.48840E-06  463423.1 3773179.2   381.0     3.49     6.51
3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000092         0   0.48840E-06  463422.7 3773151.2   380.2     3.49     6.51
3.25     YES   HRDOW
 L0000093         0   0.48840E-06  463422.4 3773137.2   380.0     3.49     6.51
3.25     YES   HRDOW
 L0000094         0   0.48840E-06  463422.2 3773123.2   380.0     3.49     6.51
3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000096         0   0.48840E-06  463421.8 3773095.2   379.3     3.49     6.51
3.25     YES   HRDOW
 L0000097         0   0.48840E-06  463421.5 3773081.2   379.0     3.49     6.51
3.25     YES   HRDOW
 L0000098         0   0.48840E-06  463421.3 3773067.2   379.0     3.49     6.51
3.25     YES   HRDOW
 L0000099         0   0.48840E-06  463421.4 3773053.2   379.0     3.49     6.51
3.25     YES   HRDOW
 L0000100         0   0.48840E-06  463421.5 3773039.2   379.0     3.49     6.51
3.25     YES   HRDOW
 L0000101         0   0.48840E-06  463421.5 3773025.2   378.9     3.49     6.51
3.25     YES   HRDOW
 L0000102         0   0.48840E-06  463421.6 3773011.2   378.5     3.49     6.51
3.25     YES   HRDOW
 L0000103         0   0.48840E-06  463421.7 3772997.2   378.0     3.49     6.51
3.25     YES   HRDOW
 L0000104         0   0.48840E-06  463421.8 3772983.2   378.0     3.49     6.51
3.25     YES   HRDOW
 L0000105         0   0.48840E-06  463421.8 3772969.2   377.9     3.49     6.51
3.25     YES   HRDOW
 L0000106         0   0.48840E-06  463421.9 3772955.2   377.6     3.49     6.51
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3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000108         0   0.48840E-06  463422.1 3772927.2   377.0     3.49     6.51
3.25     YES   HRDOW
 L0000109         0   0.48840E-06  463422.1 3772913.2   376.9     3.49     6.51
3.25     YES   HRDOW
 L0000110         0   0.48840E-06  463422.2 3772899.2   376.7     3.49     6.51
3.25     YES   HRDOW
 L0000111         0   0.48840E-06  463422.3 3772885.2   376.3     3.49     6.51
3.25     YES   HRDOW
 L0000112         0   0.48840E-06  463422.3 3772871.2   376.0     3.49     6.51
3.25     YES   HRDOW
 L0000113         0   0.48840E-06  463422.3 3772857.2   375.9     3.49     6.51
3.25     YES   HRDOW
 L0000114         0   0.48840E-06  463422.3 3772843.2   375.8     3.49     6.51
3.25     YES   HRDOW
 L0000115         0   0.48840E-06  463422.3 3772829.2   375.4     3.49     6.51
3.25     YES   HRDOW
 L0000116         0   0.48840E-06  463422.3 3772815.2   375.0     3.49     6.51
3.25     YES   HRDOW
 L0000117         0   0.48840E-06  463422.3 3772801.2   375.0     3.49     6.51
3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000119         0   0.48840E-06  463422.4 3772773.2   374.5     3.49     6.51
3.25     YES   HRDOW
 L0000120         0   0.48840E-06  463422.4 3772759.2   374.1     3.49     6.51
3.25     YES   HRDOW
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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 L0000121         0   0.48840E-06  463422.4 3772745.2   374.0     3.49     6.51
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3.25	YES	HRDOW							
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3.25	YES	HRDOW							
L0000123		0	0.48840E-06	463422.4	3772717.2	373.7	3.49	6.51	
3.25	YES	HRDOW							
L0000124		0	0.48840E-06	463422.4	3772703.2	373.2	3.49	6.51	
3.25	YES	HRDOW							
L0000125		0	0.48840E-06	463422.4	3772689.2	373.0	3.49	6.51	
3.25	YES	HRDOW							
L0000126		0	0.48840E-06	463422.5	3772675.2	373.0	3.49	6.51	
3.25	YES	HRDOW							
L0000127		0	0.48840E-06	463422.5	3772661.2	372.8	3.49	6.51	
3.25	YES	HRDOW							
L0000128		0	0.48840E-06	463422.5	3772647.2	372.4	3.49	6.51	
3.25	YES	HRDOW							
L0000129		0	0.48840E-06	463422.5	3772633.2	372.0	3.49	6.51	
3.25	YES	HRDOW							
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3.25	YES	HRDOW							
L0000131		0	0.48840E-06	463422.5	3772605.2	372.0	3.49	6.51	
3.25	YES	HRDOW							
L0000132		0	0.48840E-06	463422.5	3772591.2	371.6	3.49	6.51	
3.25	YES	HRDOW							
L0000133		0	0.48840E-06	463422.6	3772577.2	371.1	3.49	6.51	
3.25	YES	HRDOW							
L0000134		0	0.48840E-06	463422.6	3772563.2	371.1	3.49	6.51	
3.25	YES	HRDOW							
L0000135		0	0.48840E-06	463422.5	3772549.2	371.0	3.49	6.51	
3.25	YES	HRDOW							
L0000136		0	0.48840E-06	463422.5	3772535.2	371.0	3.49	6.51	
3.25	YES	HRDOW							
L0000137		0	0.48840E-06	463422.4	3772521.2	371.0	3.49	6.51	
3.25	YES	HRDOW							
L0000138		0	0.48840E-06	463422.4	3772507.2	370.7	3.49	6.51	
3.25	YES	HRDOW							
L0000139		0	0.48840E-06	463422.3	3772493.2	370.2	3.49	6.51	
3.25	YES	HRDOW							
L0000140		0	0.48840E-06	463422.3	3772479.2	370.0	3.49	6.51	
3.25	YES	HRDOW							
L0000141		0	0.48840E-06	463422.2	3772465.2	369.9	3.49	6.51	
3.25	YES	HRDOW							
L0000142		0	0.48840E-06	463422.1	3772451.2	369.8	3.49	6.51	
3.25	YES	HRDOW							
L0000143		0	0.48840E-06	463422.1	3772437.2	369.3	3.49	6.51	
3.25	YES	HRDOW							
L0000144		0	0.48840E-06	463422.0	3772423.2	368.9	3.49	6.51	
3.25	YES	HRDOW							
L0000145		0	0.48840E-06	463422.0	3772409.2	368.4	3.49	6.51	
3.25	YES	HRDOW							
L0000146		0	0.48840E-06	463421.9	3772395.2	368.0	3.49	6.51	

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3.25     YES   HRDOW
 L0000147         0   0.48840E-06  463421.9 3772381.2   368.0     3.49     6.51
3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000149         0   0.48840E-06  463421.8 3772353.2   367.6     3.49     6.51
3.25     YES   HRDOW
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3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000152         0   0.48840E-06  463421.6 3772311.2   367.0     3.49     6.51
3.25     YES   HRDOW
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3.25     YES   HRDOW
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3.25     YES   HRDOW
 L0000155         0   0.48840E-06  463421.4 3772269.2   366.0     3.49     6.51
3.25     YES   HRDOW
 L0000156         0   0.48840E-06  463421.4 3772255.2   366.0     3.49     6.51
3.25     YES   HRDOW
 L0000157         0   0.48840E-06  463421.3 3772241.2   365.8     3.49     6.51
3.25     YES   HRDOW
 L0000158         0   0.48840E-06  463421.3 3772227.2   365.4     3.49     6.51
3.25     YES   HRDOW
 L0000159         0   0.48840E-06  463421.3 3772213.2   365.0     3.49     6.51
3.25     YES   HRDOW
 L0000160         0   0.48840E-06  463421.3 3772199.2   365.0     3.49     6.51
3.25     YES   HRDOW
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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 L0000161         0   0.48840E-06  463421.3 3772185.2   365.0     3.49     6.51
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3.25     YES   HRDOW
 L0000162         0   0.48840E-06  463421.3 3772171.2   365.0     3.49     6.51
3.25     YES   HRDOW
 L0000163         0   0.48840E-06  463421.3 3772157.2   364.9     3.49     6.51
3.25     YES   HRDOW
 L0000164         0   0.48840E-06  463421.2 3772143.2   364.5     3.49     6.51
3.25     YES   HRDOW
 L0000165         0   0.48840E-06  463421.2 3772129.2   364.1     3.49     6.51
3.25     YES   HRDOW
 L0000166         0   0.48840E-06  463421.2 3772115.2   364.0     3.49     6.51
3.25     YES   HRDOW
 L0000167         0   0.48840E-06  463421.2 3772101.2   364.0     3.49     6.51
3.25     YES   HRDOW
 L0000168         0   0.48840E-06  463421.2 3772087.2   363.7     3.49     6.51
3.25     YES   HRDOW
 L0000169         0   0.48840E-06  463421.2 3772073.2   363.2     3.49     6.51
3.25     YES   HRDOW
 L0000170         0   0.48840E-06  463421.2 3772059.2   363.0     3.49     6.51
3.25     YES   HRDOW
 L0000171         0   0.48840E-06  463421.2 3772045.2   363.0     3.49     6.51
3.25     YES   HRDOW
 L0000172         0   0.48840E-06  463421.1 3772031.2   362.8     3.49     6.51
3.25     YES   HRDOW
 L0000173         0   0.48840E-06  463421.1 3772017.2   362.4     3.49     6.51
3.25     YES   HRDOW
 L0000174         0   0.48840E-06  463421.1 3772003.2   362.0     3.49     6.51
3.25     YES   HRDOW
 L0000175         0   0.48840E-06  463421.1 3771989.2   362.0     3.49     6.51
3.25     YES   HRDOW
 L0000176         0   0.48840E-06  463421.1 3771975.2   362.0     3.49     6.51
3.25     YES   HRDOW
 L0000177         0   0.48840E-06  463421.1 3771961.2   362.0     3.49     6.51
3.25     YES   HRDOW
 L0000178         0   0.48840E-06  463421.1 3771947.2   361.9     3.49     6.51
3.25     YES   HRDOW
 L0000179         0   0.48840E-06  463421.1 3771933.2   361.5     3.49     6.51
3.25     YES   HRDOW
 L0000180         0   0.48840E-06  463421.1 3771919.2   361.1     3.49     6.51
3.25     YES   HRDOW
 L0000181         0   0.48840E-06  463421.0 3771905.2   361.0     3.49     6.51
3.25     YES   HRDOW
 L0000182         0   0.48840E-06  463421.0 3771891.2   361.0     3.49     6.51
3.25     YES   HRDOW
 L0000183         0   0.48840E-06  463421.0 3771877.2   360.7     3.49     6.51
3.25     YES   HRDOW
 L0000184         0   0.48840E-06  463421.0 3771863.2   360.2     3.49     6.51
3.25     YES   HRDOW
 L0000185         0   0.48840E-06  463421.0 3771849.2   360.0     3.49     6.51
3.25     YES   HRDOW
 L0000186         0   0.48840E-06  463421.0 3771835.2   360.0     3.49     6.51
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3.25     YES   HRDOW
 L0000187         0   0.48840E-06  463421.0 3771821.2   359.8     3.49     6.51
3.25     YES   HRDOW
 L0000188         0   0.48840E-06  463421.0 3771807.2   359.4     3.49     6.51
3.25     YES   HRDOW
 L0000189         0   0.48840E-06  463421.0 3771793.2   359.0     3.49     6.51
3.25     YES   HRDOW
 L0000190         0   0.48840E-06  463421.0 3771779.2   359.0     3.49     6.51
3.25     YES   HRDOW
 L0000191         0   0.48840E-06  463421.0 3771765.2   359.0     3.49     6.51
3.25     YES   HRDOW
 L0000192         0   0.48840E-06  463421.0 3771751.2   358.5     3.49     6.51
3.25     YES   HRDOW
 L0000193         0   0.48840E-06  463421.0 3771737.2   358.0     3.49     6.51
3.25     YES   HRDOW
 L0000194         0   0.48840E-06  463421.0 3771723.2   358.0     3.49     6.51
3.25     YES   HRDOW
 L0000195         0   0.48840E-06  463421.0 3771709.2   358.0     3.49     6.51
3.25     YES   HRDOW
 L0000196         0   0.48840E-06  463421.0 3771695.2   358.0     3.49     6.51
3.25     YES   HRDOW
 L0000197         0   0.48840E-06  463421.0 3771681.2   358.0     3.49     6.51
3.25     YES   HRDOW
 L0000198         0   0.48840E-06  463421.0 3771667.2   357.7     3.49     6.51
3.25     YES   HRDOW
 L0000199         0   0.48840E-06  463421.0 3771653.2   357.2     3.49     6.51
3.25     YES   HRDOW
 L0000200         0   0.48840E-06  463421.0 3771639.2   357.0     3.49     6.51
3.25     YES   HRDOW
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
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 L0000201         0   0.48840E-06  463421.0 3771625.2   357.0     3.49     6.51
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3.25     YES   HRDOW
 L0000202         0   0.48840E-06  463421.0 3771611.2   356.8     3.49     6.51
3.25     YES   HRDOW
 L0000203         0   0.48840E-06  463421.0 3771597.2   356.4     3.49     6.51
3.25     YES   HRDOW
 L0000204         0   0.48840E-06  463421.0 3771583.2   356.0     3.49     6.51
3.25     YES   HRDOW
 L0000205         0   0.48840E-06  463421.0 3771569.2   356.0     3.49     6.51
3.25     YES   HRDOW
 L0000206         0   0.48840E-06  463421.0 3771555.2   356.0     3.49     6.51
3.25     YES   HRDOW
 L0000207         0   0.48840E-06  463420.9 3771541.2   355.5     3.49     6.51
3.25     YES   HRDOW
 L0000208         0   0.48840E-06  463420.9 3771527.2   355.0     3.49     6.51
3.25     YES   HRDOW
 L0000209         0   0.48840E-06  463420.9 3771513.2   355.0     3.49     6.51
3.25     YES   HRDOW
 L0000210         0   0.48840E-06  463420.9 3771499.2   355.0     3.49     6.51
3.25     YES   HRDOW
 L0000211         0   0.48840E-06  463420.9 3771485.2   354.6     3.49     6.51
3.25     YES   HRDOW
 L0000212         0   0.48840E-06  463420.8 3771471.2   354.2     3.49     6.51
3.25     YES   HRDOW
 L0000213         0   0.48840E-06  463420.8 3771457.2   354.0     3.49     6.51
3.25     YES   HRDOW
 L0000214         0   0.48840E-06  463420.8 3771443.2   354.0     3.49     6.51
3.25     YES   HRDOW
 L0000215         0   0.48840E-06  463420.8 3771429.2   354.0     3.49     6.51
3.25     YES   HRDOW
 L0000216         0   0.48840E-06  463420.7 3771415.2   354.0     3.49     6.51
3.25     YES   HRDOW
 L0000217         0   0.48840E-06  463420.7 3771401.2   353.8     3.49     6.51
3.25     YES   HRDOW
 L0000218         0   0.48840E-06  463420.7 3771387.2   353.4     3.49     6.51
3.25     YES   HRDOW
 L0000219         0   0.48840E-06  463420.7 3771373.2   353.0     3.49     6.51
3.25     YES   HRDOW
 L0000220         0   0.48840E-06  463420.7 3771359.2   353.0     3.49     6.51
3.25     YES   HRDOW
 L0000221         0   0.48840E-06  463420.6 3771345.2   353.0     3.49     6.51
3.25     YES   HRDOW
 L0000222         0   0.48840E-06  463420.6 3771331.2   352.5     3.49     6.51
3.25     YES   HRDOW
 L0000223         0   0.48840E-06  463420.6 3771317.2   352.0     3.49     6.51
3.25     YES   HRDOW
 L0000224         0   0.48840E-06  463420.6 3771303.2   352.0     3.49     6.51
3.25     YES   HRDOW
 L0000225         0   0.48840E-06  463420.6 3771289.2   352.0     3.49     6.51
3.25     YES   HRDOW
 L0000226         0   0.48840E-06  463420.5 3771275.2   351.6     3.49     6.51
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3.25     YES   HRDOW
 L0000227         0   0.48840E-06  463420.5 3771261.2   351.2     3.49     6.51
3.25     YES   HRDOW
 L0000228         0   0.48840E-06  463420.5 3771247.2   351.0     3.49     6.51
3.25     YES   HRDOW
 L0000229         0   0.48840E-06  463420.5 3771233.2   351.0     3.49     6.51
3.25     YES   HRDOW
 L0000230         0   0.48840E-06  463420.4 3771219.2   350.8     3.49     6.51
3.25     YES   HRDOW
 L0000231         0   0.48840E-06  463420.4 3771205.2   350.3     3.49     6.51
3.25     YES   HRDOW
 L0000232         0   0.48840E-06  463420.4 3771191.2   350.0     3.49     6.51
3.25     YES   HRDOW
 L0000233         0   0.48840E-06  463420.4 3771177.2   350.0     3.49     6.51
3.25     YES   HRDOW
 L0000234         0   0.48840E-06  463420.3 3771163.2   350.0     3.49     6.51
3.25     YES   HRDOW
 L0000235         0   0.48840E-06  463420.3 3771149.2   350.0     3.49     6.51
3.25     YES   HRDOW
 L0000236         0   0.48840E-06  463420.2 3771135.2   349.9     3.49     6.51
3.25     YES   HRDOW
 L0000237         0   0.48840E-06  463420.2 3771121.2   349.5     3.49     6.51
3.25     YES   HRDOW
 L0000238         0   0.48840E-06  463420.1 3771107.2   349.0     3.49     6.51
3.25     YES   HRDOW
 L0000239         0   0.48840E-06  463420.1 3771093.2   349.0     3.49     6.51
3.25     YES   HRDOW
 L0000240         0   0.48840E-06  463420.0 3771079.2   349.0     3.49     6.51
3.25     YES   HRDOW
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID          CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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 L0000241         0   0.48840E-06  463420.0 3771065.2   348.6     3.49     6.51
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3.25     YES   HRDOW
 L0000242         0   0.48840E-06  463419.9 3771051.2   348.2     3.49     6.51
3.25     YES   HRDOW
 L0000243         0   0.48840E-06  463419.9 3771037.2   348.0     3.49     6.51
3.25     YES   HRDOW
 L0000244         0   0.48840E-06  463419.8 3771023.2   348.0     3.49     6.51
3.25     YES   HRDOW
 L0000245         0   0.48840E-06  463419.8 3771009.2   347.8     3.49     6.51
3.25     YES   HRDOW
 L0000246         0   0.48840E-06  463419.8 3770995.2   347.3     3.49     6.51
3.25     YES   HRDOW
 L0000247         0   0.48840E-06  463419.7 3770981.2   347.0     3.49     6.51
3.25     YES   HRDOW
 L0000248         0   0.48840E-06  463419.7 3770967.2   347.0     3.49     6.51
3.25     YES   HRDOW
 L0000249         0   0.48840E-06  463419.6 3770953.2   347.0     3.49     6.51
3.25     YES   HRDOW
 L0000250         0   0.48840E-06  463419.6 3770939.2   347.0     3.49     6.51
3.25     YES   HRDOW
 L0000251         0   0.48840E-06  463419.5 3770925.2   347.0     3.49     6.51
3.25     YES   HRDOW
 L0000252         0   0.48840E-06  463419.5 3770911.2   346.5     3.49     6.51
3.25     YES   HRDOW
 L0000253         0   0.48840E-06  463419.4 3770897.2   346.0     3.49     6.51
3.25     YES   HRDOW
 L0000254         0   0.48840E-06  463419.4 3770883.2   346.0     3.49     6.51
3.25     YES   HRDOW
 L0000255         0   0.48840E-06  463419.3 3770869.2   346.0     3.49     6.51
3.25     YES   HRDOW
 L0000256         0   0.48840E-06  463419.3 3770855.2   345.6     3.49     6.51
3.25     YES   HRDOW
 L0000257         0   0.48840E-06  463419.2 3770841.2   345.2     3.49     6.51
3.25     YES   HRDOW
 L0000258         0   0.48840E-06  463419.2 3770827.2   345.0     3.49     6.51
3.25     YES   HRDOW
 L0000259         0   0.48840E-06  463419.1 3770813.2   345.0     3.49     6.51
3.25     YES   HRDOW
 L0000260         0   0.48840E-06  463419.1 3770799.2   344.8     3.49     6.51
3.25     YES   HRDOW
 L0000261         0   0.48840E-06  463419.2 3770785.2   344.3     3.49     6.51
3.25     YES   HRDOW
 L0000262         0   0.48840E-06  463419.2 3770771.2   344.0     3.49     6.51
3.25     YES   HRDOW
 L0000263         0   0.48840E-06  463419.2 3770757.2   344.0     3.49     6.51
3.25     YES   HRDOW
 L0000264         0   0.48840E-06  463419.2 3770743.2   343.9     3.49     6.51
3.25     YES   HRDOW
 L0000265         0   0.48840E-06  463419.2 3770729.2   343.4     3.49     6.51
3.25     YES   HRDOW
 L0000266         0   0.48840E-06  463419.2 3770715.2   343.0     3.49     6.51
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3.25     YES   HRDOW
 L0000267         0   0.48840E-06  463419.2 3770701.2   343.0     3.49     6.51
3.25     YES   HRDOW
 L0000268         0   0.48840E-06  463419.2 3770687.2   343.0     3.49     6.51
3.25     YES   HRDOW
 L0000269         0   0.48840E-06  463419.2 3770673.2   342.6     3.49     6.51
3.25     YES   HRDOW
 L0000270         0   0.48840E-06  463419.2 3770659.2   342.1     3.49     6.51
3.25     YES   HRDOW
 L0000271         0   0.48840E-06  463419.3 3770645.2   342.0     3.49     6.51
3.25     YES   HRDOW
 L0000272         0   0.48840E-06  463419.3 3770631.2   342.0     3.49     6.51
3.25     YES   HRDOW
 L0000273         0   0.48840E-06  463419.3 3770617.2   341.7     3.49     6.51
3.25     YES   HRDOW
 L0000274         0   0.48840E-06  463419.3 3770603.2   341.2     3.49     6.51
3.25     YES   HRDOW
 L0000275         0   0.48840E-06  463419.3 3770589.2   341.0     3.49     6.51
3.25     YES   HRDOW
 L0000276         0   0.48840E-06  463419.3 3770575.2   341.0     3.49     6.51
3.25     YES   HRDOW
 L0000277         0   0.48840E-06  463419.3 3770561.2   341.0     3.49     6.51
3.25     YES   HRDOW
 L0000278         0   0.48840E-06  463419.3 3770547.2   341.0     3.49     6.51
3.25     YES   HRDOW
 L0000279         0   0.48840E-06  463419.3 3770533.2   340.9     3.49     6.51
3.25     YES   HRDOW
 L0000280         0   0.48840E-06  463419.3 3770519.2   340.4     3.49     6.51
3.25     YES   HRDOW
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID          CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
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 L0000281         0   0.48840E-06  463419.4 3770505.2   340.0     3.49     6.51
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3.25	YES	HRDOW							
L0000282		0	0.48840E-06	463419.4	3770491.2	340.0	3.49	6.51	
3.25	YES	HRDOW							
L0000283		0	0.48840E-06	463419.4	3770477.2	340.0	3.49	6.51	
3.25	YES	HRDOW							
L0000284		0	0.48840E-06	463419.4	3770463.2	340.0	3.49	6.51	
3.25	YES	HRDOW							
L0000285		0	0.48840E-06	463419.4	3770449.2	340.0	3.49	6.51	
3.25	YES	HRDOW							
L0000286		0	0.48840E-06	463419.4	3770435.2	340.0	3.49	6.51	
3.25	YES	HRDOW							
L0000287		0	0.48840E-06	463419.4	3770421.2	340.0	3.49	6.51	
3.25	YES	HRDOW							
L0000288		0	0.48840E-06	463419.4	3770407.2	339.7	3.49	6.51	
3.25	YES	HRDOW							
L0000289		0	0.48840E-06	463419.4	3770393.2	339.2	3.49	6.51	
3.25	YES	HRDOW							
L0000290		0	0.48840E-06	463419.3	3770379.2	339.0	3.49	6.51	
3.25	YES	HRDOW							
L0000291		0	0.48840E-06	463419.1	3770365.2	339.0	3.49	6.51	
3.25	YES	HRDOW							
L0000292		0	0.48840E-06	463418.9	3770351.3	339.0	3.49	6.51	
3.25	YES	HRDOW							
L0000293		0	0.48840E-06	463418.7	3770337.3	339.0	3.49	6.51	
3.25	YES	HRDOW							
L0000294		0	0.48840E-06	463418.5	3770323.3	338.9	3.49	6.51	
3.25	YES	HRDOW							
L0000295		0	0.48840E-06	463418.2	3770309.3	338.4	3.49	6.51	
3.25	YES	HRDOW							
L0000296		0	0.48840E-06	463418.0	3770295.3	338.0	3.49	6.51	
3.25	YES	HRDOW							
L0000297		0	0.48840E-06	463418.5	3770281.3	338.0	3.49	6.51	
3.25	YES	HRDOW							
L0000298		0	0.48840E-06	463420.5	3770267.4	338.0	3.49	6.51	
3.25	YES	HRDOW							
L0000299		0	0.48840E-06	463422.5	3770253.6	337.5	3.49	6.51	
3.25	YES	HRDOW							
L0000300		0	0.48840E-06	463424.4	3770239.7	337.1	3.49	6.51	
3.25	YES	HRDOW							
L0000301		0	0.48840E-06	463426.4	3770225.9	336.9	3.49	6.51	
3.25	YES	HRDOW							
L0000302		0	0.48840E-06	463428.4	3770212.0	336.8	3.49	6.51	
3.25	YES	HRDOW							
L0000303		0	0.48840E-06	463430.3	3770198.1	336.5	3.49	6.51	
3.25	YES	HRDOW							
L0000304		0	0.48840E-06	463432.5	3770184.3	336.2	3.49	6.51	
3.25	YES	HRDOW							
L0000305		0	0.48840E-06	463434.6	3770170.5	336.0	3.49	6.51	
3.25	YES	HRDOW							
L0000306		0	0.48840E-06	463436.8	3770156.6	336.0	3.49	6.51	

3.25   YES   HRDOW
 L0000307   0   0.48840E-06 463439.0 3770142.8   335.9   3.49   6.51
3.25   YES   HRDOW
 L0000308   0   0.48840E-06 463441.2 3770129.0   335.6   3.49   6.51
3.25   YES   HRDOW
 L0000309   0   0.48840E-06 463443.4 3770115.2   335.2   3.49   6.51
3.25   YES   HRDOW
 L0000310   0   0.48840E-06 463445.6 3770101.3   335.1   3.49   6.51
3.25   YES   HRDOW
 L0000311   0   0.48840E-06 463447.7 3770087.5   335.0   3.49   6.51
3.25   YES   HRDOW
 L0000312   0   0.48840E-06 463449.2 3770073.6   335.0   3.49   6.51
3.25   YES   HRDOW
 L0000313   0   0.48840E-06 463450.5 3770059.6   335.0   3.49   6.51
3.25   YES   HRDOW
 L0000314   0   0.48840E-06 463451.9 3770045.7   335.0   3.49   6.51
3.25   YES   HRDOW
 L0000315   0   0.48840E-06 463452.8 3770031.8   334.9   3.49   6.51
3.25   YES   HRDOW
 L0000316   0   0.48840E-06 463452.5 3770017.8   334.9   3.49   6.51
3.25   YES   HRDOW
 L0000317   0   0.48840E-06 463452.2 3770003.8   335.0   3.49   6.51
3.25   YES   HRDOW
 L0000318   0   0.48840E-06 463452.0 3769989.8   335.0   3.49   6.51
3.25   YES   HRDOW
 L0000319   0   0.48840E-06 463451.7 3769975.8   335.0   3.49   6.51
3.25   YES   HRDOW
 L0000320   0   0.48840E-06 463451.4 3769961.8   335.0   3.49   6.51
3.25   YES   HRDOW

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
 -
- - - - - - - - - - - - - - - - - - - -

 L0000321   0   0.48840E-06 463451.3 3769947.8   335.0   3.49   6.51

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3.25     YES   HRDOW
 L0000322         0   0.48840E-06  463451.4 3769933.8   335.0     3.49     6.51
3.25     YES   HRDOW
 L0000323         0   0.48840E-06  463451.5 3769919.8   335.0     3.49     6.51
3.25     YES   HRDOW
 L0000324         0   0.48840E-06  463451.6 3769905.8   335.0     3.49     6.51
3.25     YES   HRDOW
 L0000325         0   0.48840E-06  463451.7 3769891.8   335.0     3.49     6.51
3.25     YES   HRDOW
 L0000326         0   0.48840E-06  463451.7 3769877.8   335.0     3.49     6.51
3.25     YES   HRDOW
 L0000327         0   0.48840E-06  463451.8 3769863.8   335.0     3.49     6.51
3.25     YES   HRDOW
 L0000328         0   0.48840E-06  463451.9 3769849.8   335.0     3.49     6.51
3.25     YES   HRDOW
 L0000329         0   0.48840E-06  463452.0 3769835.8   336.0     3.49     6.51
3.25     YES   HRDOW
 L0000330         0   0.48840E-06  463452.1 3769821.8   337.4     3.49     6.51
3.25     YES   HRDOW
 L0000331         0   0.48840E-06  463452.2 3769807.8   338.7     3.49     6.51
3.25     YES   HRDOW
 L0000332         0   0.48840E-06  463452.2 3769793.8   340.0     3.49     6.51
3.25     YES   HRDOW
 L0000333         0   0.48840E-06  463452.3 3769779.8   340.9     3.49     6.51
3.25     YES   HRDOW
 L0000334         0   0.48840E-06  463452.4 3769765.8   341.6     3.49     6.51
3.25     YES   HRDOW
 L0000335         0   0.48840E-06  463452.5 3769751.8   341.4     3.49     6.51
3.25     YES   HRDOW
 VOL1             0   0.28572E-02  464478.1 3773399.4   378.4     5.00    25.44
1.40     YES   HRDOW
 VOL2             0   0.28572E-02  464548.3 3773399.1   378.2     5.00    25.44
1.40     YES   HRDOW
 VOL3             0   0.28572E-02  464476.4 3773324.2   377.0     5.00    25.44
1.40     YES   HRDOW
 VOL4             0   0.28572E-02  464547.4 3773325.6   377.0     5.00    25.44
1.40     YES   HRDOW
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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                                  PAGE  11
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                              *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID                                              SOURCE IDs
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  ALL        L0000001    , L0000002    , L0000003    , L0000004    , L0000005    ,
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L0000014    , L0000015    , L0000016    ,

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                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID                                          SOURCE IDs
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L0000318   , L0000319   , L0000320   ,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID   SOURCE IDs

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             L0000321    , L0000322    , L0000323    , L0000324    , L0000325    ,
L0000326    , L0000327    , L0000328    ,

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L0000334    , L0000335    , VOL1        ,

             VOL2        , VOL3        , VOL4        ,
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                          *** SOURCE IDs DEFINED AS URBAN SOURCES
***

  URBAN ID   URBAN POP                                      SOURCE IDs
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              2035210.   L0000001    , L0000002    , L0000003    , L0000004    ,
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↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                       *** SOURCE IDs DEFINED AS URBAN SOURCES
***

  URBAN ID   URBAN POP                                  SOURCE IDs
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                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000002     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
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22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
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6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  19
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000003     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000004   ; SOURCE TYPE = VOLUME   :
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- -

DAY OF WEEK = WEEKDAY
1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01   14 .1000E+01   15 .1000E+01   16 .1000E+01
17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY
1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00   14 .0000E+00   15 .0000E+00   16 .0000E+00
17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY
1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00   14 .0000E+00   15 .0000E+00   16 .0000E+00
17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000005   ; SOURCE TYPE = VOLUME   :
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- -

DAY OF WEEK = WEEKDAY
1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00

```
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  22
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000006     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
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    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  23
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000007     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                            DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  24
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000008     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  25
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000009     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
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14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  26
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000010     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
```

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  27
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000011     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  28
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
```

OF WEEK (HRDOW) *

 SOURCE ID = L0000012   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000013   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000014   ; SOURCE TYPE = VOLUME   :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000015   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

```
 SOURCE ID = L0000016     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000017     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE  34
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000018     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000019 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000020 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

```
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -
```

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE  38
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000022     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -

                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
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*** AERMET - VERSION 16216 *** ***
*** 13:53:57

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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000023     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000024     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

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- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  41
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000025     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
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   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE  42
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000026     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57
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                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000027   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000028   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  45
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000029     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
*** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                         ***       13:53:57

                                   PAGE  46
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000030     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
*** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                         ***       13:53:57

                                   PAGE  47
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000031     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  48
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000032     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
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    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  49
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000033     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
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6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  50
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000034     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  51
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000035     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000036     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
```

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000037   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00

14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000038   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
 SOURCE ID = L0000039     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000040     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  57
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000041     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
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22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000042     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  59
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000043     ; SOURCE TYPE = VOLUME   :
```

```
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE  60
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000044     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

```
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  61
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000045     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
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TEMESCAL CYN WAREHOUSE\14 *** 02/07/23
 *** AERMET - VERSION 16216 *** ***
                  *** 13:53:57

                              PAGE 62
 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000046     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```



```
                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000047     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
```

- - - -

```
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  65
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000049     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000050   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000051   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -

```
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  68
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000052     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
```

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000053 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000054   ; SOURCE TYPE = VOLUME   :
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- -

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00				
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01				
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00				
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00				
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00				
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00				
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00				

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000055   ; SOURCE TYPE = VOLUME   :
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
- -

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00

```
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  72
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000056     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
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    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  73
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000057     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                             DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  74
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000058     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  75
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000059     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
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14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  76
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000060     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
```

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  77
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000061     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  78
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
```

OF WEEK (HRDOW) *

 SOURCE ID = L0000062   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000063   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000064   ; SOURCE TYPE = VOLUME   :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000065   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
 SOURCE ID = L0000066     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE  83
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000067     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  84
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000068     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000069 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000070 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

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HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -
```

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE  88
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000072     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
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 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  89
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000073     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  90
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000074     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

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- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  91
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000075     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
```

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000076   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000077   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000078   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE  95
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000079     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE  96
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000080     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000081 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000082 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00

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    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000083     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

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6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 100
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000084     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 101
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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```
                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000085     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 102
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000086     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
```

```
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 103
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000087     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
```

14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000088   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
 SOURCE ID = L0000089     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000090     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

```
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 107
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000091     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
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22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 108
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000092     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 109
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000093     ; SOURCE TYPE = VOLUME   :
```

```
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000094     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

```
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 111
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000095     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000096   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                          DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000097   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR

- - - -

```
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 115
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000099     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                            DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000100   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000101   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -

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                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 118
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000102     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
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22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
*** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 119
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000103     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
*** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000104 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000105 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00

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6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 122
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000106     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 123
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000107     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                             DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 124
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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 SOURCE ID = L0000108   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

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14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 126
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000110     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
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    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 127
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000111     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 128
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
```

OF WEEK (HRDOW) *

 SOURCE ID = L0000112   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000113   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000114 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

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   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 131
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000115     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 132
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *
```

```
 SOURCE ID = L0000116     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 133
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000117     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 134
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000118     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000119 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000120 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

```
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -
```

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 138
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000122     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000123   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000124   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -

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- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000125     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
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   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 142
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000126     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000127 ; SOURCE TYPE = VOLUME :

```
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```


* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000128 ; SOURCE TYPE = VOLUME :

```
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 145
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000129     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

```
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                         ***       13:53:57

                                   PAGE 146
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000130     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                         ***       13:53:57

                                   PAGE 147
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000131     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 148
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000132     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
```

```
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 149
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000133     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000134   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
                                                  DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

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                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000135     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 152
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000136     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
```

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000137   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00

14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000138   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
 SOURCE ID = L0000139     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 156
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000140     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

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                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 157
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000141     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
```

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22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 158
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000142     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 159
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000143     ; SOURCE TYPE = VOLUME   :
```

```
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 160
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000144     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

```
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 161
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000145     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000146   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                          DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000147   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR

- - - -

```
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000149     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                            DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000150 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000151 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01
14 .1000E+01 15 .1000E+01 16 .1000E+01
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00
14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00
14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000152 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
- - - -

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000153 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000154 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000155 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00

6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000156   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY

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    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000157     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                             DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 174
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000158     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 175
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000159     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
```

14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000160   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 177
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000161     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 178
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
```

OF WEEK (HRDOW) *

 SOURCE ID = L0000162   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000163   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000164 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000165   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                  DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

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 SOURCE ID = L0000166     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000167     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000168     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000169 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000170 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

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HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -
```

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 188
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000172     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
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 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 189
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000173     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 190
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000174     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

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- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 191
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000175     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
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   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 192
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000176     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57
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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000177 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR				

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.0000E+00	7	.0000E+00	8	.0000E+00				
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01
14	.1000E+01	15	.1000E+01	16	.1000E+01				
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.0000E+00	7	.0000E+00	8	.0000E+00				
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00
14	.0000E+00	15	.0000E+00	16	.0000E+00				
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.0000E+00	7	.0000E+00	8	.0000E+00				
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00
14	.0000E+00	15	.0000E+00	16	.0000E+00				
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000178 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR				

DAY OF WEEK = WEEKDAY

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 195
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000179     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00
14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000180 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01
14 .1000E+01 15 .1000E+01 16 .1000E+01
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00
14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00
14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000181     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 198
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000182     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
```

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    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 199
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000183     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

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6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 200
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000184     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 201
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000185     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 202
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000186     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
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   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 203
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000187     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
```

14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000188   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
 SOURCE ID = L0000189     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 206
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000190     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

```
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 207
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000191     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000192   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -

DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01   14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00   14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00   14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000193   ; SOURCE TYPE = VOLUME   :

```
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 210
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000194     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

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6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 211
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000195     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000196   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                          DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000197   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR

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 - - -
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```
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 215
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000199     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                            DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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                        ***        13:53:57

                                   PAGE 216
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000200     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 217
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000201     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
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                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 218
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000202     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
```

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000203 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000204 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000205 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00

6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000206   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY

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    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000207     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                             DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 224
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000208     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000209     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
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14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000210   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

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    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 227
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000211     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 228
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
```

OF WEEK (HRDOW) *

 SOURCE ID = L0000212   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000213   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000214   ; SOURCE TYPE = VOLUME   :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000215   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                  DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

```
 SOURCE ID = L0000216     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 233
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000217     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
```

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    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 234
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000218     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000219 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000220 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

HOUR SCALAR HOUR SCALAR HOUR SCALAR
- - - -

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 238
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000222     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
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*** AERMET - VERSION 16216 ***   ***
                        ***   13:53:57

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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000223   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000224   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -

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- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 241
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000225     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
```

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   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
*** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 242
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000226     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
*** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57
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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000227 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR				

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.0000E+00	7	.0000E+00	8	.0000E+00				
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01
14	.1000E+01	15	.1000E+01	16	.1000E+01				
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.0000E+00	7	.0000E+00	8	.0000E+00				
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00
14	.0000E+00	15	.0000E+00	16	.0000E+00				
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00
6	.0000E+00	7	.0000E+00	8	.0000E+00				
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00
14	.0000E+00	15	.0000E+00	16	.0000E+00				
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00
22	.0000E+00	23	.0000E+00	24	.0000E+00				

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000228 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR				

DAY OF WEEK = WEEKDAY

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 245
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000229     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
1 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                         ***       13:53:57

                                   PAGE 246
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000230     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
1 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                         ***       13:53:57

                                   PAGE 247
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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000231     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 248
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000232     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
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    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 249
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000233     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
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6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 250
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000234     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 251
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000235     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 252
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000236     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
```

```
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 253
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000237     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
```

14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000238   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

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 SOURCE ID = L0000239     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000240     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 257
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000241     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
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22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 258
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000242     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 259
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000243     ; SOURCE TYPE = VOLUME   :
```

```
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 260
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000244     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000245   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000246   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                          DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000247   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR

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 - - -
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14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 265
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000249     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                            DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000250 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000251 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

```
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 268
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000252     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
```

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22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
*** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 269
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000253     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
*** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000254 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000255 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00

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6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000256     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
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```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 273
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000257     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                             DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 274
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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 SOURCE ID = L0000258   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                          DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000260   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 277
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000261     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 278
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
```

OF WEEK (HRDOW) *

 SOURCE ID = L0000262   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000263   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000264   ; SOURCE TYPE = VOLUME   :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000265   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                  DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

```
 SOURCE ID = L0000266     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 283
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000267     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 284
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000268     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000269 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000270 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 288
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000272     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
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*** AERMET - VERSION 16216 ***   ***
                        ***   13:53:57

                                  PAGE 289
*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000273     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000274     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

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- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 291
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000275     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
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   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 292
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000276     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57
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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000277 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000278 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 295
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000279     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 296
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000280     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000281     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 298
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000282     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
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    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 299
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000283     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

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6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 300
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000284     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 301
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
```

```
                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000285     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 302
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000286     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
```

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000287   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00

14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000288   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
 SOURCE ID = L0000289     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 306
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000290     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

```
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 307
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000291     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
```

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22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 308
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000292     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 309
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000293     ; SOURCE TYPE = VOLUME   :
```

```
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 310
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000294     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
```

6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000295   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000296   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                  DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000297   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR

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 - - -
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14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000299     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                            DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                            DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000300 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000301 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .1000E+01 10 .1000E+01 11 .1000E+01 12 .1000E+01 13 .1000E+01
14 .1000E+01 15 .1000E+01 16 .1000E+01
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SATURDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00
14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00
DAY OF WEEK = SUNDAY
1 .0000E+00 2 .0000E+00 3 .0000E+00 4 .0000E+00 5 .0000E+00
6 .0000E+00 7 .0000E+00 8 .0000E+00
9 .0000E+00 10 .0000E+00 11 .0000E+00 12 .0000E+00 13 .0000E+00
14 .0000E+00 15 .0000E+00 16 .0000E+00
17 .0000E+00 18 .0000E+00 19 .0000E+00 20 .0000E+00 21 .0000E+00
22 .0000E+00 23 .0000E+00 24 .0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000302 ; SOURCE TYPE = VOLUME :
HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR HOUR SCALAR
- - - -

```
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 319
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000303     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000304 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000305 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00

6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000306   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 323
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000307     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                             DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                             DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 324
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
```

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000308   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 326
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000310     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                          DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                          DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
```

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 327
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000311     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
🡅 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 328
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
```

OF WEEK (HRDOW) *

 SOURCE ID = L0000312   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000313   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00

22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000314   ; SOURCE TYPE = VOLUME   :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SATURDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

DAY OF WEEK = SUNDAY

1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00

9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00

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   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 331
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000315     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 332
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *
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 SOURCE ID = L0000316     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 333
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000317     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                    DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                    DAY OF WEEK = SATURDAY
```

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 334
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000318     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000319 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR
DAY OF WEEK = WEEKDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SATURDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00
DAY OF WEEK = SUNDAY															
1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000320 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 338
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000322     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -

                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00

                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
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*** AERMET - VERSION 16216 ***   ***
                        ***   13:53:57

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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000323   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -
- -
                                                DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01
14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00
6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00
14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000324   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -

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- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

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 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000325     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                                                  DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                  DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
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   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 342
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000326     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000327   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -

                                                   DAY OF WEEK = WEEKDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .1000E+01   10 .1000E+01   11 .1000E+01   12 .1000E+01   13 .1000E+01   14 .1000E+01   15 .1000E+01   16 .1000E+01
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                   DAY OF WEEK = SATURDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00   14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00
                                                   DAY OF WEEK = SUNDAY
    1 .0000E+00   2 .0000E+00   3 .0000E+00   4 .0000E+00   5 .0000E+00   6 .0000E+00   7 .0000E+00   8 .0000E+00
    9 .0000E+00   10 .0000E+00   11 .0000E+00   12 .0000E+00   13 .0000E+00   14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00   22 .0000E+00   23 .0000E+00   24 .0000E+00

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = L0000328   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 -

                                                   DAY OF WEEK = WEEKDAY

```
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 345
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000329     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
```

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                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 346
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000330     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 347
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* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000331 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.1000E+01	10	.1000E+01	11	.1000E+01	12	.1000E+01	13	.1000E+01	14	.1000E+01	15	.1000E+01	16	.1000E+01
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SATURDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

DAY OF WEEK = SUNDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00
9	.0000E+00	10	.0000E+00	11	.0000E+00	12	.0000E+00	13	.0000E+00	14	.0000E+00	15	.0000E+00	16	.0000E+00
17	.0000E+00	18	.0000E+00	19	.0000E+00	20	.0000E+00	21	.0000E+00	22	.0000E+00	23	.0000E+00	24	.0000E+00

* SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

SOURCE ID = L0000332 ; SOURCE TYPE = VOLUME :

HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR	HOUR	SCALAR

DAY OF WEEK = WEEKDAY

1	.0000E+00	2	.0000E+00	3	.0000E+00	4	.0000E+00	5	.0000E+00	6	.0000E+00	7	.0000E+00	8	.0000E+00

```
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 349
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                  * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000333     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
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6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 350
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000334     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                              DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                              DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 351
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
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                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = L0000335     ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 352
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                    * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = VOL1         ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
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   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                   PAGE 353
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY
OF WEEK (HRDOW) *

 SOURCE ID = VOL2          ; SOURCE TYPE = VOLUME    :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - -
                                                DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
```

14 .0000E+00   15 .0000E+00   16 .0000E+00
   17 .0000E+00   18 .0000E+00   19 .0000E+00   20 .0000E+00   21 .0000E+00
22 .0000E+00   23 .0000E+00   24 .0000E+00

                   * SOURCE EMISSION RATE SCALARS WHICH VARY DIURNALLY AND BY DAY OF WEEK (HRDOW) *

 SOURCE ID = VOL3   ; SOURCE TYPE = VOLUME   :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - -

```
 SOURCE ID = VOL4          ; SOURCE TYPE = VOLUME    :
  HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
HOUR   SCALAR   HOUR   SCALAR   HOUR   SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - -
                                                 DAY OF WEEK = WEEKDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .1000E+01   10  .1000E+01   11  .1000E+01   12  .1000E+01   13  .1000E+01
14  .1000E+01   15  .1000E+01   16  .1000E+01
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SATURDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
                                                 DAY OF WEEK = SUNDAY
    1  .0000E+00    2  .0000E+00    3  .0000E+00    4  .0000E+00    5  .0000E+00
6  .0000E+00    7  .0000E+00    8  .0000E+00
    9  .0000E+00   10  .0000E+00   11  .0000E+00   12  .0000E+00   13  .0000E+00
14  .0000E+00   15  .0000E+00   16  .0000E+00
   17  .0000E+00   18  .0000E+00   19  .0000E+00   20  .0000E+00   21  .0000E+00
22  .0000E+00   23  .0000E+00   24  .0000E+00
↟ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        13:53:57

                                  PAGE 356
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                        (X-COORD, Y-COORD, ZELEV, ZHILL, ZFLAG)
                                                    (METERS)

     ( 464928.6, 3773229.1,     373.8,     373.8,       0.0);         ( 464891.0,
3773229.4,     373.8,     373.8,       0.0);
     ( 464869.1, 3773280.0,     374.4,     374.4,       0.0);         ( 465148.0,
3773536.0,     377.0,     377.0,       0.0);
     ( 464411.3, 3773284.9,     377.0,     377.0,       0.0);         ( 464378.6,
3773281.7,     377.0,     377.0,       0.0);
     ( 464343.6, 3773280.7,     377.5,     377.5,       0.0);         ( 464304.8,
3773299.3,     378.1,     378.1,       0.0);
     ( 464214.8, 3773299.3,     379.0,     379.0,       0.0);         ( 463617.5,
3773315.5,     382.0,     382.0,       0.0);
     ( 463642.7, 3773339.6,     382.4,     382.4,       0.0);         ( 463491.7,
```

```
3773312.8,     382.6,     382.6,       0.0);
     ( 463474.7, 3773327.9,     383.0,     383.0,       0.0);         ( 463468.3,
3773357.9,     383.4,     383.4,       0.0);
     ( 463460.4, 3773380.5,     383.9,     383.9,       0.0);         ( 463451.6,
3773423.2,     384.2,     384.2,       0.0);
     ( 463450.8, 3773436.2,     384.7,     384.7,       0.0);         ( 463607.7,
3773411.3,     383.8,     383.8,       0.0);
     ( 463537.9, 3773312.3,     382.5,     382.5,       0.0);         ( 463462.0,
3773219.4,     381.3,     381.3,       0.0);
     ( 463855.1, 3773303.2,     380.6,     380.6,       0.0);         ( 463884.0,
3773302.4,     380.2,     380.2,       0.0);
     ( 464038.0, 3773295.5,     380.0,     380.0,       0.0);         ( 464039.3,
3773330.6,     380.1,     380.1,       0.0);
     ( 464041.7, 3773360.6,     380.4,     380.4,       0.0);         ( 463930.5,
3773298.2,     380.1,     380.1,       0.0);
     ( 463896.8, 3773215.9,     379.3,     379.3,       0.0);         ( 464186.4,
3773231.6,     378.0,     378.0,       0.0);
     ( 463767.5, 3773230.5,     379.8,     379.8,       0.0);         ( 463376.5,
3773322.9,     383.9,     383.9,       0.0);
     ( 463340.9, 3773218.0,     382.0,     382.0,       0.0);         ( 463344.6,
3772921.2,     377.0,     377.0,       0.0);
     ( 463732.7, 3772860.2,     374.0,     374.0,       0.0);         ( 463378.3,
3772825.4,     375.3,     375.3,       0.0);
     ( 463387.1, 3772737.5,     374.0,     374.0,       0.0);         ( 463446.6,
3772647.8,     372.4,     372.4,       0.0);
     ( 463384.7, 3772593.4,     371.6,     371.6,       0.0);         ( 463399.3,
3772414.7,     368.6,     368.6,       0.0);
     ( 463439.9, 3772438.1,     369.1,     369.1,       0.0);         ( 463438.9,
3772296.1,     366.7,     366.7,       0.0);
     ( 463403.0, 3772249.6,     366.0,     366.0,       0.0);         ( 463441.3,
3772129.9,     364.0,     364.0,       0.0);
     ( 463389.5, 3772132.3,     364.2,     364.2,       0.0);         ( 463401.2,
3771952.6,     362.0,     362.0,       0.0);
     ( 463437.0, 3771943.3,     361.4,     361.4,       0.0);         ( 463402.5,
3771823.5,     359.9,     359.9,       0.0);
     ( 463437.3, 3771745.2,     358.3,     358.3,       0.0);         ( 463438.1,
3771635.9,     357.0,     357.0,       0.0);
     ( 463402.2, 3771635.3,     357.0,     357.0,       0.0);         ( 463398.5,
3771265.3,     351.3,     351.3,       0.0);
     ( 463437.3, 3771275.9,     351.7,     351.7,       0.0);         ( 463436.7,
3771027.4,     348.0,     348.0,       0.0);
     ( 463402.0, 3771029.5,     348.0,     348.0,       0.0);         ( 463399.6,
3770820.6,     345.0,     345.0,       0.0);
     ( 463436.2, 3770817.7,     345.2,     345.2,       0.0);         ( 463446.6,
3770636.4,     342.0,     342.0,       0.0);
     ( 463400.1, 3770636.9,     342.2,     342.2,       0.0);         ( 464777.9,
3773274.8,     375.0,     375.0,       0.0);
     ( 464747.2, 3773283.1,     375.0,     375.0,       0.0);         ( 464766.3,
3773315.4,     375.6,     375.6,       0.0);
     ( 464704.5, 3773238.5,     374.2,     374.2,       0.0);         ( 464675.2,
```

3773237.8,   375.0,   375.0,   0.0);
     (464670.6, 3773273.5,   375.2,   375.2,   0.0);   (464577.5,
3773232.8,   375.4,   375.4,   0.0);
     (464521.6, 3773232.9,   375.2,   375.2,   0.0);   (464465.6,
3773233.1,   375.9,   375.9,   0.0);
     (464399.1, 3773229.2,   376.0,   376.0,   0.0);   (464207.7,
3773292.4,   379.0,   379.0,   0.0);
     (464944.8, 3773482.0,   377.2,   377.2,   0.0);   (464907.1,
3773482.0,   377.2,   377.2,   0.0);
     (464887.8, 3773482.5,   377.2,   377.2,   0.0);   (464846.7,
3773483.1,   377.6,   377.6,   0.0);
     (464806.8, 3773482.7,   378.0,   378.0,   0.0);   (464763.3,
3773482.9,   378.0,   378.0,   0.0);
     (464716.4, 3773483.2,   378.2,   378.2,   0.0);   (464943.1,
3773388.4,   376.0,   376.0,   0.0);
     (464920.0, 3773274.5,   374.0,   374.0,   0.0);   (464413.5,
3773348.4,   378.0,   378.0,   0.0);
     (464418.4, 3773386.7,   378.0,   378.0,   0.0);   (464413.9,
3773322.5,   377.8,   377.8,   0.0);
     (464413.3, 3773310.8,   377.4,   377.4,   0.0);   (464411.9,
3773363.9,   378.0,   378.0,   0.0);
     (464426.7, 3773491.9,   380.5,   380.5,   0.0);   (464583.1,
3773489.6,   379.4,   379.4,   0.0);
     (464648.0, 3773491.1,   379.0,   379.0,   0.0);   (464753.3,
3773351.3,   376.0,   376.0,   0.0);
     (464032.6, 3773301.0,   380.0,   380.0,   0.0);   (463933.4,
3773301.9,   380.2,   380.2,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                          *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                              (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: FONT_V9_ADJU\FONT_V9.SFC
Met Version: 16216
Profile file: FONT_V9_ADJU\FONT_V9.PFL

Surface format: FREE

Profile format: FREE

Surface station no.: 3102 Upper air station no.: 3190
Name: UNKNOWN Name: UNKNOWN

Year: 2011 Year: 2011

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
11	01	01	1	01	-18.5	0.194	-9.000	-9.000	-999.	204.	41.2	0.25	2.82	1.00	1.80	69.	9.1	276.4	5.5
11	01	01	1	02	-23.8	0.239	-9.000	-9.000	-999.	281.	63.0	0.25	2.82	1.00	2.20	52.	9.1	275.4	5.5
11	01	01	1	03	-18.5	0.194	-9.000	-9.000	-999.	205.	41.2	0.25	2.82						

```
1.00    1.80   32.    9.1  275.4    5.5
 11 01 01   1 04   -1.4  0.067 -9.000 -9.000 -999.   57.     18.3  0.25   2.82
1.00    0.40   27.    9.1  274.2    5.5
 11 01 01   1 05  -18.6  0.194 -9.000 -9.000 -999.  204.     41.2  0.25   2.82
1.00    1.80   51.    9.1  274.2    5.5
 11 01 01   1 06  -29.7  0.296 -9.000 -9.000 -999.  387.     96.6  0.25   2.82
1.00    2.70   53.    9.1  274.2    5.5
 11 01 01   1 07  -24.0  0.239 -9.000 -9.000 -999.  282.     63.0  0.25   2.82
1.00    2.20   70.    9.1  274.2    5.5
 11 01 01   1 08   -8.4  0.138 -9.000 -9.000 -999.  127.     27.3  0.25   2.82
0.54    1.30   72.    9.1  275.4    5.5
 11 01 01   1 09   44.3  0.280  0.571  0.005  147.  356.    -43.5  0.25   2.82
0.32    2.20   67.    9.1  277.5    5.5
 11 01 01   1 10  122.7  0.264  0.952  0.005  247.  326.    -13.2  0.25   2.82
0.25    1.80   83.    9.1  279.9    5.5
 11 01 01   1 11  179.8  0.316  1.733  0.005 1017.  426.    -15.4  0.25   2.82
0.22    2.20   58.    9.1  282.0    5.5
 11 01 01   1 12  206.0  0.320  1.940  0.008 1244.  435.    -14.0  0.25   2.82
0.21    2.20  115.    9.1  283.1    5.5
 11 01 01   1 13  132.6  0.214  1.733  0.009 1377.  243.     -6.5  0.25   2.82
0.21    1.30  147.    9.1  284.2    5.5
 11 01 01   1 14  147.0  0.216  1.818  0.009 1431.  242.     -6.0  0.25   2.82
0.23    1.30  219.    9.1  284.9    5.5
 11 01 01   1 15  104.0  0.208  1.633  0.009 1468.  228.     -7.6  0.25   2.82
0.26    1.30  126.    9.1  285.4    5.5
 11 01 01   1 16   26.4  0.140  1.037  0.009 1477.  127.     -9.1  0.25   2.82
0.35    0.90  151.    9.1  284.9    5.5
 11 01 01   1 17   -9.0  0.137 -9.000 -9.000 -999.  121.     24.9  0.25   2.82
0.63    1.30   69.    9.1  283.1    5.5
 11 01 01   1 18  -33.4  0.342 -9.000 -9.000 -999.  481.    129.0  0.25   2.82
1.00    3.10   81.    9.1  281.4    5.5
 11 01 01   1 19  -33.6  0.342 -9.000 -9.000 -999.  481.    128.9  0.25   2.82
1.00    3.10   51.    9.1  279.9    5.5
 11 01 01   1 20  -23.6  0.239 -9.000 -9.000 -999.  287.     63.1  0.25   2.82
1.00    2.20   77.    9.1  278.8    5.5
 11 01 01   1 21  -18.5  0.194 -9.000 -9.000 -999.  205.     41.2  0.25   2.82
1.00    1.80   53.    9.1  277.5    5.5
 11 01 01   1 22  -23.7  0.239 -9.000 -9.000 -999.  281.     63.0  0.25   2.82
1.00    2.20   58.    9.1  277.5    5.5
 11 01 01   1 23  -18.5  0.194 -9.000 -9.000 -999.  205.     41.2  0.25   2.82
1.00    1.80   64.    9.1  277.5    5.5
 11 01 01   1 24   -4.5  0.094 -9.000 -9.000 -999.   74.     16.3  0.25   2.82
1.00    0.90   52.    9.1  277.0    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   276.5   99.0  -99.00  -99.00
 11 01 01 01    9.1 1   69.    1.80  -999.0   99.0  -99.00  -99.00
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***

INCLUDING SOURCE(S): L0000001 , L0000002 , L0000003 , L0000004 , L0000005 , L0000006 , L0000007 , L0000008 , L0000009 , L0000010 , L0000011 , L0000012 , L0000013 , L0000014 , L0000015 , L0000016 , L0000017 , L0000018 , L0000019 , L0000020 , L0000021 , L0000022 , L0000023 , L0000024 , L0000025 , L0000026 , L0000027 , L0000028 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
464928.61	3773229.12	0.00280	464890.95	3773229.45	0.00328
464869.11	3773279.98	0.00499	465148.03	3773535.99	0.00293
464411.26	3773284.93	0.04441	464378.61	3773281.74	0.02419
464343.57	3773280.68	0.01454	464304.81	3773299.26	0.00922
464214.82	3773299.26	0.00390	463617.53	3773315.46	0.00045
463642.74	3773339.61	0.00042	463491.70	3773312.80	0.00037
463474.71	3773327.93	0.00032	463468.34	3773357.93	0.00028
463460.37	3773380.50	0.00027	463451.61	3773423.24	0.00025
463450.81	3773436.24	0.00025	463607.70	3773411.29	0.00034
463537.89	3773312.27	0.00041	463461.96	3773219.36	0.00050

```
         463855.12    3773303.25        0.00076                    463884.05
3773302.45        0.00083
         464038.02    3773295.55        0.00142                    464039.35
3773330.59        0.00133
         464041.74    3773360.59        0.00131                    463930.51
3773298.20        0.00096
         463896.79    3773215.91        0.00081                    464186.41
3773231.57        0.00309
         463767.51    3773230.51        0.00067                    463376.48
3773322.89        0.00024
         463340.91    3773218.03        0.00024                    463344.63
3772921.24        0.00026
         463732.74    3772860.19        0.00042                    463378.34
3772825.41        0.00032
         463387.10    3772737.54        0.00036                    463446.57
3772647.82        0.00051
         463384.71    3772593.40        0.00035                    463399.32
3772414.74        0.00045
         463439.93    3772438.10        0.00057                    463438.87
3772296.08        0.00057
         463403.03    3772249.62        0.00050                    463441.26
3772129.90        0.00052
         463389.49    3772132.29        0.00036                    463401.17
3771952.57        0.00045
         463437.01    3771943.28        0.00055                    463402.50
3771823.55        0.00046
         463437.28    3771745.24        0.00053                    463438.07
3771635.87        0.00050
         463402.23    3771635.34        0.00043                    463398.52
3771265.28        0.00036
         463437.28    3771275.90        0.00048                    463436.74
3771027.43        0.00046
         463401.97    3771029.55        0.00040                    463399.58
3770820.63        0.00037
         463436.21    3770817.71        0.00045                    463446.57
3770636.40        0.00032
         463400.11    3770636.93        0.00036                    464777.90
3773274.84        0.00831
         464747.24    3773283.15        0.01115                    464766.32
3773315.44        0.01238
         464704.52    3773238.48        0.00999                    464675.17
3773237.82        0.01239
         464670.61    3773273.53        0.02017                    464577.50
3773232.77        0.02659
         464521.57    3773232.93        0.03578                    464465.64
3773233.10        0.03475
         464399.11    3773229.18        0.02003                    464207.69
3773292.45        0.00371
         464944.80    3773482.05        0.00651                    464907.13
3773482.05        0.00787
```

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         464887.80    3773482.55        0.00871                      464846.71
3773483.06        0.01095
         464806.82    3773482.66        0.01391                      464763.31
3773482.86        0.01835
         464716.38    3773483.16        0.02521                      464943.10
3773388.41        0.00558
         464920.01    3773274.54        0.00375                      464413.46
3773348.39        0.06343
         464418.39    3773386.72        0.06978                      464413.88
3773322.54        0.06347
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                        ***        13:53:57

                                   PAGE 360
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   5
YEARS FOR SOURCE GROUP: ALL      ***
                                    INCLUDING SOURCE(S):     L0000001    , L0000002
 , L0000003    , L0000004    , L0000005    ,
                   L0000006    , L0000007    , L0000008    , L0000009    , L0000010
 , L0000011    , L0000012    , L0000013    ,
                   L0000014    , L0000015    , L0000016    , L0000017    , L0000018
 , L0000019    , L0000020    , L0000021    ,
                   L0000022    , L0000023    , L0000024    , L0000025    , L0000026
 , L0000027    , L0000028    ,  . . .      ,

                                              *** DISCRETE CARTESIAN RECEPTOR POINTS
***

                                   ** CONC OF DPM      IN MICROGRAMS/M**3
                    **

       X-COORD (M)   Y-COORD (M)        CONC                      X-COORD (M)
Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
         464413.34    3773310.82        0.05954                      464411.93
3773363.93        0.06028
         464426.73    3773491.87        0.01984                      464583.08
3773489.60        0.05221
         464648.02    3773491.13        0.03775                      464753.27
3773351.34        0.01738
         464032.63    3773300.99        0.00136                      463933.38
3773301.87        0.00096
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
```

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                              *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER   5 YEARS ***

                               ** CONC OF DPM   IN MICROGRAMS/M**3
             **

                     NETWORK
GROUP ID   AVERAGE CONC   RECEPTOR (XR, YR,
ZELEV, ZHILL, ZFLAG) OF TYPE GRID-ID
- -
- - - - - - - - - - - - - - - - - - -

ALL   1ST HIGHEST VALUE IS   0.06978 AT (464418.39, 3773386.72,
378.01,   378.01,   0.00) DC
          2ND HIGHEST VALUE IS   0.06347 AT (464413.88, 3773322.54,
377.75,   377.75,   0.00) DC
          3RD HIGHEST VALUE IS   0.06343 AT (464413.46, 3773348.39,
377.97,   377.97,   0.00) DC
          4TH HIGHEST VALUE IS   0.06028 AT (464411.93, 3773363.93,
378.00,   378.00,   0.00) DC
          5TH HIGHEST VALUE IS   0.05954 AT (464413.34, 3773310.82,
377.42,   377.42,   0.00) DC
          6TH HIGHEST VALUE IS   0.05221 AT (464583.08, 3773489.60,
379.44,   379.44,   0.00) DC
          7TH HIGHEST VALUE IS   0.04441 AT (464411.26, 3773284.93,
377.00,   377.00,   0.00) DC
          8TH HIGHEST VALUE IS   0.03775 AT (464648.02, 3773491.13,
379.00,   379.00,   0.00) DC
          9TH HIGHEST VALUE IS   0.03578 AT (464521.57, 3773232.93,
375.24,   375.24,   0.00) DC
         10TH HIGHEST VALUE IS   0.03475 AT (464465.64, 3773233.10,
375.91,   375.91,   0.00) DC

 *** RECEPTOR TYPES: GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of   0 Fatal Error Message(s)
A Total of   7 Warning Message(s)
A Total of   838 Informational Message(s)

A Total of   43848 Hours Were Processed

A Total of   40 Calm Hours Identified

A Total of   798 Missing Hours Identified (1.82 Percent)

   ******** FATAL ERROR MESSAGES ********
              *** NONE ***

   ********   WARNING MESSAGES   ********
ME W186   4860   MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
     0.50
ME W187   4860   MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

MX W438   8800   METQA: Convective Velocity Data Out-of-Range. KURDAT =
 12010216
MX W438   11536   METQA: Convective Velocity Data Out-of-Range. KURDAT =
 12042516
MX W420   16779   METQA: Wind Speed Out-of-Range.   KURDAT =
 12113003
MX W450   26305   CHKDAT: Record Out of Sequence in Meteorological File at:
 15010101
MX W450   26305   CHKDAT: Record Out of Sequence in Meteorological File at:
1 year gap

   ****
   *** AERMOD Finishes Successfully ***
   ****

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**
**************************************
**
** AERMOD INPUT PRODUCED BY:
** AERMOD VIEW VER. 11.2.0
** LAKES ENVIRONMENTAL SOFTWARE INC.
** DATE: 2/7/2023
** FILE: C:\LAKES\AERMOD VIEW\15203 HRA\15203 OPS HRA\15203 OPS HRA.ADI
**
**************************************
**
**
**************************************
** AERMOD CONTROL PATHWAY
**************************************
**
**
CO STARTING
   MODELOPT DFAULT CONC
   AVERTIME ANNUAL
   URBANOPT 2035210 SAN_BERNARDINO_COUNTY
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL "15203 OPS HRA.ERR"
CO FINISHED
**
**************************************
** AERMOD SOURCE PATHWAY
**************************************
**
**
SO STARTING
** SOURCE LOCATION **
** SOURCE ID - TYPE - X COORD. - Y COORD. **
** ----------------------------------------------------------------------
** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES
** LINE VOLUME SOURCE ID = SLINE1
** DESCRSRC IDLE
** PREFIX
** LENGTH OF SIDE = 8.59
** CONFIGURATION = ADJACENT
** EMISSION RATE = 4.87E-06
** VERTICAL DIMENSION = 6.99
** SZINIT = 3.25
** NODES = 2
** 464484.879, 3773324.434, 377.00, 3.49, 4.00
** 464577.124, 3773324.398, 377.00, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0001975     VOLUME   464489.174 3773324.432 377.00
   LOCATION L0001976     VOLUME   464497.764 3773324.429 377.00
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   LOCATION L0001977     VOLUME   464506.354 3773324.425 377.00
   LOCATION L0001978     VOLUME   464514.944 3773324.422 377.00
   LOCATION L0001979     VOLUME   464523.534 3773324.419 377.00
   LOCATION L0001980     VOLUME   464532.124 3773324.415 377.00
   LOCATION L0001981     VOLUME   464540.714 3773324.412 377.00
   LOCATION L0001982     VOLUME   464549.304 3773324.409 377.00
   LOCATION L0001983     VOLUME   464557.894 3773324.405 377.00
   LOCATION L0001984     VOLUME   464566.484 3773324.402 377.00
   LOCATION L0001985     VOLUME   464575.074 3773324.399 377.00
** END OF LINE VOLUME SOURCE ID = SLINE1
** ----------------------------------------------------------------------
** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES
** LINE VOLUME SOURCE ID = SLINE2
** DESCRSRC ONSITE
** PREFIX
** LENGTH OF SIDE = 8.59
** CONFIGURATION = ADJACENT
** EMISSION RATE = 2.642E-06
** VERTICAL DIMENSION = 6.99
** SZINIT = 3.25
** NODES = 5
** 464459.988, 3773271.393, 376.19, 3.49, 4.00
** 464463.263, 3773305.169, 376.94, 3.49, 4.00
** 464580.083, 3773303.388, 376.88, 3.49, 4.00
** 464587.939, 3773324.432, 377.00, 3.49, 4.00
** 464593.687, 3773339.785, 377.00, 3.49, 4.00
** ----------------------------------------------------------------------
   LOCATION L0002408     VOLUME   464460.403 3773275.668 376.52
   LOCATION L0002409     VOLUME   464461.232 3773284.218 376.71
   LOCATION L0002410     VOLUME   464462.060 3773292.768 376.91
   LOCATION L0002411     VOLUME   464462.889 3773301.318 377.00
   LOCATION L0002412     VOLUME   464467.983 3773305.097 377.00
   LOCATION L0002413     VOLUME   464476.572 3773304.966 377.00
   LOCATION L0002414     VOLUME   464485.161 3773304.835 377.00
   LOCATION L0002415     VOLUME   464493.750 3773304.704 377.00
   LOCATION L0002416     VOLUME   464502.339 3773304.573 377.00
   LOCATION L0002417     VOLUME   464510.928 3773304.442 377.00
   LOCATION L0002418     VOLUME   464519.517 3773304.311 377.00
   LOCATION L0002419     VOLUME   464528.106 3773304.180 377.00
   LOCATION L0002420     VOLUME   464536.695 3773304.049 377.00
   LOCATION L0002421     VOLUME   464545.284 3773303.918 377.00
   LOCATION L0002422     VOLUME   464553.873 3773303.787 377.00
   LOCATION L0002423     VOLUME   464562.462 3773303.657 377.00
   LOCATION L0002424     VOLUME   464571.051 3773303.526 377.00
   LOCATION L0002425     VOLUME   464579.640 3773303.395 377.00
   LOCATION L0002426     VOLUME   464582.932 3773311.020 377.00
   LOCATION L0002427     VOLUME   464585.937 3773319.067 377.00
   LOCATION L0002428     VOLUME   464588.943 3773327.114 377.00
   LOCATION L0002429     VOLUME   464591.955 3773335.159 377.00
** END OF LINE VOLUME SOURCE ID = SLINE2
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** ----------------------------------------------------------------
** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES
** LINE VOLUME SOURCE ID = SLINE3
** DESCRSRC RIALTO 100%
** PREFIX
** LENGTH OF SIDE = 14.00
** CONFIGURATION = ADJACENT
** EMISSION RATE = 6.848E-06
** VERTICAL DIMENSION = 6.99
** SZINIT = 3.25
** NODES = 5
** 464631.190, 3773338.749, 376.61, 3.49, 6.51
** 464628.827, 3773255.696, 375.59, 3.49, 6.51
** 464299.744, 3773256.472, 377.59, 3.49, 6.51
** 463676.668, 3773258.345, 380.85, 3.49, 6.51
** 463423.192, 3773259.281, 382.04, 3.49, 6.51
** ----------------------------------------------------------------
   LOCATION L0002474     VOLUME   464630.991 3773331.752 376.69
   LOCATION L0002475     VOLUME   464630.593 3773317.757 376.45
   LOCATION L0002476     VOLUME   464630.195 3773303.763 376.16
   LOCATION L0002477     VOLUME   464629.796 3773289.769 375.93
   LOCATION L0002478     VOLUME   464629.398 3773275.774 375.78
   LOCATION L0002479     VOLUME   464629.000 3773261.780 375.58
   LOCATION L0002480     VOLUME   464620.914 3773255.714 375.62
   LOCATION L0002481     VOLUME   464606.914 3773255.747 375.65
   LOCATION L0002482     VOLUME   464592.914 3773255.780 375.65
   LOCATION L0002483     VOLUME   464578.914 3773255.813 375.78
   LOCATION L0002484     VOLUME   464564.914 3773255.847 375.94
   LOCATION L0002485     VOLUME   464550.914 3773255.880 375.90
   LOCATION L0002486     VOLUME   464536.914 3773255.913 375.74
   LOCATION L0002487     VOLUME   464522.914 3773255.946 375.73
   LOCATION L0002488     VOLUME   464508.914 3773255.979 375.89
   LOCATION L0002489     VOLUME   464494.914 3773256.012 376.00
   LOCATION L0002490     VOLUME   464480.914 3773256.045 376.00
   LOCATION L0002491     VOLUME   464466.914 3773256.078 376.06
   LOCATION L0002492     VOLUME   464452.914 3773256.111 376.37
   LOCATION L0002493     VOLUME   464438.914 3773256.144 376.66
   LOCATION L0002494     VOLUME   464424.914 3773256.177 376.66
   LOCATION L0002495     VOLUME   464410.914 3773256.210 376.66
   LOCATION L0002496     VOLUME   464396.914 3773256.243 376.66
   LOCATION L0002497     VOLUME   464382.914 3773256.276 376.66
   LOCATION L0002498     VOLUME   464368.914 3773256.309 376.79
   LOCATION L0002499     VOLUME   464354.914 3773256.342 376.94
   LOCATION L0002500     VOLUME   464340.914 3773256.375 377.00
   LOCATION L0002501     VOLUME   464326.914 3773256.408 377.00
   LOCATION L0002502     VOLUME   464312.915 3773256.441 377.15
   LOCATION L0002503     VOLUME   464298.915 3773256.475 377.46
   LOCATION L0002504     VOLUME   464284.915 3773256.517 377.72
   LOCATION L0002505     VOLUME   464270.915 3773256.559 377.88
   LOCATION L0002506     VOLUME   464256.915 3773256.601 378.00
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LOCATION L0002507 VOLUME 464242.915 3773256.643 378.00
LOCATION L0002508 VOLUME 464228.915 3773256.685 378.02
LOCATION L0002509 VOLUME 464214.915 3773256.727 378.33
LOCATION L0002510 VOLUME 464200.915 3773256.769 378.65
LOCATION L0002511 VOLUME 464186.915 3773256.811 378.68
LOCATION L0002512 VOLUME 464172.915 3773256.853 378.68
LOCATION L0002513 VOLUME 464158.915 3773256.895 378.69
LOCATION L0002514 VOLUME 464144.915 3773256.937 378.69
LOCATION L0002515 VOLUME 464130.915 3773256.980 378.69
LOCATION L0002516 VOLUME 464116.915 3773257.022 378.69
LOCATION L0002517 VOLUME 464102.915 3773257.064 378.69
LOCATION L0002518 VOLUME 464088.916 3773257.106 378.69
LOCATION L0002519 VOLUME 464074.916 3773257.148 378.74
LOCATION L0002520 VOLUME 464060.916 3773257.190 378.89
LOCATION L0002521 VOLUME 464046.916 3773257.232 379.00
LOCATION L0002522 VOLUME 464032.916 3773257.274 379.00
LOCATION L0002523 VOLUME 464018.916 3773257.316 379.00
LOCATION L0002524 VOLUME 464004.916 3773257.358 379.00
LOCATION L0002525 VOLUME 463990.916 3773257.400 379.00
LOCATION L0002526 VOLUME 463976.916 3773257.442 379.30
LOCATION L0002527 VOLUME 463962.916 3773257.485 379.63
LOCATION L0002528 VOLUME 463948.916 3773257.527 379.71
LOCATION L0002529 VOLUME 463934.916 3773257.569 379.71
LOCATION L0002530 VOLUME 463920.916 3773257.611 379.79
LOCATION L0002531 VOLUME 463906.916 3773257.653 379.93
LOCATION L0002532 VOLUME 463892.916 3773257.695 380.00
LOCATION L0002533 VOLUME 463878.916 3773257.737 380.00
LOCATION L0002534 VOLUME 463864.917 3773257.779 380.00
LOCATION L0002535 VOLUME 463850.917 3773257.821 380.00
LOCATION L0002536 VOLUME 463836.917 3773257.863 380.00
LOCATION L0002537 VOLUME 463822.917 3773257.905 380.00
LOCATION L0002538 VOLUME 463808.917 3773257.947 380.00
LOCATION L0002539 VOLUME 463794.917 3773257.990 380.00
LOCATION L0002540 VOLUME 463780.917 3773258.032 380.00
LOCATION L0002541 VOLUME 463766.917 3773258.074 380.00
LOCATION L0002542 VOLUME 463752.917 3773258.116 380.00
LOCATION L0002543 VOLUME 463738.917 3773258.158 380.26
LOCATION L0002544 VOLUME 463724.917 3773258.200 380.60
LOCATION L0002545 VOLUME 463710.917 3773258.242 380.73
LOCATION L0002546 VOLUME 463696.917 3773258.284 380.73
LOCATION L0002547 VOLUME 463682.917 3773258.326 380.73
LOCATION L0002548 VOLUME 463668.917 3773258.374 380.73
LOCATION L0002549 VOLUME 463654.918 3773258.425 380.74
LOCATION L0002550 VOLUME 463640.918 3773258.477 380.74
LOCATION L0002551 VOLUME 463626.918 3773258.529 380.76
LOCATION L0002552 VOLUME 463612.918 3773258.581 380.89
LOCATION L0002553 VOLUME 463598.918 3773258.632 381.00
LOCATION L0002554 VOLUME 463584.918 3773258.684 381.00
LOCATION L0002555 VOLUME 463570.918 3773258.736 381.00
LOCATION L0002556 VOLUME 463556.918 3773258.787 381.32

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   LOCATION L0002557     VOLUME   463542.918 3773258.839 381.67
   LOCATION L0002558     VOLUME   463528.918 3773258.891 381.75
   LOCATION L0002559     VOLUME   463514.918 3773258.943 381.75
   LOCATION L0002560     VOLUME   463500.919 3773258.994 381.76
   LOCATION L0002561     VOLUME   463486.919 3773259.046 381.76
   LOCATION L0002562     VOLUME   463472.919 3773259.098 381.81
   LOCATION L0002563     VOLUME   463458.919 3773259.149 381.93
   LOCATION L0002564     VOLUME   463444.919 3773259.201 382.00
   LOCATION L0002565     VOLUME   463430.919 3773259.253 382.00
** END OF LINE VOLUME SOURCE ID = SLINE3
** ----------------------------------------------------------------------
** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES
** LINE VOLUME SOURCE ID = SLINE4
** DESCRSRC CEDAR 75%
** PREFIX
** LENGTH OF SIDE = 14.00
** CONFIGURATION = ADJACENT
** EMISSION RATE = 0.00001401
** VERTICAL DIMENSION = 6.99
** SZINIT = 3.25
** NODES = 16
** 463424.440, 3773259.281, 382.04, 3.49, 6.51
** 463421.319, 3773068.238, 379.00, 3.49, 6.51
** 463422.255, 3772893.115, 376.58, 3.49, 6.51
** 463422.567, 3772560.349, 371.10, 3.49, 6.51
** 463421.319, 3772235.388, 365.80, 3.49, 6.51
** 463421.007, 3771865.788, 360.00, 3.49, 6.51
** 463421.007, 3771581.720, 356.00, 3.49, 6.51
** 463420.382, 3771181.215, 350.00, 3.49, 6.51
** 463419.134, 3770810.990, 344.98, 3.49, 6.51
** 463419.446, 3770388.947, 339.00, 3.49, 6.51
** 463417.885, 3770285.933, 338.00, 3.49, 6.51
** 463430.996, 3770193.533, 336.48, 3.49, 6.51
** 463447.853, 3770086.773, 335.00, 3.49, 6.51
** 463452.847, 3770036.203, 334.90, 3.49, 6.51
** 463451.286, 3769954.104, 335.00, 3.49, 6.51
** 463452.535, 3769746.204, 341.22, 3.49, 6.51
** ----------------------------------------------------------------------
   LOCATION L0002100     VOLUME   463424.326 3773252.282 382.00
   LOCATION L0002101     VOLUME   463424.097 3773238.284 382.00
   LOCATION L0002102     VOLUME   463423.869 3773224.286 381.60
   LOCATION L0002103     VOLUME   463423.640 3773210.288 381.13
   LOCATION L0002104     VOLUME   463423.411 3773196.290 381.00
   LOCATION L0002105     VOLUME   463423.182 3773182.292 381.00
   LOCATION L0002106     VOLUME   463422.954 3773168.294 380.73
   LOCATION L0002107     VOLUME   463422.725 3773154.295 380.27
   LOCATION L0002108     VOLUME   463422.496 3773140.297 380.00
   LOCATION L0002109     VOLUME   463422.268 3773126.299 380.00
   LOCATION L0002110     VOLUME   463422.039 3773112.301 379.87
   LOCATION L0002111     VOLUME   463421.810 3773098.303 379.40
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LOCATION L0002112 VOLUME 463421.581 3773084.305 379.00
LOCATION L0002113 VOLUME 463421.353 3773070.307 379.00
LOCATION L0002114 VOLUME 463421.383 3773056.307 379.00
LOCATION L0002115 VOLUME 463421.457 3773042.307 378.97
LOCATION L0002116 VOLUME 463421.532 3773028.308 378.94
LOCATION L0002117 VOLUME 463421.607 3773014.308 378.56
LOCATION L0002118 VOLUME 463421.682 3773000.308 378.12
LOCATION L0002119 VOLUME 463421.757 3772986.308 377.98
LOCATION L0002120 VOLUME 463421.832 3772972.308 377.94
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LOCATION L0002311 VOLUME 463418.073 3770298.325 338.07

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   LOCATION L0002318     VOLUME   463429.911 3770201.176 336.54
   LOCATION L0002319     VOLUME   463431.975 3770187.329 336.22
   LOCATION L0002320     VOLUME   463434.159 3770173.500 336.00
   LOCATION L0002321     VOLUME   463436.342 3770159.672 336.00
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   LOCATION L0002345     VOLUME   463452.063 3769824.838 337.09
   LOCATION L0002346     VOLUME   463452.147 3769810.838 338.42
   LOCATION L0002347     VOLUME   463452.231 3769796.839 339.70
   LOCATION L0002348     VOLUME   463452.315 3769782.839 340.80
   LOCATION L0002349     VOLUME   463452.399 3769768.839 341.43
   LOCATION L0002350     VOLUME   463452.483 3769754.839 341.80
** END OF LINE VOLUME SOURCE ID = SLINE4
** ----------------------------------------------------------------------
** LINE SOURCE REPRESENTED BY ADJACENT VOLUME SOURCES
** LINE VOLUME SOURCE ID = SLINE5
** DESCRSRC CEDAR 25%
** PREFIX
** LENGTH OF SIDE = 14.00
** CONFIGURATION = ADJACENT
** EMISSION RATE = 1.069E-06
** VERTICAL DIMENSION = 6.99
** SZINIT = 3.25
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** NODES = 4
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** 463423.850, 3773322.960, 383.02, 3.49, 6.51
** 463423.247, 3773560.869, 386.00, 3.49, 6.51
** 463427.704, 3774064.462, 394.57, 3.49, 6.51
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   LOCATION L0002567     VOLUME   463424.220 3773280.930 382.49
   LOCATION L0002568     VOLUME   463424.097 3773294.930 382.95
   LOCATION L0002569     VOLUME   463423.974 3773308.929 383.00
   LOCATION L0002570     VOLUME   463423.851 3773322.929 383.00
   LOCATION L0002571     VOLUME   463423.815 3773336.929 383.35
   LOCATION L0002572     VOLUME   463423.779 3773350.929 383.82
   LOCATION L0002573     VOLUME   463423.744 3773364.929 384.00
   LOCATION L0002574     VOLUME   463423.708 3773378.928 384.00
   LOCATION L0002575     VOLUME   463423.673 3773392.928 384.19
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   LOCATION L0002577     VOLUME   463423.602 3773420.928 384.89
   LOCATION L0002578     VOLUME   463423.566 3773434.928 384.95
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   LOCATION L0002585     VOLUME   463423.318 3773532.928 385.88
   LOCATION L0002586     VOLUME   463423.282 3773546.928 385.92
   LOCATION L0002587     VOLUME   463423.247 3773560.928 385.98
   LOCATION L0002588     VOLUME   463423.371 3773574.927 386.29
   LOCATION L0002589     VOLUME   463423.495 3773588.927 386.75
   LOCATION L0002590     VOLUME   463423.619 3773602.926 387.00
   LOCATION L0002591     VOLUME   463423.743 3773616.926 387.00
   LOCATION L0002592     VOLUME   463423.867 3773630.925 387.15
   LOCATION L0002593     VOLUME   463423.991 3773644.925 387.62
   LOCATION L0002594     VOLUME   463424.115 3773658.924 388.07
   LOCATION L0002595     VOLUME   463424.239 3773672.924 388.47
   LOCATION L0002596     VOLUME   463424.363 3773686.923 388.85
   LOCATION L0002597     VOLUME   463424.486 3773700.922 388.92
   LOCATION L0002598     VOLUME   463424.610 3773714.922 388.99
   LOCATION L0002599     VOLUME   463424.734 3773728.921 389.00
   LOCATION L0002600     VOLUME   463424.858 3773742.921 389.00
   LOCATION L0002601     VOLUME   463424.982 3773756.920 389.35
   LOCATION L0002602     VOLUME   463425.106 3773770.920 389.82
   LOCATION L0002603     VOLUME   463425.230 3773784.919 390.00
   LOCATION L0002604     VOLUME   463425.354 3773798.919 390.00
   LOCATION L0002605     VOLUME   463425.478 3773812.918 390.22
   LOCATION L0002606     VOLUME   463425.602 3773826.917 390.69
   LOCATION L0002607     VOLUME   463425.726 3773840.917 391.00
   LOCATION L0002608     VOLUME   463425.850 3773854.916 391.00
   LOCATION L0002609     VOLUME   463425.973 3773868.916 391.09
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   LOCATION L0002610     VOLUME   463426.097 3773882.915 391.55
   LOCATION L0002611     VOLUME   463426.221 3773896.915 392.00
   LOCATION L0002612     VOLUME   463426.345 3773910.914 392.00
   LOCATION L0002613     VOLUME   463426.469 3773924.914 392.00
   LOCATION L0002614     VOLUME   463426.593 3773938.913 392.42
   LOCATION L0002615     VOLUME   463426.717 3773952.913 392.89
   LOCATION L0002616     VOLUME   463426.841 3773966.912 393.00
   LOCATION L0002617     VOLUME   463426.965 3773980.911 393.00
   LOCATION L0002618     VOLUME   463427.089 3773994.911 393.22
   LOCATION L0002619     VOLUME   463427.213 3774008.910 393.56
   LOCATION L0002620     VOLUME   463427.336 3774022.910 393.80
   LOCATION L0002621     VOLUME   463427.460 3774036.909 393.92
   LOCATION L0002622     VOLUME   463427.584 3774050.909 394.11
** END OF LINE VOLUME SOURCE ID = SLINE5
** SOURCE PARAMETERS **
** LINE VOLUME SOURCE ID = SLINE1
   SRCPARAM L0001975     0.0000004427      3.49      4.00      3.25
   SRCPARAM L0001976     0.0000004427      3.49      4.00      3.25
   SRCPARAM L0001977     0.0000004427      3.49      4.00      3.25
   SRCPARAM L0001978     0.0000004427      3.49      4.00      3.25
   SRCPARAM L0001979     0.0000004427      3.49      4.00      3.25
   SRCPARAM L0001980     0.0000004427      3.49      4.00      3.25
   SRCPARAM L0001981     0.0000004427      3.49      4.00      3.25
   SRCPARAM L0001982     0.0000004427      3.49      4.00      3.25
   SRCPARAM L0001983     0.0000004427      3.49      4.00      3.25
   SRCPARAM L0001984     0.0000004427      3.49      4.00      3.25
   SRCPARAM L0001985     0.0000004427      3.49      4.00      3.25
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** LINE VOLUME SOURCE ID = SLINE2
   SRCPARAM L0002408     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002409     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002410     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002411     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002412     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002413     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002414     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002415     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002416     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002417     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002418     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002419     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002420     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002421     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002422     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002423     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002424     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002425     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002426     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002427     0.0000001201      3.49      4.00      3.25
   SRCPARAM L0002428     0.0000001201      3.49      4.00      3.25
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   SRCPARAM L0002429     0.0000001201      3.49      4.00      3.25
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** LINE VOLUME SOURCE ID = SLINE3
   SRCPARAM L0002474     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002475     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002476     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002477     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002478     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002479     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002480     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002481     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002482     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002483     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002484     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002485     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002486     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002487     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002488     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002489     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002490     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002491     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002492     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002493     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002494     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002495     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002496     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002497     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002498     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002499     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002500     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002501     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002502     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002503     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002504     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002505     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002506     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002507     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002508     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002509     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002510     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002511     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002512     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002513     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002514     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002515     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002516     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002517     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002518     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002519     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002520     0.00000007443      3.49      6.51      3.25
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   SRCPARAM L0002521     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002522     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002523     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002524     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002525     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002526     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002527     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002528     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002529     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002530     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002531     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002532     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002533     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002534     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002535     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002536     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002537     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002538     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002539     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002540     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002541     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002542     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002543     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002544     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002545     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002546     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002547     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002548     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002549     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002550     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002551     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002552     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002553     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002554     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002555     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002556     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002557     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002558     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002559     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002560     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002561     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002562     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002563     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002564     0.00000007443      3.49      6.51      3.25
   SRCPARAM L0002565     0.00000007443      3.49      6.51      3.25
** ------------------------------------------------------------------
** LINE VOLUME SOURCE ID = SLINE4
   SRCPARAM L0002100     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002101     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002102     0.00000005582      3.49      6.51      3.25
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SRCPARAM L0002103     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002104     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002105     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002106     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002107     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002108     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002109     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002110     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002111     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002112     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002113     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002114     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002115     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002116     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002117     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002118     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002119     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002120     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002121     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002122     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002123     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002124     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002125     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002126     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002127     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002128     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002129     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002130     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002131     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002132     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002133     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002134     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002135     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002136     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002137     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002138     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002139     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002140     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002141     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002142     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002143     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002144     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002145     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002146     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002147     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002148     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002149     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002150     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002151     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002152     0.00000005582      3.49      6.51      3.25
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SRCPARAM L0002153     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002154     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002155     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002156     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002157     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002158     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002159     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002160     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002161     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002162     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002163     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002164     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002165     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002166     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002167     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002168     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002169     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002170     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002171     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002172     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002173     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002174     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002175     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002176     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002177     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002178     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002179     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002180     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002181     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002182     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002183     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002184     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002185     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002186     0.00000005582      3.49      6.51      3.25
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SRCPARAM L0002188     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002189     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002190     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002191     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002192     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002193     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002194     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002195     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002196     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002197     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002198     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002199     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002200     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002201     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002202     0.00000005582      3.49      6.51      3.25
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SRCPARAM L0002203     0.00000005582      3.49      6.51      3.25
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SRCPARAM L0002205     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002206     0.00000005582      3.49      6.51      3.25
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SRCPARAM L0002208     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002209     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002210     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002211     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002212     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002213     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002214     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002215     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002216     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002217     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002218     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002219     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002220     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002221     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002222     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002223     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002224     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002225     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002226     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002227     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002228     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002229     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002230     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002231     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002232     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002233     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002234     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002235     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002236     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002237     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002238     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002239     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002240     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002241     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002242     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002243     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002244     0.00000005582      3.49      6.51      3.25
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SRCPARAM L0002247     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002248     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002249     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002250     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002251     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002252     0.00000005582      3.49      6.51      3.25
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SRCPARAM L0002253     0.00000005582      3.49      6.51      3.25
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SRCPARAM L0002256     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002257     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002258     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002259     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002260     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002261     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002262     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002263     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002264     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002265     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002266     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002267     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002268     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002269     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002270     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002271     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002272     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002273     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002274     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002275     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002276     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002277     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002278     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002279     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002280     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002281     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002282     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002283     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002284     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002285     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002286     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002287     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002288     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002289     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002290     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002291     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002292     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002293     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002294     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002295     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002296     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002297     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002298     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002299     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002300     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002301     0.00000005582      3.49      6.51      3.25
SRCPARAM L0002302     0.00000005582      3.49      6.51      3.25
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   SRCPARAM L0002303     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002304     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002305     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002306     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002307     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002308     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002309     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002310     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002311     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002312     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002313     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002314     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002315     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002316     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002317     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002318     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002319     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002320     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002321     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002322     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002323     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002324     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002325     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002326     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002327     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002328     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002329     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002330     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002331     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002332     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002333     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002334     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002335     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002336     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002337     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002338     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002339     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002340     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002341     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002342     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002343     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002344     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002345     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002346     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002347     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002348     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002349     0.00000005582      3.49      6.51      3.25
   SRCPARAM L0002350     0.00000005582      3.49      6.51      3.25
** ------------------------------------------------------------------
** LINE VOLUME SOURCE ID = SLINE5
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SRCPARAM L0002566     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002567     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002568     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002569     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002570     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002571     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002572     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002573     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002574     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002575     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002576     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002577     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002578     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002579     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002580     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002581     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002582     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002583     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002584     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002585     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002586     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002587     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002588     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002589     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002590     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002591     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002592     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002593     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002594     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002595     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002596     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002597     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002598     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002599     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002600     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002601     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002602     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002603     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002604     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002605     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002606     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002607     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002608     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002609     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002610     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002611     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002612     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002613     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002614     0.00000001875      3.49      6.51      3.25
SRCPARAM L0002615     0.00000001875      3.49      6.51      3.25
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   SRCPARAM L0002616     0.00000001875      3.49      6.51      3.25
   SRCPARAM L0002617     0.00000001875      3.49      6.51      3.25
   SRCPARAM L0002618     0.00000001875      3.49      6.51      3.25
   SRCPARAM L0002619     0.00000001875      3.49      6.51      3.25
   SRCPARAM L0002620     0.00000001875      3.49      6.51      3.25
   SRCPARAM L0002621     0.00000001875      3.49      6.51      3.25
   SRCPARAM L0002622     0.00000001875      3.49      6.51      3.25
** ----------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD RECEPTOR PATHWAY
**************************************
**
**
RE STARTING
   INCLUDED "15203 OPS HRA.ROU"
RE FINISHED
**
**************************************
** AERMOD METEOROLOGY PATHWAY
**************************************
**
**
ME STARTING
   SURFFILE FONT_V9_ADJU\FONT_V9.SFC
   PROFFILE FONT_V9_ADJU\FONT_V9.PFL
   SURFDATA 3102 2011
   UAIRDATA 3190 2011
   SITEDATA 99999 2011
   PROFBASE 367.0 METERS
ME FINISHED
**
**************************************
** AERMOD OUTPUT PATHWAY
**************************************
**
**
OU STARTING
** AUTO-GENERATED PLOTFILES
   PLOTFILE   ANNUAL ALL "15203 OPS HRA.AD\AN00GALL.PLT" 31
   SUMMFILE "15203 OPS HRA.SUM"
OU FINISHED


  *** Message Summary For AERMOD Model Setup ***

  --------- Summary of Total Messages --------
```

```
 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W186    1035       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187    1035       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET


 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************

 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                         ***       14:01:04

                                   PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                                            ***     MODEL SETUP OPTIONS SUMMARY
  ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - -

 ** Model Options Selected:
      * Model Uses Regulatory DEFAULT Options
      * Model Is Setup For Calculation of Average CONCentration Values.
      * NO GAS DEPOSITION Data Provided.
      * NO PARTICLE DEPOSITION Data Provided.
      * Model Uses NO DRY DEPLETION. DDPLETE  =  F
      * Model Uses NO WET DEPLETION. WETDPLT  =  F
      * Stack-tip Downwash.
      * Model Accounts for ELEVated Terrain Effects.
      * Use Calms Processing Routine.
      * Use Missing Data Processing Routine.
      * No Exponential Decay.
      * Model Uses URBAN Dispersion Algorithm for the SBL for   433 Source(s),
        for Total of    1 Urban Area(s):
   Urban Population =   2035210.0 ;  Urban Roughness Length =  1.000 m
      * Urban Roughness Length of 1.0 Meter Used.
      * ADJ_U*   - Use ADJ_U* option for SBL in AERMET
```

```
      * TEMP_Sub - Meteorological data includes TEMP substitutions
      * Model Assumes No FLAGPOLE Receptor Heights.
      * The User Specified a Pollutant Type of: DPM

 **Model Calculates ANNUAL Averages Only

 **This Run Includes:    433 Source(s);       1 Source Group(s); and      88
Receptor(s)

                with:      0 POINT(s), including
                           0 POINTCAP(s) and      0 POINTHOR(s)
                 and:    433 VOLUME source(s)
                 and:      0 AREA type source(s)
                 and:      0 LINE source(s)
                 and:      0 RLINE/RLINEXT source(s)
                 and:      0 OPENPIT source(s)
                 and:      0 BUOYANT LINE source(s) with a total of     0 line(s)
                 and:      0 SWPOINT source(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  16216

 **Output Options Selected:
          Model Outputs Tables of ANNUAL Averages by Receptor
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing
Hours
                                                                 b for Both Calm
and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =   367.00 ;  Decay
Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                                ;
Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      3.7 MB of RAM.

 **Input Runstream File:          aermod.inp

 **Output Print File:             aermod.out
```

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0001975	0	0.44270E-06	464489.2	3773324.4	377.0	3.49	4.00	3.25	YES	
L0001976	0	0.44270E-06	464497.8	3773324.4	377.0	3.49	4.00	3.25	YES	
L0001977	0	0.44270E-06	464506.4	3773324.4	377.0	3.49	4.00	3.25	YES	
L0001978	0	0.44270E-06	464514.9	3773324.4	377.0	3.49	4.00	3.25	YES	
L0001979	0	0.44270E-06	464523.5	3773324.4	377.0	3.49	4.00	3.25	YES	
L0001980	0	0.44270E-06	464532.1	3773324.4	377.0	3.49	4.00	3.25	YES	
L0001981	0	0.44270E-06	464540.7	3773324.4	377.0	3.49	4.00	3.25	YES	
L0001982	0	0.44270E-06	464549.3	3773324.4	377.0	3.49	4.00	3.25	YES	
L0001983	0	0.44270E-06	464557.9	3773324.4	377.0	3.49	4.00	3.25	YES	
L0001984	0	0.44270E-06	464566.5	3773324.4	377.0	3.49	4.00	3.25	YES	
L0001985	0	0.44270E-06	464575.1	3773324.4	377.0	3.49	4.00	3.25	YES	
L0002408	0	0.12010E-06	464460.4	3773275.7	376.5	3.49	4.00	3.25	YES	
L0002409	0	0.12010E-06	464461.2	3773284.2	376.7	3.49	4.00	3.25	YES	

L0002410	0	0.12010E-06	464462.1	3773292.8	376.9	3.49	4.00	3.25 YES
L0002411	0	0.12010E-06	464462.9	3773301.3	377.0	3.49	4.00	3.25 YES
L0002412	0	0.12010E-06	464468.0	3773305.1	377.0	3.49	4.00	3.25 YES
L0002413	0	0.12010E-06	464476.6	3773305.0	377.0	3.49	4.00	3.25 YES
L0002414	0	0.12010E-06	464485.2	3773304.8	377.0	3.49	4.00	3.25 YES
L0002415	0	0.12010E-06	464493.8	3773304.7	377.0	3.49	4.00	3.25 YES
L0002416	0	0.12010E-06	464502.3	3773304.6	377.0	3.49	4.00	3.25 YES
L0002417	0	0.12010E-06	464510.9	3773304.4	377.0	3.49	4.00	3.25 YES
L0002418	0	0.12010E-06	464519.5	3773304.3	377.0	3.49	4.00	3.25 YES
L0002419	0	0.12010E-06	464528.1	3773304.2	377.0	3.49	4.00	3.25 YES
L0002420	0	0.12010E-06	464536.7	3773304.0	377.0	3.49	4.00	3.25 YES
L0002421	0	0.12010E-06	464545.3	3773303.9	377.0	3.49	4.00	3.25 YES
L0002422	0	0.12010E-06	464553.9	3773303.8	377.0	3.49	4.00	3.25 YES
L0002423	0	0.12010E-06	464562.5	3773303.7	377.0	3.49	4.00	3.25 YES
L0002424	0	0.12010E-06	464571.1	3773303.5	377.0	3.49	4.00	3.25 YES
L0002425	0	0.12010E-06	464579.6	3773303.4	377.0	3.49	4.00	3.25 YES
L0002426	0	0.12010E-06	464582.9	3773311.0	377.0	3.49	4.00	3.25 YES
L0002427	0	0.12010E-06	464585.9	3773319.1	377.0	3.49	4.00	3.25 YES
L0002428	0	0.12010E-06	464588.9	3773327.1	377.0	3.49	4.00	3.25 YES
L0002429	0	0.12010E-06	464592.0	3773335.2	377.0	3.49	4.00	3.25 YES
L0002474	0	0.74430E-07	464631.0	3773331.8	376.7	3.49	6.51	3.25 YES
L0002475	0	0.74430E-07	464630.6	3773317.8	376.4	3.49	6.51	3.25 YES
L0002476	0	0.74430E-07	464630.2	3773303.8	376.2	3.49	6.51	3.25 YES
L0002477	0	0.74430E-07	464629.8	3773289.8	375.9	3.49	6.51	3.25 YES
L0002478	0	0.74430E-07	464629.4	3773275.8	375.8	3.49	6.51	3.25 YES

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002479	0	0.74430E-07	464629.0	3773261.8	375.6	3.49	6.51	3.25	YES	
L0002480	0	0.74430E-07	464620.9	3773255.7	375.6	3.49	6.51	3.25	YES	
L0002481	0	0.74430E-07	464606.9	3773255.7	375.7	3.49	6.51	3.25	YES	
L0002482	0	0.74430E-07	464592.9	3773255.8	375.7	3.49	6.51	3.25	YES	
L0002483	0	0.74430E-07	464578.9	3773255.8	375.8	3.49	6.51	3.25	YES	
L0002484	0	0.74430E-07	464564.9	3773255.8	375.9	3.49	6.51	3.25	YES	
L0002485	0	0.74430E-07	464550.9	3773255.9	375.9	3.49	6.51	3.25	YES	
L0002486	0	0.74430E-07	464536.9	3773255.9	375.7	3.49	6.51	3.25	YES	
L0002487	0	0.74430E-07	464522.9	3773255.9	375.7	3.49	6.51	3.25	YES	
L0002488	0	0.74430E-07	464508.9	3773256.0	375.9	3.49	6.51	3.25	YES	
L0002489	0	0.74430E-07	464494.9	3773256.0	376.0	3.49	6.51	3.25	YES	
L0002490	0	0.74430E-07	464480.9	3773256.0	376.0	3.49	6.51	3.25	YES	
L0002491	0	0.74430E-07	464466.9	3773256.1	376.1	3.49	6.51	3.25	YES	
L0002492	0	0.74430E-07	464452.9	3773256.1	376.4	3.49	6.51	3.25	YES	
L0002493	0	0.74430E-07	464438.9	3773256.1	376.7	3.49	6.51	3.25	YES	

L0002494	0	0.74430E-07	464424.9	3773256.2	376.7	3.49	6.51	3.25 YES
L0002495	0	0.74430E-07	464410.9	3773256.2	376.7	3.49	6.51	3.25 YES
L0002496	0	0.74430E-07	464396.9	3773256.2	376.7	3.49	6.51	3.25 YES
L0002497	0	0.74430E-07	464382.9	3773256.3	376.7	3.49	6.51	3.25 YES
L0002498	0	0.74430E-07	464368.9	3773256.3	376.8	3.49	6.51	3.25 YES
L0002499	0	0.74430E-07	464354.9	3773256.3	376.9	3.49	6.51	3.25 YES
L0002500	0	0.74430E-07	464340.9	3773256.4	377.0	3.49	6.51	3.25 YES
L0002501	0	0.74430E-07	464326.9	3773256.4	377.0	3.49	6.51	3.25 YES
L0002502	0	0.74430E-07	464312.9	3773256.4	377.2	3.49	6.51	3.25 YES
L0002503	0	0.74430E-07	464298.9	3773256.5	377.5	3.49	6.51	3.25 YES
L0002504	0	0.74430E-07	464284.9	3773256.5	377.7	3.49	6.51	3.25 YES
L0002505	0	0.74430E-07	464270.9	3773256.6	377.9	3.49	6.51	3.25 YES
L0002506	0	0.74430E-07	464256.9	3773256.6	378.0	3.49	6.51	3.25 YES
L0002507	0	0.74430E-07	464242.9	3773256.6	378.0	3.49	6.51	3.25 YES
L0002508	0	0.74430E-07	464228.9	3773256.7	378.0	3.49	6.51	3.25 YES
L0002509	0	0.74430E-07	464214.9	3773256.7	378.3	3.49	6.51	3.25 YES
L0002510	0	0.74430E-07	464200.9	3773256.8	378.7	3.49	6.51	3.25 YES
L0002511	0	0.74430E-07	464186.9	3773256.8	378.7	3.49	6.51	3.25 YES
L0002512	0	0.74430E-07	464172.9	3773256.9	378.7	3.49	6.51	3.25 YES
L0002513	0	0.74430E-07	464158.9	3773256.9	378.7	3.49	6.51	3.25 YES
L0002514	0	0.74430E-07	464144.9	3773256.9	378.7	3.49	6.51	3.25 YES
L0002515	0	0.74430E-07	464130.9	3773257.0	378.7	3.49	6.51	3.25 YES
L0002516	0	0.74430E-07	464116.9	3773257.0	378.7	3.49	6.51	3.25 YES
L0002517	0	0.74430E-07	464102.9	3773257.1	378.7	3.49	6.51	3.25 YES
L0002518	0	0.74430E-07	464088.9	3773257.1	378.7	3.49	6.51	3.25 YES

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002519	0	0.74430E-07	464074.9	3773257.1	378.7	3.49	6.51	3.25	YES	
L0002520	0	0.74430E-07	464060.9	3773257.2	378.9	3.49	6.51	3.25	YES	
L0002521	0	0.74430E-07	464046.9	3773257.2	379.0	3.49	6.51	3.25	YES	
L0002522	0	0.74430E-07	464032.9	3773257.3	379.0	3.49	6.51	3.25	YES	
L0002523	0	0.74430E-07	464018.9	3773257.3	379.0	3.49	6.51	3.25	YES	
L0002524	0	0.74430E-07	464004.9	3773257.4	379.0	3.49	6.51	3.25	YES	
L0002525	0	0.74430E-07	463990.9	3773257.4	379.0	3.49	6.51	3.25	YES	
L0002526	0	0.74430E-07	463976.9	3773257.4	379.3	3.49	6.51	3.25	YES	
L0002527	0	0.74430E-07	463962.9	3773257.5	379.6	3.49	6.51	3.25	YES	
L0002528	0	0.74430E-07	463948.9	3773257.5	379.7	3.49	6.51	3.25	YES	
L0002529	0	0.74430E-07	463934.9	3773257.6	379.7	3.49	6.51	3.25	YES	
L0002530	0	0.74430E-07	463920.9	3773257.6	379.8	3.49	6.51	3.25	YES	
L0002531	0	0.74430E-07	463906.9	3773257.7	379.9	3.49	6.51	3.25	YES	
L0002532	0	0.74430E-07	463892.9	3773257.7	380.0	3.49	6.51	3.25	YES	
L0002533	0	0.74430E-07	463878.9	3773257.7	380.0	3.49	6.51	3.25	YES	

L0002534	0	0.74430E-07	463864.9	3773257.8	380.0	3.49	6.51	3.25 YES
L0002535	0	0.74430E-07	463850.9	3773257.8	380.0	3.49	6.51	3.25 YES
L0002536	0	0.74430E-07	463836.9	3773257.9	380.0	3.49	6.51	3.25 YES
L0002537	0	0.74430E-07	463822.9	3773257.9	380.0	3.49	6.51	3.25 YES
L0002538	0	0.74430E-07	463808.9	3773257.9	380.0	3.49	6.51	3.25 YES
L0002539	0	0.74430E-07	463794.9	3773258.0	380.0	3.49	6.51	3.25 YES
L0002540	0	0.74430E-07	463780.9	3773258.0	380.0	3.49	6.51	3.25 YES
L0002541	0	0.74430E-07	463766.9	3773258.1	380.0	3.49	6.51	3.25 YES
L0002542	0	0.74430E-07	463752.9	3773258.1	380.0	3.49	6.51	3.25 YES
L0002543	0	0.74430E-07	463738.9	3773258.2	380.3	3.49	6.51	3.25 YES
L0002544	0	0.74430E-07	463724.9	3773258.2	380.6	3.49	6.51	3.25 YES
L0002545	0	0.74430E-07	463710.9	3773258.2	380.7	3.49	6.51	3.25 YES
L0002546	0	0.74430E-07	463696.9	3773258.3	380.7	3.49	6.51	3.25 YES
L0002547	0	0.74430E-07	463682.9	3773258.3	380.7	3.49	6.51	3.25 YES
L0002548	0	0.74430E-07	463668.9	3773258.4	380.7	3.49	6.51	3.25 YES
L0002549	0	0.74430E-07	463654.9	3773258.4	380.7	3.49	6.51	3.25 YES
L0002550	0	0.74430E-07	463640.9	3773258.5	380.7	3.49	6.51	3.25 YES
L0002551	0	0.74430E-07	463626.9	3773258.5	380.8	3.49	6.51	3.25 YES
L0002552	0	0.74430E-07	463612.9	3773258.6	380.9	3.49	6.51	3.25 YES
L0002553	0	0.74430E-07	463598.9	3773258.6	381.0	3.49	6.51	3.25 YES
L0002554	0	0.74430E-07	463584.9	3773258.7	381.0	3.49	6.51	3.25 YES
L0002555	0	0.74430E-07	463570.9	3773258.7	381.0	3.49	6.51	3.25 YES
L0002556	0	0.74430E-07	463556.9	3773258.8	381.3	3.49	6.51	3.25 YES
L0002557	0	0.74430E-07	463542.9	3773258.8	381.7	3.49	6.51	3.25 YES
L0002558	0	0.74430E-07	463528.9	3773258.9	381.8	3.49	6.51	3.25 YES

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002559	0	0.74430E-07	463514.9	3773258.9	381.8	3.49	6.51	3.25	YES	
L0002560	0	0.74430E-07	463500.9	3773259.0	381.8	3.49	6.51	3.25	YES	
L0002561	0	0.74430E-07	463486.9	3773259.0	381.8	3.49	6.51	3.25	YES	
L0002562	0	0.74430E-07	463472.9	3773259.1	381.8	3.49	6.51	3.25	YES	
L0002563	0	0.74430E-07	463458.9	3773259.1	381.9	3.49	6.51	3.25	YES	
L0002564	0	0.74430E-07	463444.9	3773259.2	382.0	3.49	6.51	3.25	YES	
L0002565	0	0.74430E-07	463430.9	3773259.3	382.0	3.49	6.51	3.25	YES	
L0002100	0	0.55820E-07	463424.3	3773252.3	382.0	3.49	6.51	3.25	YES	
L0002101	0	0.55820E-07	463424.1	3773238.3	382.0	3.49	6.51	3.25	YES	
L0002102	0	0.55820E-07	463423.9	3773224.3	381.6	3.49	6.51	3.25	YES	
L0002103	0	0.55820E-07	463423.6	3773210.3	381.1	3.49	6.51	3.25	YES	
L0002104	0	0.55820E-07	463423.4	3773196.3	381.0	3.49	6.51	3.25	YES	
L0002105	0	0.55820E-07	463423.2	3773182.3	381.0	3.49	6.51	3.25	YES	
L0002106	0	0.55820E-07	463423.0	3773168.3	380.7	3.49	6.51	3.25	YES	
L0002107	0	0.55820E-07	463422.7	3773154.3	380.3	3.49	6.51	3.25	YES	

L0002108	0	0.55820E-07	463422.5	3773140.3	380.0	3.49	6.51	3.25 YES
L0002109	0	0.55820E-07	463422.3	3773126.3	380.0	3.49	6.51	3.25 YES
L0002110	0	0.55820E-07	463422.0	3773112.3	379.9	3.49	6.51	3.25 YES
L0002111	0	0.55820E-07	463421.8	3773098.3	379.4	3.49	6.51	3.25 YES
L0002112	0	0.55820E-07	463421.6	3773084.3	379.0	3.49	6.51	3.25 YES
L0002113	0	0.55820E-07	463421.4	3773070.3	379.0	3.49	6.51	3.25 YES
L0002114	0	0.55820E-07	463421.4	3773056.3	379.0	3.49	6.51	3.25 YES
L0002115	0	0.55820E-07	463421.5	3773042.3	379.0	3.49	6.51	3.25 YES
L0002116	0	0.55820E-07	463421.5	3773028.3	378.9	3.49	6.51	3.25 YES
L0002117	0	0.55820E-07	463421.6	3773014.3	378.6	3.49	6.51	3.25 YES
L0002118	0	0.55820E-07	463421.7	3773000.3	378.1	3.49	6.51	3.25 YES
L0002119	0	0.55820E-07	463421.8	3772986.3	378.0	3.49	6.51	3.25 YES
L0002120	0	0.55820E-07	463421.8	3772972.3	377.9	3.49	6.51	3.25 YES
L0002121	0	0.55820E-07	463421.9	3772958.3	377.7	3.49	6.51	3.25 YES
L0002122	0	0.55820E-07	463422.0	3772944.3	377.2	3.49	6.51	3.25 YES
L0002123	0	0.55820E-07	463422.1	3772930.3	377.0	3.49	6.51	3.25 YES
L0002124	0	0.55820E-07	463422.1	3772916.3	376.9	3.49	6.51	3.25 YES
L0002125	0	0.55820E-07	463422.2	3772902.3	376.8	3.49	6.51	3.25 YES
L0002126	0	0.55820E-07	463422.3	3772888.3	376.4	3.49	6.51	3.25 YES
L0002127	0	0.55820E-07	463422.3	3772874.3	376.0	3.49	6.51	3.25 YES
L0002128	0	0.55820E-07	463422.3	3772860.3	375.9	3.49	6.51	3.25 YES
L0002129	0	0.55820E-07	463422.3	3772846.3	375.9	3.49	6.51	3.25 YES
L0002130	0	0.55820E-07	463422.3	3772832.3	375.5	3.49	6.51	3.25 YES
L0002131	0	0.55820E-07	463422.3	3772818.3	375.1	3.49	6.51	3.25 YES
L0002132	0	0.55820E-07	463422.3	3772804.3	375.0	3.49	6.51	3.25 YES

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002133	0	0.55820E-07	463422.4	3772790.3	374.9	3.49	6.51	3.25	YES	
L0002134	0	0.55820E-07	463422.4	3772776.3	374.6	3.49	6.51	3.25	YES	
L0002135	0	0.55820E-07	463422.4	3772762.3	374.2	3.49	6.51	3.25	YES	
L0002136	0	0.55820E-07	463422.4	3772748.3	374.0	3.49	6.51	3.25	YES	
L0002137	0	0.55820E-07	463422.4	3772734.3	374.0	3.49	6.51	3.25	YES	
L0002138	0	0.55820E-07	463422.4	3772720.3	373.8	3.49	6.51	3.25	YES	
L0002139	0	0.55820E-07	463422.4	3772706.3	373.3	3.49	6.51	3.25	YES	
L0002140	0	0.55820E-07	463422.4	3772692.3	373.0	3.49	6.51	3.25	YES	
L0002141	0	0.55820E-07	463422.5	3772678.3	373.0	3.49	6.51	3.25	YES	
L0002142	0	0.55820E-07	463422.5	3772664.3	372.9	3.49	6.51	3.25	YES	
L0002143	0	0.55820E-07	463422.5	3772650.3	372.5	3.49	6.51	3.25	YES	
L0002144	0	0.55820E-07	463422.5	3772636.3	372.0	3.49	6.51	3.25	YES	
L0002145	0	0.55820E-07	463422.5	3772622.3	372.0	3.49	6.51	3.25	YES	
L0002146	0	0.55820E-07	463422.5	3772608.3	372.0	3.49	6.51	3.25	YES	
L0002147	0	0.55820E-07	463422.5	3772594.3	371.6	3.49	6.51	3.25	YES	

L0002148	0	0.55820E-07	463422.5	3772580.3	371.2	3.49	6.51	3.25 YES
L0002149	0	0.55820E-07	463422.6	3772566.3	371.1	3.49	6.51	3.25 YES
L0002150	0	0.55820E-07	463422.5	3772552.3	371.0	3.49	6.51	3.25 YES
L0002151	0	0.55820E-07	463422.5	3772538.3	371.0	3.49	6.51	3.25 YES
L0002152	0	0.55820E-07	463422.4	3772524.3	371.0	3.49	6.51	3.25 YES
L0002153	0	0.55820E-07	463422.4	3772510.3	370.8	3.49	6.51	3.25 YES
L0002154	0	0.55820E-07	463422.3	3772496.3	370.3	3.49	6.51	3.25 YES
L0002155	0	0.55820E-07	463422.3	3772482.3	370.0	3.49	6.51	3.25 YES
L0002156	0	0.55820E-07	463422.2	3772468.3	369.9	3.49	6.51	3.25 YES
L0002157	0	0.55820E-07	463422.2	3772454.3	369.9	3.49	6.51	3.25 YES
L0002158	0	0.55820E-07	463422.1	3772440.3	369.4	3.49	6.51	3.25 YES
L0002159	0	0.55820E-07	463422.1	3772426.3	369.0	3.49	6.51	3.25 YES
L0002160	0	0.55820E-07	463422.0	3772412.3	368.5	3.49	6.51	3.25 YES
L0002161	0	0.55820E-07	463421.9	3772398.3	368.1	3.49	6.51	3.25 YES
L0002162	0	0.55820E-07	463421.9	3772384.3	368.0	3.49	6.51	3.25 YES
L0002163	0	0.55820E-07	463421.8	3772370.3	368.0	3.49	6.51	3.25 YES
L0002164	0	0.55820E-07	463421.8	3772356.3	367.7	3.49	6.51	3.25 YES
L0002165	0	0.55820E-07	463421.7	3772342.3	367.2	3.49	6.51	3.25 YES
L0002166	0	0.55820E-07	463421.7	3772328.3	367.0	3.49	6.51	3.25 YES
L0002167	0	0.55820E-07	463421.6	3772314.3	367.0	3.49	6.51	3.25 YES
L0002168	0	0.55820E-07	463421.6	3772300.3	366.8	3.49	6.51	3.25 YES
L0002169	0	0.55820E-07	463421.5	3772286.3	366.3	3.49	6.51	3.25 YES
L0002170	0	0.55820E-07	463421.5	3772272.3	366.0	3.49	6.51	3.25 YES
L0002171	0	0.55820E-07	463421.4	3772258.3	366.0	3.49	6.51	3.25 YES
L0002172	0	0.55820E-07	463421.4	3772244.3	365.9	3.49	6.51	3.25 YES

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002173	0	0.55820E-07	463421.3	3772230.3	365.5	3.49	6.51	3.25	YES	
L0002174	0	0.55820E-07	463421.3	3772216.3	365.0	3.49	6.51	3.25	YES	
L0002175	0	0.55820E-07	463421.3	3772202.3	365.0	3.49	6.51	3.25	YES	
L0002176	0	0.55820E-07	463421.3	3772188.3	365.0	3.49	6.51	3.25	YES	
L0002177	0	0.55820E-07	463421.3	3772174.3	365.0	3.49	6.51	3.25	YES	
L0002178	0	0.55820E-07	463421.3	3772160.3	364.9	3.49	6.51	3.25	YES	
L0002179	0	0.55820E-07	463421.2	3772146.3	364.6	3.49	6.51	3.25	YES	
L0002180	0	0.55820E-07	463421.2	3772132.3	364.2	3.49	6.51	3.25	YES	
L0002181	0	0.55820E-07	463421.2	3772118.3	364.0	3.49	6.51	3.25	YES	
L0002182	0	0.55820E-07	463421.2	3772104.3	364.0	3.49	6.51	3.25	YES	
L0002183	0	0.55820E-07	463421.2	3772090.3	363.8	3.49	6.51	3.25	YES	
L0002184	0	0.55820E-07	463421.2	3772076.3	363.3	3.49	6.51	3.25	YES	
L0002185	0	0.55820E-07	463421.2	3772062.3	363.0	3.49	6.51	3.25	YES	
L0002186	0	0.55820E-07	463421.2	3772048.3	363.0	3.49	6.51	3.25	YES	
L0002187	0	0.55820E-07	463421.1	3772034.3	362.9	3.49	6.51	3.25	YES	

L0002188	0	0.55820E-07	463421.1	3772020.3	362.5	3.49	6.51	3.25 YES
L0002189	0	0.55820E-07	463421.1	3772006.3	362.0	3.49	6.51	3.25 YES
L0002190	0	0.55820E-07	463421.1	3771992.3	362.0	3.49	6.51	3.25 YES
L0002191	0	0.55820E-07	463421.1	3771978.3	362.0	3.49	6.51	3.25 YES
L0002192	0	0.55820E-07	463421.1	3771964.3	362.0	3.49	6.51	3.25 YES
L0002193	0	0.55820E-07	463421.1	3771950.3	362.0	3.49	6.51	3.25 YES
L0002194	0	0.55820E-07	463421.1	3771936.3	361.6	3.49	6.51	3.25 YES
L0002195	0	0.55820E-07	463421.1	3771922.3	361.2	3.49	6.51	3.25 YES
L0002196	0	0.55820E-07	463421.0	3771908.3	361.0	3.49	6.51	3.25 YES
L0002197	0	0.55820E-07	463421.0	3771894.3	361.0	3.49	6.51	3.25 YES
L0002198	0	0.55820E-07	463421.0	3771880.3	360.8	3.49	6.51	3.25 YES
L0002199	0	0.55820E-07	463421.0	3771866.3	360.3	3.49	6.51	3.25 YES
L0002200	0	0.55820E-07	463421.0	3771852.3	360.0	3.49	6.51	3.25 YES
L0002201	0	0.55820E-07	463421.0	3771838.3	360.0	3.49	6.51	3.25 YES
L0002202	0	0.55820E-07	463421.0	3771824.3	359.9	3.49	6.51	3.25 YES
L0002203	0	0.55820E-07	463421.0	3771810.3	359.5	3.49	6.51	3.25 YES
L0002204	0	0.55820E-07	463421.0	3771796.3	359.0	3.49	6.51	3.25 YES
L0002205	0	0.55820E-07	463421.0	3771782.3	359.0	3.49	6.51	3.25 YES
L0002206	0	0.55820E-07	463421.0	3771768.3	359.0	3.49	6.51	3.25 YES
L0002207	0	0.55820E-07	463421.0	3771754.3	358.6	3.49	6.51	3.25 YES
L0002208	0	0.55820E-07	463421.0	3771740.3	358.1	3.49	6.51	3.25 YES
L0002209	0	0.55820E-07	463421.0	3771726.3	358.0	3.49	6.51	3.25 YES
L0002210	0	0.55820E-07	463421.0	3771712.3	358.0	3.49	6.51	3.25 YES
L0002211	0	0.55820E-07	463421.0	3771698.3	358.0	3.49	6.51	3.25 YES
L0002212	0	0.55820E-07	463421.0	3771684.3	358.0	3.49	6.51	3.25 YES

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002213	0	0.55820E-07	463421.0	3771670.3	357.8	3.49	6.51	3.25	YES	
L0002214	0	0.55820E-07	463421.0	3771656.3	357.3	3.49	6.51	3.25	YES	
L0002215	0	0.55820E-07	463421.0	3771642.3	357.0	3.49	6.51	3.25	YES	
L0002216	0	0.55820E-07	463421.0	3771628.3	357.0	3.49	6.51	3.25	YES	
L0002217	0	0.55820E-07	463421.0	3771614.3	356.9	3.49	6.51	3.25	YES	
L0002218	0	0.55820E-07	463421.0	3771600.3	356.5	3.49	6.51	3.25	YES	
L0002219	0	0.55820E-07	463421.0	3771586.3	356.0	3.49	6.51	3.25	YES	
L0002220	0	0.55820E-07	463421.0	3771572.3	356.0	3.49	6.51	3.25	YES	
L0002221	0	0.55820E-07	463421.0	3771558.3	356.0	3.49	6.51	3.25	YES	
L0002222	0	0.55820E-07	463420.9	3771544.3	355.6	3.49	6.51	3.25	YES	
L0002223	0	0.55820E-07	463420.9	3771530.3	355.1	3.49	6.51	3.25	YES	
L0002224	0	0.55820E-07	463420.9	3771516.3	355.0	3.49	6.51	3.25	YES	
L0002225	0	0.55820E-07	463420.9	3771502.3	355.0	3.49	6.51	3.25	YES	
L0002226	0	0.55820E-07	463420.9	3771488.3	354.7	3.49	6.51	3.25	YES	
L0002227	0	0.55820E-07	463420.8	3771474.3	354.3	3.49	6.51	3.25	YES	

L0002228	0	0.55820E-07	463420.8	3771460.3	354.0	3.49	6.51	3.25 YES
L0002229	0	0.55820E-07	463420.8	3771446.3	354.0	3.49	6.51	3.25 YES
L0002230	0	0.55820E-07	463420.8	3771432.3	354.0	3.49	6.51	3.25 YES
L0002231	0	0.55820E-07	463420.8	3771418.3	354.0	3.49	6.51	3.25 YES
L0002232	0	0.55820E-07	463420.7	3771404.3	353.9	3.49	6.51	3.25 YES
L0002233	0	0.55820E-07	463420.7	3771390.3	353.4	3.49	6.51	3.25 YES
L0002234	0	0.55820E-07	463420.7	3771376.3	353.0	3.49	6.51	3.25 YES
L0002235	0	0.55820E-07	463420.7	3771362.3	353.0	3.49	6.51	3.25 YES
L0002236	0	0.55820E-07	463420.6	3771348.3	353.0	3.49	6.51	3.25 YES
L0002237	0	0.55820E-07	463420.6	3771334.3	352.6	3.49	6.51	3.25 YES
L0002238	0	0.55820E-07	463420.6	3771320.3	352.1	3.49	6.51	3.25 YES
L0002239	0	0.55820E-07	463420.6	3771306.3	352.0	3.49	6.51	3.25 YES
L0002240	0	0.55820E-07	463420.6	3771292.3	352.0	3.49	6.51	3.25 YES
L0002241	0	0.55820E-07	463420.5	3771278.3	351.7	3.49	6.51	3.25 YES
L0002242	0	0.55820E-07	463420.5	3771264.3	351.3	3.49	6.51	3.25 YES
L0002243	0	0.55820E-07	463420.5	3771250.3	351.0	3.49	6.51	3.25 YES
L0002244	0	0.55820E-07	463420.5	3771236.3	351.0	3.49	6.51	3.25 YES
L0002245	0	0.55820E-07	463420.4	3771222.3	350.9	3.49	6.51	3.25 YES
L0002246	0	0.55820E-07	463420.4	3771208.3	350.4	3.49	6.51	3.25 YES
L0002247	0	0.55820E-07	463420.4	3771194.3	350.0	3.49	6.51	3.25 YES
L0002248	0	0.55820E-07	463420.4	3771180.3	350.0	3.49	6.51	3.25 YES
L0002249	0	0.55820E-07	463420.3	3771166.3	350.0	3.49	6.51	3.25 YES
L0002250	0	0.55820E-07	463420.3	3771152.3	350.0	3.49	6.51	3.25 YES
L0002251	0	0.55820E-07	463420.2	3771138.3	350.0	3.49	6.51	3.25 YES
L0002252	0	0.55820E-07	463420.2	3771124.3	349.6	3.49	6.51	3.25 YES

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002253	0	0.55820E-07	463420.1	3771110.3	349.1	3.49	6.51	3.25	YES	
L0002254	0	0.55820E-07	463420.1	3771096.3	349.0	3.49	6.51	3.25	YES	
L0002255	0	0.55820E-07	463420.0	3771082.3	349.0	3.49	6.51	3.25	YES	
L0002256	0	0.55820E-07	463420.0	3771068.3	348.7	3.49	6.51	3.25	YES	
L0002257	0	0.55820E-07	463420.0	3771054.3	348.3	3.49	6.51	3.25	YES	
L0002258	0	0.55820E-07	463419.9	3771040.3	348.0	3.49	6.51	3.25	YES	
L0002259	0	0.55820E-07	463419.9	3771026.3	348.0	3.49	6.51	3.25	YES	
L0002260	0	0.55820E-07	463419.8	3771012.3	347.9	3.49	6.51	3.25	YES	
L0002261	0	0.55820E-07	463419.8	3770998.3	347.4	3.49	6.51	3.25	YES	
L0002262	0	0.55820E-07	463419.7	3770984.3	347.0	3.49	6.51	3.25	YES	
L0002263	0	0.55820E-07	463419.7	3770970.3	347.0	3.49	6.51	3.25	YES	
L0002264	0	0.55820E-07	463419.6	3770956.3	347.0	3.49	6.51	3.25	YES	
L0002265	0	0.55820E-07	463419.6	3770942.3	347.0	3.49	6.51	3.25	YES	
L0002266	0	0.55820E-07	463419.5	3770928.3	347.0	3.49	6.51	3.25	YES	
L0002267	0	0.55820E-07	463419.5	3770914.3	346.6	3.49	6.51	3.25	YES	

L0002268	0	0.55820E-07	463419.4	3770900.3	346.1	3.49	6.51	3.25 YES
L0002269	0	0.55820E-07	463419.4	3770886.3	346.0	3.49	6.51	3.25 YES
L0002270	0	0.55820E-07	463419.3	3770872.3	346.0	3.49	6.51	3.25 YES
L0002271	0	0.55820E-07	463419.3	3770858.3	345.7	3.49	6.51	3.25 YES
L0002272	0	0.55820E-07	463419.2	3770844.3	345.3	3.49	6.51	3.25 YES
L0002273	0	0.55820E-07	463419.2	3770830.3	345.0	3.49	6.51	3.25 YES
L0002274	0	0.55820E-07	463419.2	3770816.3	345.0	3.49	6.51	3.25 YES
L0002275	0	0.55820E-07	463419.1	3770802.3	344.9	3.49	6.51	3.25 YES
L0002276	0	0.55820E-07	463419.1	3770788.3	344.4	3.49	6.51	3.25 YES
L0002277	0	0.55820E-07	463419.2	3770774.3	344.0	3.49	6.51	3.25 YES
L0002278	0	0.55820E-07	463419.2	3770760.3	344.0	3.49	6.51	3.25 YES
L0002279	0	0.55820E-07	463419.2	3770746.3	344.0	3.49	6.51	3.25 YES
L0002280	0	0.55820E-07	463419.2	3770732.3	343.5	3.49	6.51	3.25 YES
L0002281	0	0.55820E-07	463419.2	3770718.3	343.1	3.49	6.51	3.25 YES
L0002282	0	0.55820E-07	463419.2	3770704.3	343.0	3.49	6.51	3.25 YES
L0002283	0	0.55820E-07	463419.2	3770690.3	343.0	3.49	6.51	3.25 YES
L0002284	0	0.55820E-07	463419.2	3770676.3	342.7	3.49	6.51	3.25 YES
L0002285	0	0.55820E-07	463419.2	3770662.3	342.2	3.49	6.51	3.25 YES
L0002286	0	0.55820E-07	463419.3	3770648.3	342.0	3.49	6.51	3.25 YES
L0002287	0	0.55820E-07	463419.3	3770634.3	342.0	3.49	6.51	3.25 YES
L0002288	0	0.55820E-07	463419.3	3770620.3	341.8	3.49	6.51	3.25 YES
L0002289	0	0.55820E-07	463419.3	3770606.3	341.3	3.49	6.51	3.25 YES
L0002290	0	0.55820E-07	463419.3	3770592.3	341.0	3.49	6.51	3.25 YES
L0002291	0	0.55820E-07	463419.3	3770578.3	341.0	3.49	6.51	3.25 YES
L0002292	0	0.55820E-07	463419.3	3770564.3	341.0	3.49	6.51	3.25 YES

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002293	0	0.55820E-07	463419.3	3770550.3	341.0	3.49	6.51	3.25	YES	
L0002294	0	0.55820E-07	463419.3	3770536.3	341.0	3.49	6.51	3.25	YES	
L0002295	0	0.55820E-07	463419.3	3770522.3	340.5	3.49	6.51	3.25	YES	
L0002296	0	0.55820E-07	463419.4	3770508.3	340.1	3.49	6.51	3.25	YES	
L0002297	0	0.55820E-07	463419.4	3770494.3	340.0	3.49	6.51	3.25	YES	
L0002298	0	0.55820E-07	463419.4	3770480.3	340.0	3.49	6.51	3.25	YES	
L0002299	0	0.55820E-07	463419.4	3770466.3	340.0	3.49	6.51	3.25	YES	
L0002300	0	0.55820E-07	463419.4	3770452.3	340.0	3.49	6.51	3.25	YES	
L0002301	0	0.55820E-07	463419.4	3770438.3	340.0	3.49	6.51	3.25	YES	
L0002302	0	0.55820E-07	463419.4	3770424.3	340.0	3.49	6.51	3.25	YES	
L0002303	0	0.55820E-07	463419.4	3770410.3	339.8	3.49	6.51	3.25	YES	
L0002304	0	0.55820E-07	463419.4	3770396.3	339.3	3.49	6.51	3.25	YES	
L0002305	0	0.55820E-07	463419.3	3770382.3	339.0	3.49	6.51	3.25	YES	
L0002306	0	0.55820E-07	463419.1	3770368.3	339.0	3.49	6.51	3.25	YES	
L0002307	0	0.55820E-07	463418.9	3770354.3	339.0	3.49	6.51	3.25	YES	

L0002308	0	0.55820E-07	463418.7	3770340.3	339.0	3.49	6.51	3.25 YES
L0002309	0	0.55820E-07	463418.5	3770326.3	339.0	3.49	6.51	3.25 YES
L0002310	0	0.55820E-07	463418.3	3770312.3	338.5	3.49	6.51	3.25 YES
L0002311	0	0.55820E-07	463418.1	3770298.3	338.1	3.49	6.51	3.25 YES
L0002312	0	0.55820E-07	463418.1	3770284.3	338.0	3.49	6.51	3.25 YES
L0002313	0	0.55820E-07	463420.1	3770270.5	338.0	3.49	6.51	3.25 YES
L0002314	0	0.55820E-07	463422.0	3770256.6	337.6	3.49	6.51	3.25 YES
L0002315	0	0.55820E-07	463424.0	3770242.8	337.2	3.49	6.51	3.25 YES
L0002316	0	0.55820E-07	463426.0	3770228.9	336.9	3.49	6.51	3.25 YES
L0002317	0	0.55820E-07	463427.9	3770215.0	336.8	3.49	6.51	3.25 YES
L0002318	0	0.55820E-07	463429.9	3770201.2	336.5	3.49	6.51	3.25 YES
L0002319	0	0.55820E-07	463432.0	3770187.3	336.2	3.49	6.51	3.25 YES
L0002320	0	0.55820E-07	463434.2	3770173.5	336.0	3.49	6.51	3.25 YES
L0002321	0	0.55820E-07	463436.3	3770159.7	336.0	3.49	6.51	3.25 YES
L0002322	0	0.55820E-07	463438.5	3770145.8	336.0	3.49	6.51	3.25 YES
L0002323	0	0.55820E-07	463440.7	3770132.0	335.7	3.49	6.51	3.25 YES
L0002324	0	0.55820E-07	463442.9	3770118.2	335.3	3.49	6.51	3.25 YES
L0002325	0	0.55820E-07	463445.1	3770104.4	335.1	3.49	6.51	3.25 YES
L0002326	0	0.55820E-07	463447.3	3770090.5	335.0	3.49	6.51	3.25 YES
L0002327	0	0.55820E-07	463448.9	3770076.6	335.0	3.49	6.51	3.25 YES
L0002328	0	0.55820E-07	463450.2	3770062.7	335.0	3.49	6.51	3.25 YES
L0002329	0	0.55820E-07	463451.6	3770048.8	335.0	3.49	6.51	3.25 YES
L0002330	0	0.55820E-07	463452.8	3770034.8	334.9	3.49	6.51	3.25 YES
L0002331	0	0.55820E-07	463452.6	3770020.8	334.9	3.49	6.51	3.25 YES
L0002332	0	0.55820E-07	463452.3	3770006.8	335.0	3.49	6.51	3.25 YES

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002333	0	0.55820E-07	463452.0	3769992.8	335.0	3.49	6.51	3.25	YES	
L0002334	0	0.55820E-07	463451.8	3769978.8	335.0	3.49	6.51	3.25	YES	
L0002335	0	0.55820E-07	463451.5	3769964.8	335.0	3.49	6.51	3.25	YES	
L0002336	0	0.55820E-07	463451.3	3769950.8	335.0	3.49	6.51	3.25	YES	
L0002337	0	0.55820E-07	463451.4	3769936.8	335.0	3.49	6.51	3.25	YES	
L0002338	0	0.55820E-07	463451.5	3769922.8	335.0	3.49	6.51	3.25	YES	
L0002339	0	0.55820E-07	463451.6	3769908.8	335.0	3.49	6.51	3.25	YES	
L0002340	0	0.55820E-07	463451.6	3769894.8	335.0	3.49	6.51	3.25	YES	
L0002341	0	0.55820E-07	463451.7	3769880.8	335.0	3.49	6.51	3.25	YES	
L0002342	0	0.55820E-07	463451.8	3769866.8	335.0	3.49	6.51	3.25	YES	
L0002343	0	0.55820E-07	463451.9	3769852.8	335.0	3.49	6.51	3.25	YES	
L0002344	0	0.55820E-07	463452.0	3769838.8	335.7	3.49	6.51	3.25	YES	
L0002345	0	0.55820E-07	463452.1	3769824.8	337.1	3.49	6.51	3.25	YES	
L0002346	0	0.55820E-07	463452.1	3769810.8	338.4	3.49	6.51	3.25	YES	
L0002347	0	0.55820E-07	463452.2	3769796.8	339.7	3.49	6.51	3.25	YES	

L0002348	0	0.55820E-07	463452.3	3769782.8	340.8	3.49	6.51	3.25 YES
L0002349	0	0.55820E-07	463452.4	3769768.8	341.4	3.49	6.51	3.25 YES
L0002350	0	0.55820E-07	463452.5	3769754.8	341.8	3.49	6.51	3.25 YES
L0002566	0	0.18750E-07	463424.3	3773266.9	382.0	3.49	6.51	3.25 YES
L0002567	0	0.18750E-07	463424.2	3773280.9	382.5	3.49	6.51	3.25 YES
L0002568	0	0.18750E-07	463424.1	3773294.9	382.9	3.49	6.51	3.25 YES
L0002569	0	0.18750E-07	463424.0	3773308.9	383.0	3.49	6.51	3.25 YES
L0002570	0	0.18750E-07	463423.9	3773322.9	383.0	3.49	6.51	3.25 YES
L0002571	0	0.18750E-07	463423.8	3773336.9	383.4	3.49	6.51	3.25 YES
L0002572	0	0.18750E-07	463423.8	3773350.9	383.8	3.49	6.51	3.25 YES
L0002573	0	0.18750E-07	463423.7	3773364.9	384.0	3.49	6.51	3.25 YES
L0002574	0	0.18750E-07	463423.7	3773378.9	384.0	3.49	6.51	3.25 YES
L0002575	0	0.18750E-07	463423.7	3773392.9	384.2	3.49	6.51	3.25 YES
L0002576	0	0.18750E-07	463423.6	3773406.9	384.6	3.49	6.51	3.25 YES
L0002577	0	0.18750E-07	463423.6	3773420.9	384.9	3.49	6.51	3.25 YES
L0002578	0	0.18750E-07	463423.6	3773434.9	384.9	3.49	6.51	3.25 YES
L0002579	0	0.18750E-07	463423.5	3773448.9	385.0	3.49	6.51	3.25 YES
L0002580	0	0.18750E-07	463423.5	3773462.9	385.0	3.49	6.51	3.25 YES
L0002581	0	0.18750E-07	463423.5	3773476.9	385.0	3.49	6.51	3.25 YES
L0002582	0	0.18750E-07	463423.4	3773490.9	385.4	3.49	6.51	3.25 YES
L0002583	0	0.18750E-07	463423.4	3773504.9	385.8	3.49	6.51	3.25 YES
L0002584	0	0.18750E-07	463423.4	3773518.9	385.9	3.49	6.51	3.25 YES
L0002585	0	0.18750E-07	463423.3	3773532.9	385.9	3.49	6.51	3.25 YES
L0002586	0	0.18750E-07	463423.3	3773546.9	385.9	3.49	6.51	3.25 YES
L0002587	0	0.18750E-07	463423.2	3773560.9	386.0	3.49	6.51	3.25 YES

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ	URBAN SOURCE	EMISSION RATE SCALAR VARY BY
L0002588	0	0.18750E-07	463423.4	3773574.9	386.3	3.49	6.51	3.25	YES	
L0002589	0	0.18750E-07	463423.5	3773588.9	386.8	3.49	6.51	3.25	YES	
L0002590	0	0.18750E-07	463423.6	3773602.9	387.0	3.49	6.51	3.25	YES	
L0002591	0	0.18750E-07	463423.7	3773616.9	387.0	3.49	6.51	3.25	YES	
L0002592	0	0.18750E-07	463423.9	3773630.9	387.2	3.49	6.51	3.25	YES	
L0002593	0	0.18750E-07	463424.0	3773644.9	387.6	3.49	6.51	3.25	YES	
L0002594	0	0.18750E-07	463424.1	3773658.9	388.1	3.49	6.51	3.25	YES	
L0002595	0	0.18750E-07	463424.2	3773672.9	388.5	3.49	6.51	3.25	YES	
L0002596	0	0.18750E-07	463424.4	3773686.9	388.9	3.49	6.51	3.25	YES	
L0002597	0	0.18750E-07	463424.5	3773700.9	388.9	3.49	6.51	3.25	YES	
L0002598	0	0.18750E-07	463424.6	3773714.9	389.0	3.49	6.51	3.25	YES	
L0002599	0	0.18750E-07	463424.7	3773728.9	389.0	3.49	6.51	3.25	YES	
L0002600	0	0.18750E-07	463424.9	3773742.9	389.0	3.49	6.51	3.25	YES	
L0002601	0	0.18750E-07	463425.0	3773756.9	389.4	3.49	6.51	3.25	YES	
L0002602	0	0.18750E-07	463425.1	3773770.9	389.8	3.49	6.51	3.25	YES	

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 L0002603         0   0.18750E-07  463425.2 3773784.9   390.0     3.49     6.51
3.25     YES
 L0002604         0   0.18750E-07  463425.4 3773798.9   390.0     3.49     6.51
3.25     YES
 L0002605         0   0.18750E-07  463425.5 3773812.9   390.2     3.49     6.51
3.25     YES
 L0002606         0   0.18750E-07  463425.6 3773826.9   390.7     3.49     6.51
3.25     YES
 L0002607         0   0.18750E-07  463425.7 3773840.9   391.0     3.49     6.51
3.25     YES
 L0002608         0   0.18750E-07  463425.8 3773854.9   391.0     3.49     6.51
3.25     YES
 L0002609         0   0.18750E-07  463426.0 3773868.9   391.1     3.49     6.51
3.25     YES
 L0002610         0   0.18750E-07  463426.1 3773882.9   391.6     3.49     6.51
3.25     YES
 L0002611         0   0.18750E-07  463426.2 3773896.9   392.0     3.49     6.51
3.25     YES
 L0002612         0   0.18750E-07  463426.3 3773910.9   392.0     3.49     6.51
3.25     YES
 L0002613         0   0.18750E-07  463426.5 3773924.9   392.0     3.49     6.51
3.25     YES
 L0002614         0   0.18750E-07  463426.6 3773938.9   392.4     3.49     6.51
3.25     YES
 L0002615         0   0.18750E-07  463426.7 3773952.9   392.9     3.49     6.51
3.25     YES
 L0002616         0   0.18750E-07  463426.8 3773966.9   393.0     3.49     6.51
3.25     YES
 L0002617         0   0.18750E-07  463427.0 3773980.9   393.0     3.49     6.51
3.25     YES
 L0002618         0   0.18750E-07  463427.1 3773994.9   393.2     3.49     6.51
3.25     YES
 L0002619         0   0.18750E-07  463427.2 3774008.9   393.6     3.49     6.51
3.25     YES
 L0002620         0   0.18750E-07  463427.3 3774022.9   393.8     3.49     6.51
3.25     YES
 L0002621         0   0.18750E-07  463427.5 3774036.9   393.9     3.49     6.51
3.25     YES
 L0002622         0   0.18750E-07  463427.6 3774050.9   394.1     3.49     6.51
3.25     YES
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***         14:01:04

                                   PAGE  13
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                          *** SOURCE IDs DEFINING SOURCE GROUPS
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SRCGROUP ID	SOURCE IDs
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	L0002413 , L0002414 , L0002415 , L0002416 , L0002417 , L0002418 , L0002419 , L0002420 ,
	L0002421 , L0002422 , L0002423 , L0002424 , L0002425 , L0002426 , L0002427 , L0002428 ,
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINING SOURCE GROUPS
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 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        14:01:04

                                  PAGE  15
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*


                                        *** SOURCE IDs DEFINING SOURCE GROUPS
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 SRCGROUP ID   SOURCE IDs
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                    *** SOURCE IDs DEFINED AS URBAN SOURCES
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                        *** SOURCE IDs DEFINED AS URBAN SOURCES
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  URBAN ID   URBAN POP   SOURCE IDs
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
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		L0002303 , L0002304 , L0002305 , L0002306 , L0002307 , L0002308 , L0002309 , L0002310 ,
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                          *** DISCRETE CARTESIAN RECEPTORS ***
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                                                (METERS)

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     (464041.7, 3773360.6,   380.4,   380.4,   0.0);   (463930.5,
3773298.2,   380.1,   380.1,   0.0);
     (463896.8, 3773215.9,   379.3,   379.3,   0.0);   (464186.4,
3773231.6,   378.0,   378.0,   0.0);
     (463767.5, 3773230.5,   379.8,   379.8,   0.0);   (463376.5,

3773322.9,   383.9,   383.9,   0.0);
     (463340.9, 3773218.0,   382.0,   382.0,   0.0);   (463344.6,
3772921.2,   377.0,   377.0,   0.0);
     (463732.7, 3772860.2,   374.0,   374.0,   0.0);   (463378.3,
3772825.4,   375.3,   375.3,   0.0);
     (463387.1, 3772737.5,   374.0,   374.0,   0.0);   (463446.6,
3772647.8,   372.4,   372.4,   0.0);
     (463384.7, 3772593.4,   371.6,   371.6,   0.0);   (463399.3,
3772414.7,   368.6,   368.6,   0.0);
     (463439.9, 3772438.1,   369.1,   369.1,   0.0);   (463438.9,
3772296.1,   366.7,   366.7,   0.0);
     (463403.0, 3772249.6,   366.0,   366.0,   0.0);   (463441.3,
3772129.9,   364.0,   364.0,   0.0);
     (463389.5, 3772132.3,   364.2,   364.2,   0.0);   (463401.2,
3771952.6,   362.0,   362.0,   0.0);
     (463437.0, 3771943.3,   361.4,   361.4,   0.0);   (463402.5,
3771823.5,   359.9,   359.9,   0.0);
     (463437.3, 3771745.2,   358.3,   358.3,   0.0);   (463438.1,
3771635.9,   357.0,   357.0,   0.0);
     (463402.2, 3771635.3,   357.0,   357.0,   0.0);   (463398.5,
3771265.3,   351.3,   351.3,   0.0);
     (463437.3, 3771275.9,   351.7,   351.7,   0.0);   (463436.7,
3771027.4,   348.0,   348.0,   0.0);
     (463402.0, 3771029.5,   348.0,   348.0,   0.0);   (463399.6,
3770820.6,   345.0,   345.0,   0.0);
     (463436.2, 3770817.7,   345.2,   345.2,   0.0);   (463446.6,
3770636.4,   342.0,   342.0,   0.0);
     (463400.1, 3770636.9,   342.2,   342.2,   0.0);   (464777.9,
3773274.8,   375.0,   375.0,   0.0);
     (464747.2, 3773283.1,   375.0,   375.0,   0.0);   (464766.3,
3773315.4,   375.6,   375.6,   0.0);
     (464704.5, 3773238.5,   374.2,   374.2,   0.0);   (464675.2,
3773237.8,   375.0,   375.0,   0.0);
     (464670.6, 3773273.5,   375.2,   375.2,   0.0);   (464577.5,
3773232.8,   375.4,   375.4,   0.0);
     (464521.6, 3773232.9,   375.2,   375.2,   0.0);   (464465.6,
3773233.1,   375.9,   375.9,   0.0);
     (464399.1, 3773229.2,   376.0,   376.0,   0.0);   (464207.7,
3773292.4,   379.0,   379.0,   0.0);
     (464944.8, 3773482.0,   377.2,   377.2,   0.0);   (464907.1,
3773482.0,   377.2,   377.2,   0.0);
     (464887.8, 3773482.5,   377.2,   377.2,   0.0);   (464846.7,
3773483.1,   377.6,   377.6,   0.0);
     (464806.8, 3773482.7,   378.0,   378.0,   0.0);   (464763.3,
3773482.9,   378.0,   378.0,   0.0);
     (464716.4, 3773483.2,   378.2,   378.2,   0.0);   (464943.1,
3773388.4,   376.0,   376.0,   0.0);
     (464920.0, 3773274.5,   374.0,   374.0,   0.0);   (464413.5,
3773348.4,   378.0,   378.0,   0.0);
     (464418.4, 3773386.7,   378.0,   378.0,   0.0);   (464413.9,

3773322.5,   377.8,   377.8,   0.0);
     (464413.3, 3773310.8,   377.4,   377.4,   0.0);   (464411.9,
3773363.9,   378.0,   378.0,   0.0);
     (464426.7, 3773491.9,   380.5,   380.5,   0.0);   (464583.1,
3773489.6,   379.4,   379.4,   0.0);
     (464648.0, 3773491.1,   379.0,   379.0,   0.0);   (464753.3,
3773351.3,   376.0,   376.0,   0.0);
     (464032.6, 3773301.0,   380.0,   380.0,   0.0);   (463933.4,
3773301.9,   380.2,   380.2,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                          *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                              (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

               NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.

                                     *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                          (METERS/SEC)

                                                  1.54,   3.09,   5.14,   8.23,
10.80,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

                                     *** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

   Surface file: FONT_V9_ADJU\FONT_V9.SFC
                  Met Version: 16216
   Profile file: FONT_V9_ADJU\FONT_V9.PFL

   Surface format: FREE

   Profile format: FREE

   Surface station no.:   3102   Upper air station no.:   3190
                  Name: UNKNOWN   Name: UNKNOWN

                  Year: 2011   Year: 2011

 First 24 hours of scalar data
 YR MO DY JDY HR   H0   U*   W* DT/DZ ZICNV ZIMCH M-O LEN   Z0 BOWEN
ALBEDO REF WS   WD   HT REF TA   HT
- - - -

```
0.21    2.20  115.    9.1  283.1    5.5
 11 01 01   1 13  132.6  0.214  1.733  0.009 1377.  243.     -6.5  0.25   2.82
0.21    1.30  147.    9.1  284.2    5.5
 11 01 01   1 14  147.0  0.216  1.818  0.009 1431.  242.     -6.0  0.25   2.82
0.23    1.30  219.    9.1  284.9    5.5
 11 01 01   1 15  104.0  0.208  1.633  0.009 1468.  228.     -7.6  0.25   2.82
0.26    1.30  126.    9.1  285.4    5.5
 11 01 01   1 16   26.4  0.140  1.037  0.009 1477.  127.     -9.1  0.25   2.82
0.35    0.90  151.    9.1  284.9    5.5
 11 01 01   1 17   -9.0  0.137 -9.000 -9.000 -999.  121.     24.9  0.25   2.82
0.63    1.30   69.    9.1  283.1    5.5
 11 01 01   1 18  -33.4  0.342 -9.000 -9.000 -999.  481.    129.0  0.25   2.82
1.00    3.10   81.    9.1  281.4    5.5
 11 01 01   1 19  -33.6  0.342 -9.000 -9.000 -999.  481.    128.9  0.25   2.82
1.00    3.10   51.    9.1  279.9    5.5
 11 01 01   1 20  -23.6  0.239 -9.000 -9.000 -999.  287.     63.1  0.25   2.82
1.00    2.20   77.    9.1  278.8    5.5
 11 01 01   1 21  -18.5  0.194 -9.000 -9.000 -999.  205.     41.2  0.25   2.82
1.00    1.80   53.    9.1  277.5    5.5
 11 01 01   1 22  -23.7  0.239 -9.000 -9.000 -999.  281.     63.0  0.25   2.82
1.00    2.20   58.    9.1  277.5    5.5
 11 01 01   1 23  -18.5  0.194 -9.000 -9.000 -999.  205.     41.2  0.25   2.82
1.00    1.80   64.    9.1  277.5    5.5
 11 01 01   1 24   -4.5  0.094 -9.000 -9.000 -999.   74.     16.3  0.25   2.82
1.00    0.90   52.    9.1  277.0    5.5


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 11 01 01 01    5.5 0 -999.  -99.00   276.5   99.0  -99.00  -99.00
 11 01 01 01    9.1 1   69.    1.80  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        14:01:04

                                  PAGE  22
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   5
YEARS FOR SOURCE GROUP: ALL      ***
                                    INCLUDING SOURCE(S):     L0001975    , L0001976
 , L0001977    , L0001978    , L0001979    ,
                 L0001980    , L0001981    , L0001982    , L0001983    , L0001984
 , L0001985    , L0002408    , L0002409    ,
                 L0002410    , L0002411    , L0002412    , L0002413    , L0002414
 , L0002415    , L0002416    , L0002417    ,
                 L0002418    , L0002419    , L0002420    , L0002421    , L0002422
```

, L0002423 , L0002424 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
464928.61	3773229.12	0.00007	464890.95	3773229.45	0.00008
464869.11	3773279.98	0.00010	465148.03	3773535.99	0.00004
464411.26	3773284.93	0.00076	464378.61	3773281.74	0.00061
464343.57	3773280.68	0.00054	464304.81	3773299.26	0.00036
464214.82	3773299.26	0.00031	463617.53	3773315.46	0.00021
463642.74	3773339.61	0.00016	463491.70	3773312.80	0.00022
463474.71	3773327.93	0.00019	463468.34	3773357.93	0.00015
463460.37	3773380.50	0.00014	463451.61	3773423.24	0.00014
463450.81	3773436.24	0.00014	463607.70	3773411.29	0.00010
463537.89	3773312.27	0.00022	463461.96	3773219.36	0.00035
463855.12	3773303.25	0.00026	463884.05	3773302.45	0.00026
464038.02	3773295.55	0.00030	464039.35	3773330.59	0.00019
464041.74	3773360.59	0.00015	463930.51	3773298.20	0.00029
463896.79	3773215.91	0.00026	464186.41	3773231.57	0.00040
463767.51	3773230.51	0.00035	463376.48	3773322.89	0.00013
463340.91	3773218.03	0.00012	463344.63	3772921.24	0.00012
463732.74	3772860.19	0.00006	463378.34	3772825.41	0.00018
463387.10	3772737.54	0.00021	463446.57	3772647.82	0.00030
463384.71	3772593.40	0.00020	463399.32	3772414.74	0.00028

```
         463439.93    3772438.10        0.00035                        463438.87
3772296.08        0.00036
         463403.03    3772249.62        0.00033                        463441.26
3772129.90        0.00033
         463389.49    3772132.29        0.00022                        463401.17
3771952.57        0.00031
         463437.01    3771943.28        0.00037                        463402.50
3771823.55        0.00032
         463437.28    3771745.24        0.00037                        463438.07
3771635.87        0.00036
         463402.23    3771635.34        0.00032                        463398.52
3771265.28        0.00029
         463437.28    3771275.90        0.00036                        463436.74
3771027.43        0.00036
         463401.97    3771029.55        0.00033                        463399.58
3770820.63        0.00031
         463436.21    3770817.71        0.00036                        463446.57
3770636.40        0.00026
         463400.11    3770636.93        0.00031                        464777.90
3773274.84        0.00016
         464747.24    3773283.15        0.00021                        464766.32
3773315.44        0.00019
         464704.52    3773238.48        0.00025                        464675.17
3773237.82        0.00034
         464670.61    3773273.53        0.00048                        464577.50
3773232.77        0.00082
         464521.57    3773232.93        0.00092                        464465.64
3773233.10        0.00086
         464399.11    3773229.18        0.00057                        464207.69
3773292.45        0.00035
         464944.80    3773482.05        0.00007                        464907.13
3773482.05        0.00008
         464887.80    3773482.55        0.00009                        464846.71
3773483.06        0.00010
         464806.82    3773482.66        0.00012                        464763.31
3773482.86        0.00014
         464716.38    3773483.16        0.00016                        464943.10
3773388.41        0.00008
         464920.01    3773274.54        0.00008                        464413.46
3773348.39        0.00051
         464418.39    3773386.72        0.00039                        464413.88
3773322.54        0.00061
 *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        14:01:04

                                  PAGE  23
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*
```

*** THE ANNUAL AVERAGE CONCENTRATION VALUES AVERAGED OVER 5 YEARS FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): L0001975 , L0001976 , L0001977 , L0001978 , L0001979 ,
L0001980 , L0001981 , L0001982 , L0001983 , L0001984 , L0001985 , L0002408 , L0002409 ,
L0002410 , L0002411 , L0002412 , L0002413 , L0002414 , L0002415 , L0002416 , L0002417 ,
L0002418 , L0002419 , L0002420 , L0002421 , L0002422 , L0002423 , L0002424 , . . . ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
464413.34	3773310.82	0.00066	464411.93	3773363.93	0.00044
464426.73	3773491.87	0.00018	464583.08	3773489.60	0.00022
464648.02	3773491.13	0.00019	464753.27	3773351.34	0.00022
464032.63	3773300.99	0.00028	463933.38	3773301.87	0.00027

*** MODELOPTs: RegDFAULT CONC ELEV URBAN ADJ_U*

*** THE SUMMARY OF MAXIMUM ANNUAL RESULTS AVERAGED OVER 5 YEARS ***

** CONC OF DPM IN MICROGRAMS/M**3 **

GROUP ID	NETWORK AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID

```
ALL       1ST HIGHEST VALUE IS       0.00092 AT (  464521.57,  3773232.93,
375.24,   375.24,    0.00)  DC
          2ND HIGHEST VALUE IS       0.00086 AT (  464465.64,  3773233.10,
375.91,   375.91,    0.00)  DC
          3RD HIGHEST VALUE IS       0.00082 AT (  464577.50,  3773232.77,
375.36,   375.36,    0.00)  DC
          4TH HIGHEST VALUE IS       0.00076 AT (  464411.26,  3773284.93,
377.00,   377.00,    0.00)  DC
          5TH HIGHEST VALUE IS       0.00066 AT (  464413.34,  3773310.82,
377.42,   377.42,    0.00)  DC
          6TH HIGHEST VALUE IS       0.00061 AT (  464413.88,  3773322.54,
377.75,   377.75,    0.00)  DC
          7TH HIGHEST VALUE IS       0.00061 AT (  464378.61,  3773281.74,
377.02,   377.02,    0.00)  DC
          8TH HIGHEST VALUE IS       0.00057 AT (  464399.11,  3773229.18,
376.00,   376.00,    0.00)  DC
          9TH HIGHEST VALUE IS       0.00054 AT (  464343.57,  3773280.68,
377.48,   377.48,    0.00)  DC
         10TH HIGHEST VALUE IS       0.00051 AT (  464413.46,  3773348.39,
377.97,   377.97,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
↑ *** AERMOD - VERSION 22112  ***   *** C:\USERS\MICHAEL TIROHN\DESKTOP\HRAS\14562
TEMESCAL CYN WAREHOUSE\14 ***        02/07/23
 *** AERMET - VERSION  16216 ***   ***
                       ***        14:01:04

                                  PAGE  25
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN  ADJ_U*

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            7 Warning Message(s)
 A Total of          838 Informational Message(s)

 A Total of        43848 Hours Were Processed

 A Total of           40 Calm Hours Identified

 A Total of          798 Missing Hours Identified (  1.82 Percent)
```

```
   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
 ME W186    1035       MEOPEN: THRESH_1MIN 1-min ASOS wind speed threshold used
      0.50
 ME W187    1035       MEOPEN: ADJ_U* Option for Stable Low Winds used in AERMET

 MX W438    8800        METQA: Convective Velocity Data Out-of-Range.  KURDAT =
  12010216
 MX W438   11536        METQA: Convective Velocity Data Out-of-Range.  KURDAT =
  12042516
 MX W420   16779        METQA: Wind Speed Out-of-Range.   KURDAT =
  12113003
 MX W450   26305       CHKDAT: Record Out of Sequence in Meteorological File at:
  15010101
 MX W450   26305       CHKDAT: Record Out of Sequence in Meteorological File at:
1 year gap

   ***********************************
   *** AERMOD Finishes Successfully ***
   ***********************************
```

APPENDIX 2.4:

RISK CALCULATIONS

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Table 1
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
0-2 Age Bin Exposure Scenario - Construction Activity

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.05221	5.22E-05	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	4.1E-05	6.3E-06	5.0E+00	1.4E-03	1.0E-02							
TOTAL								6.3E-06			1.0E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

6.30

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	260
exposure duration (years)	1.04
inhalation rate (L/kg-day))	1090
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	1.00
age sensitivity factor (0 to 2 years old)	10

Table 3
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
2-16 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00022	2.20E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.2E-07	5.2E-08	5.0E+00	1.4E-03	4.4E-05							
TOTAL								5.2E-08			4.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

0.05

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	13.23
inhalation rate (L/kg-day))	572
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.72
age sensitivity factor (ages 2 to 16 years	3

Table 4
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
16-30 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00022	2.20E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	5.5E-08	8.4E-09	5.0E+00	1.4E-03	4.4E-05							
TOTAL								8.4E-09			4.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

0.01

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	14
inhalation rate (L/kg-day))	261
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.73
age sensitivity factor (ages 16 to 30 years old)	1

Total Risk for All Age Bins (per million) **6.36**

Table 1
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
-0.25 to 0 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00022	2.20E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	7.6E-08	2.4E-09	5.0E+00	1.4E-03	4.4E-05							
TOTAL								2.4E-09			4.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	0.25
inhalation rate (L/kg-day))	361
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.85
age sensitivity factor (age third trimester	10

Table 2
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
0-2 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00022	2.20E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	2.3E-07	5.9E-08	5.0E+00	1.4E-03	4.4E-05							
TOTAL								5.9E-08			4.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	2
inhalation rate (L/kg-day))	1090
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.85
age sensitivity factor (0 to 2 years old)	10

Table 3
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
2-16 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00022	2.20E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.2E-07	5.5E-08	5.0E+00	1.4E-03	4.4E-05							
TOTAL								5.5E-08			4.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	14
inhalation rate (L/kg-day))	572
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.72
age sensitivity factor (ages 2 to 16 years	3

Table 4
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
16-30 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.00022	2.20E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	5.5E-08	8.4E-09	5.0E+00	1.4E-03	4.4E-05							
TOTAL								8.4E-09			4.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

0.01

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	14
inhalation rate (L/kg-day))	261
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.73
age sensitivity factor (ages 16 to 30 years old)	1

Total Risk for All Age Bins (per million) **0.12**

Table 5
Quantification of Carcinogenic Risks and Noncarcinogenic Risks
25-Year Worker Exposure Scenario

	Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
						URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
		(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	($mg/kg/day$)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
1	Diesel Particulates	9.20E-04	9.20E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.4E-07	5.4E-08	5.0E+00	1.4E-03	1.8E-04							
	TOTAL								5.4E-08			1.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
									0.05										

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	250
exposure duration (years)	25
inhalation rate (L/kg-day))	230
inhalation absorption factor	1
averaging time (years)	70

Table 6
Quantification of Carcinogenic Risks and Noncarcinogenic Risks
9-Year School Child Exposure Scenario

	Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**									
						URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
		(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
1	Diesel Particulates	9.20E-04	9.20E-07	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	2.6E-07	1.1E-07	5.0E+00	1.4E-03	1.8E-04							
	TOTAL								1.1E-07 0.11			1.8E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	180
exposure duration (years)	9
inhalation rate (L/kg-day))	572
inhalation absorption factor	1
averaging time (years)	70
age sensitivity factor (ages 4-13)	3

Appendix C
Cultural Resources Search Results

October 28, 2022

Justin Cua
Development Manager
Lincoln Property Company
915 Wilshire Boulevard, Suite 2050
Los Angeles, California 90017

Subject: Cultural Resources Records Search Results for the 160 North Cactus Avenue Project, Rialto, San Bernardino County, California (BCR Consulting Project No. LPC2201)

Dear Justin:

BCR Consulting, LLC (BCR Consulting) was retained by Lincoln Property Company to complete a cultural resources records search, Sacred Lands File search with the Native American Heritage Commission (NAHC), and paleontological overview for the 160 North Cactus Avenue Project (the project) located in the City of Rialto, San Bernardino County, California. The project site is located in Section 10 of Township 1 South, Range 5 West, San Bernardino Baseline and Meridian. It is depicted on the United States Geological Survey (USGS) 7.5-Minute *Fontana, California* (1980) topographic quadrangle (Attachment A). The purpose of this study was to identify potential for prehistoric or historic-period resources within project site boundaries.

Research

BCR Consulting Principal Archaeologist David Brunzell, M.A., RPA completed a cultural resources records search at the South Central Coastal Information Center (SCCIC) in Fullerton, California on October 3, 2022. Mr. Brunzell consulted records from all previously-recorded historic and prehistoric archaeological sites, as well as built environment resources (including historic districts) within one half-mile of the project site. The results have revealed that nine previous studies have been completed resulting in no cultural resources recorded within one half-mile of the project site. The project site has never been subject to a previous cultural resources assessment and no cultural resources have been previously recorded within its boundaries. A complete records search bibliography is provided as Attachment B.

Table A. Cultural Resources and Reports Within One Half-Mile of the Project Site

USGS Quad	Cultural Resources	Studies
Fontana, California (1980)	None	SB-2853, 4246, 4251, 4362, 5457, 6495, 6916, 7084, 7960

A review of topographic maps and aerial photographs at historicaerials.com has shown that the entire project site was developed as commercial property between 1994 and 2002 and is completely covered with pavement.

Recommendations

Although the project site has not been subject to a previous cultural resources assessment, it has been completely developed during the modern era. Existing developments have resulted in disturbances at depths beyond which cultural resources are likely. Furthermore, no cultural resources of any kind have been identified within a half-mile of the project site despite nine previous cultural resource assessments. Based on these results, proposed project activities are unlikely to encounter significant undisturbed cultural deposits. BCR Consulting recommends that no additional cultural resources work, or monitoring is necessary during proposed activities associated with the development of the project site. Therefore, no significant impacts related to archaeological or historical resources is anticipated and no further investigations are recommended for the project site unless:

- the proposed project is changed to include areas not subject to this study;
- the proposed project is changed to include the construction of additional facilities;
- cultural materials are encountered during project activities.

Although the current study has not indicated sensitivity for cultural resources within the project site boundaries, ground disturbing activities always have the potential to reveal buried deposits not observed on the surface during previous surveys. Prior to the initiation of ground-disturbing activities, field personnel should be alerted to the possibility of buried prehistoric or historic cultural deposits. In the event that field personnel encounter buried cultural materials, work in the immediate vicinity of the find should cease and a qualified archaeologist should be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation as necessary. If the archaeologist finds that any cultural resources present meet eligibility requirements for listing on the California Register or the National Register, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be developed. Prehistoric or historic cultural materials that may be encountered during ground-disturbing include:

- historic artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;
- historic structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- groundstone artifacts, including mortars, pestles, and grinding slabs;
- dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks.

If human remains are encountered during activities associated with the proposed project, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized

representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

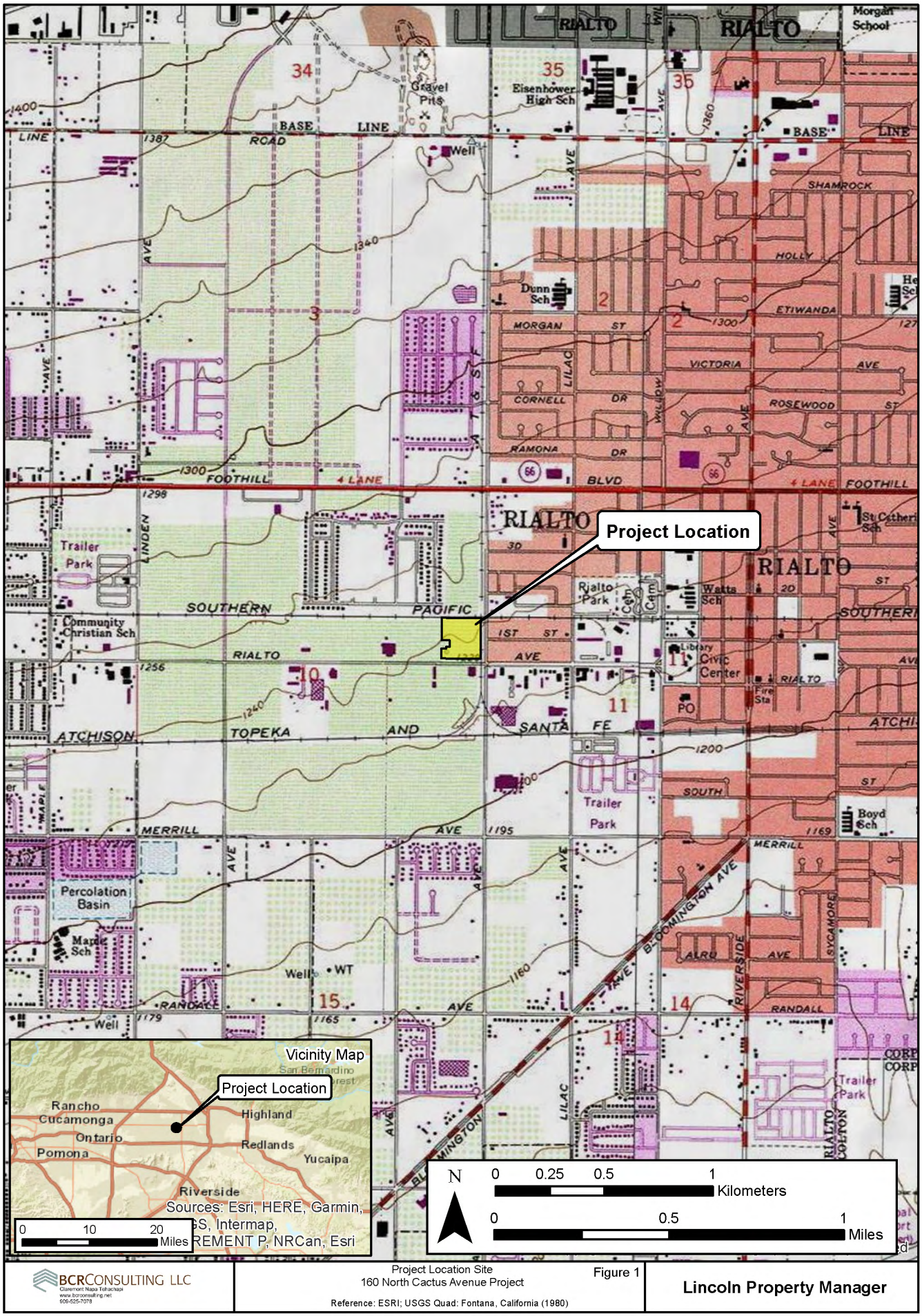
Please contact me by phone at 909/525-7078 or e-mail at david.brunzell@yahoo.com with any questions or comments.

Sincerely,



David Brunzell, M.A./RPA
Principal Investigator/Archaeologist

Attachment A: Project Location Map on USGS 7.5-Minute Topographic
Attachment B: SCCIC Records Search Bibliography
Attachment C: NAHC Sacred Lands File Search
Attachment D: Paleontological Overview



BCR CONSULTING LLC
Claremont Napa Tehachapi
www.bcrconsulting.net
909-625-7078

Project Location Site
160 North Cactus Avenue Project

Figure 1

Reference: ESRI; USGS Quad: Fontana, California (1980)

Lincoln Property Manager

Report List

LPC2201

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-02853	NADB-R - 1062853	1991	FOSTER, JOHN M., JAMES J. SCHMIDT, CARMEN A. WEBER, GWENDOLYN R. ROMANI, and ROBERTA S. GREENWOOD	CULTURAL RESOURCE INVESTIGATION: INLAND FEEDER PROJECT, MWD OF SOUTHERN CA	GREENWOOD & ASSOCIATES	36-006086, 36-006354, 36-006847, 36-006848, 36-006849, 36-006850, 36-006851, 36-006852, 36-006853, 36-006854, 36-006855, 36-006856, 36-006857, 36-006858, 36-006859, 36-006860, 36-006861, 36-006862, 36-006863, 36-006864, 36-006865, 36-006866, 36-006867, 36-006868, 36-006869, 36-006870, 36-006871, 36-006872, 36-006940, 36-007021, 36-007050, 36-007051, 36-007053, 36-007054, 36-007055, 36-007702
SB-04246	NADB-R - 1064246	2004	FULTON, TERRI and CAPRICE D. HARPER	CULTURAL RESOURCES ASSESSMENT: CINGULAR WIRELESS FACILITY NO. SB 289-02, CITY OF RIALTO, SAN BERNARDINO COUNTY, CA. 15PP	LSA	
SB-04251	NADB-R - 1064251	2000	WHITE, LAURIE S.	CULTURAL RESOURCES ASSESSMENT FOR AT&T WIRELESS SITE #C957 (FOOTHILL & RIVERSIDE) CITY OF RIALTO, SAN BERNARDINO COUNTY, CA. 7PP	ARCHAEOLOGICAL ASSOCIATES	
SB-04362	NADB-R - 1064362	2001	HATHEWAY, ROGER G. and FRED E. BUDINGER	ARCHITECTURAL & ARCHAEOLOGICAL EVALUATION OF 14 STRUCTURES IN THE CITY OF RIALTO, CA IN SUPPORT OF PROPOSED SEISMIC RETROFITTING. 185PP	TETRA TECH	
SB-05457		2007	Byrd, Brian F. and John E. Berg	Data Recovery Investigations at CA-SBR-847/H and CA-SBR-8379/H, National Training Center, Fort Irwin, San Bernardino County, California		
SB-06495		2009	Wlodarshi, Robert J.	Bechtel/ AT&T Wireless Telecommunications Site LA8064 (Solomon Colors II)		
SB-06916		2010	Hudson, Jonathan	Rialto CA 3, 150 South Larch Avenue, Rialto, CA		
SB-07084	NADB-R - 1067084	2010	Tang, Bai “Tom”	Preliminary Historical/Archaeological Resources Study, San Bernardino Line Positive Train Control Project, Southern California Regional Rail Authority, Counties of Los Angeles and San Bernardino.	CRM TECH	

Report List

LPC2201

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-07960		2010	Self, William	Class III Cultural Resources Survey Addendum for the Proposed Calnev Expansion Project, California Portion San Bernadino County, California	William Self Associates, Inc.	36-000827, 36-000828, 36-003731, 36-005351, 36-006109, 36-006117, 36-006506, 36-006693, 36-006699, 36-006708, 36-007091, 36-007309, 36-007371, 36-008127, 36-008131, 36-008133, 36-008544, 36-008857, 36-010148, 36-010317, 36-012335, 36-013632, 36-015497, 36-020321, 36-020324, 36-020325, 36-020326, 36-020327, 36-020328, 36-020329, 36-020330, 36-022659, 36-022660, 36-022661, 36-022662, 36-022663, 36-022664

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November 8, 2022

David Brunzell
BCR Consulting, LLC

Via Email to: ***bcrllc2008@gmail.com***

Re: 160 North Cactus Avenue Project (LPC2201), San Bernardino County

Dear Mr. Brunzell:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information submitted for the above referenced project. The results were positive. Please contact the Gabrieleno Band of Mission Indians - Kizh Nationon the attached list for information. Please note that tribes do not always record their sacred sites in the SLF, nor are they required to do so. A SLF search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with a project's geographic area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites, such as the appropriate regional California Historical Research Information System (CHRIS) archaeological Information Center for the presence of recorded archaeological sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. Please contact all of those listed; if they cannot supply information, they may recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cameron.vela@nahc.ca.gov.

Sincerely,

Cameron Vela

Cameron Vela
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Bernardino County
11/8/2022

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Gabrieleno/Tongva San Gabriel Band of Mission Indians
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This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 160 North Cactus Avenue Project (LPC2201), San Bernardino County.

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 160 North Cactus Avenue Project (LPC2201), San Bernardino County.

Native American Heritage Commission
Native American Contact List
San Bernardino County
11/8/2022

San Manuel Band of Mission Indians
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Serrano Nation of Mission Indians
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Cultural-Committee@torresmartinez-nsn.gov

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This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 160 North Cactus Avenue Project (LPC2201), San Bernardino County.

WESTERN SCIENCE CENTER

October 17th, 2022

BCR Consulting, LLC
Joseph Orozco
505 W. 8th St.
Claremont, CA 91711

Dear Mr. Orozco,

This letter presents the results of a record search conducted for the 160 North Cactus Avenue Project located in the city of Rialto, San Bernardino County, CA. The project site is located north of W Rialto Avenue, south of the Pacific Electric Bike Trail Rialto, and west of N. Cactus Avenue on Township 1 South, Range 5 West, in Section 10 of the *Fontana, CA* USGS 7.5 minute quadrangle.

The geologic units underlying the project area are mapped primarily as alluvial fan deposits from the Holocene and late Pleistocene epoch (Morton 2003). Pleistocene alluvial units are considered to be highly paleontologically sensitive. The Western Science Center does not have localities within the project area or within a 1 mile radius; however, this is likely due in part to the project's distance from WSC.

Any fossil specimen from the 160 North Cactus Avenue Project would be scientifically significant. Excavation activity associated with the development of the project area would impact the paleontologically sensitive Pleistocene alluvial units, and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the study area.

If you have any questions, or would like further information, please feel free to contact me at bstoneburg@westerncentermuseum.org.

Sincerely,

Brittney Elizabeth Stoneburg, MSc
Collections Manager

160 North Cactus Avenue Project

project area + 1 mile radius

Legend

- 1 Mile Radius
- Q: Quaternary alluvium and marine deposits (Pliocene to Holocene)

Cardenas Markets
Rialto
The Home Depot
Wigwam
OMG MEDICAL DISPENS
TERRACE
Bud Bender Park
Fontana Superior Court of California
Arrow Blvd
W Rialto Ave
DOWNTOWN RIALTO
W Rialto Ave
E Rialto Ave
W Rialto Ave
RANCHO WEST
Red Castle Korean BBQ
W Merrill Ave
W Merrill Ave
E Merrill Ave
W Mill St
Chapala Express
Rialto High School
Joe Sampson Park
W Randall Ave
W Randall Ave
E Randall Ave
W Randall Ave
Jehue Middle School
Survey
Google Earth
N
5000 ft

Appendix D
Geotechnical Engineering Investigation

Geotechnologies, Inc.
Consulting Geotechnical Engineers
439 Western Avenue
Glendale, California 91201-2837
818.240.9600 • Fax 818.240.9675

Celebrating 50 YEARS OF SERVICE 1971-2021

May 24, 2022
Updated May 25, 2022
File Number 22257

Lincoln Property Company
915 Wilshire Boulevard, Suite 2050
Los Angeles, California 90017

Attention: Grant Kuhlmann

Subject: Geotechnical Engineering Investigation
Proposed Industrial Development
160 North Cactus Avenue, Rialto, California

Dear Mr. Kuhlmann:

This letter transmits the Geotechnical Engineering Investigation for the subject property prepared by Geotechnologies, Inc. This report provides geotechnical recommendations for the development of the site, including earthwork, seismic design, retaining walls, excavations and foundation design. Engineering for the proposed project should not begin until approval of the geotechnical investigation is granted by the local building official. Significant changes in the geotechnical recommendations may result due to the building department review process.

The validity of the recommendations presented herein is dependent upon review of the geotechnical aspects of the project during construction by this firm. The subsurface conditions described herein have been projected from limited subsurface exploration and laboratory testing. The exploration and testing presented in this report should in no way be construed to reflect any variations which may occur between the exploration locations or which may result from changes in subsurface conditions.

Should you have any questions please contact this office.

Respectfully submitted,
GEOTECHNOLOGIES, INC.

REGISTERED PROFESSIONAL ENGINEER
GREGORIO VARELA
No. 81201
Exp. 9/30/23
CIVIL
STATE OF CALIFORNIA

GREGORIO VARELA
R.C.E. 81201

GV:km

Distribution: (3) Addressee

Email to: [gkuhlmann@lpc.com]

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GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED INDUSTRIAL DEVELOPMENT
160 NORTH CACTUS AVENUE
RIALTO, CALIFORNIA

INTRODUCTION

This report presents the results of the geotechnical engineering investigation performed on the subject site. The purpose of this investigation was to identify the distribution and engineering properties of the geologic materials underlying the site, and to provide geotechnical recommendations for the design of the proposed development.

This investigation included eight exploratory excavations, collection of representative samples, laboratory testing, engineering analysis, review of published geologic data, review of available geotechnical engineering information and the preparation of this report. The exploratory excavation locations are shown on the enclosed Plot Plan. The results of the exploration and the laboratory testing are presented in the Appendix of this report.

PROPOSED DEVELOPMENT

Information concerning the proposed development was furnished by the client. In addition, the Conceptual Site Plan prepared by Ware Malcomb, dated May 23, 2022 was reviewed for the preparation of this report. The proposed project consists of construction of an industrial development. The development will consist of a single-story 163,730 square feet industrial building. This building will be built at-, or near the existing site grade, and will have an interior clearance height of approximately 36 feet. A loading dock is proposed within the south side of the building. Surface parking and driving aisles will surround the proposed building. The location and alignment of the proposed development is shown in the enclosed Plot Plan.

Column loads are estimated to be between 50 and 300 kips. Wall loads are estimated to be between 2 and 12 kips per lineal foot. These loads reflect the dead plus live load. Grading will consist of excavations on the order of 5 feet in depth for the recommended removal and recompaction of existing unsuitable soils.

Any changes in the design of the project or location of any structure, as outlined in this report, should be reviewed by this office. The recommendations contained in this report should not be considered valid until reviewed and modified or reaffirmed, in writing, subsequent to such review.

SITE CONDITIONS

The site is located at 160 North Cactus Avenue, in the City of Rialto, California. The site is square in shape, and just over 8 acres in area. The site is bounded by a bike trail to the north, a stormwater channel followed by North Cactus Avenue to the east, West Rialto Avenue to the south, and the Bob Murphy Community School Campus to the west. The site is shown relative to nearby topographic features in the enclosed Vicinity Map.

The site grade is relatively level, with no pronounced highs or lows. At the time of our exploration, the western portion of the site was vacant, as the previous development had been demolished. The eastern portion of the site was observed to be developed with a single-story office building, a single-story warehouse building, and adjoining paved parking.

Vegetation at the site is non-existent. Drainage across the site appears to be by sheetflow to the City streets.

GEOTECHNICAL EXPLORATION

FIELD EXPLORATION

The site was explored on April 12 and 13, 2022 by drilling eight borings. The borings were drilled to depths between 15 and 50 feet below the existing excavating grade, with the aid of a truck-mounted drilling machine using 8-inch diameter hollowstem augers. The exploration locations are shown on the Plot Plan and the geologic materials encountered are logged on Plates A-1 through A-8.

The location of exploratory excavations was determined from hardscaped features shown in the enclosed Plot Plan. The location of the borings should be considered accurate only to the degree implied by the method used.

Geologic Materials

Fill materials were encountered in all eight exploratory borings, to depths ranging between 3 and 5 feet below the existing site grade. The fill consists of a mixture of silty sand, and sand, which is yellowish brown to dark brown in color, moist, medium dense, and fine grained, with few cobbles.

The fill is in turn underlain by native alluvial soils, consisting primarily of sands and silty sands. The native soils range from yellowish brown to dark brown in color, and are moist, medium dense to very dense, and fine to coarse grained, with layers containing various amounts of pebbles, gravel and cobbles.

More detailed descriptions of the earth materials encountered may be obtained from individual logs of the subsurface excavations.

Groundwater

Groundwater was not encountered during exploration, conducted to a maximum depth of 50 feet below the existing site grade. According to Plate 4B, Generalized Depth to Groundwater (1960) for the Southwestern San Bernardino, Special Report 113 published by CDMG (1974), the depth to groundwater on the subject site is approximately 300 feet below the ground surface. A copy of this map is included in the Appendix of this report.

Fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors not evident at the time of the measurements reported herein. Fluctuations also may occur across the site. High groundwater levels can result in changed conditions.

Caving

Caving could not be directly observed during exploration due to the type of excavation equipment utilized. Based on the experience of this firm, large diameter excavations, excavations that encounter granular, cohesionless soils may experience caving.

SEISMIC EVALUATION

REGIONAL GEOLOGIC SETTING

The subject property is located within the Peninsular Ranges Geomorphic Province. The Peninsular Ranges are characterized by northwest-trending blocks of mountain ridges and sediment-floored valleys. The dominant geologic structural features are northwest trending fault zones that either die out to the northwest or terminate at east-trending reverse faults that form the southern margin of the Transverse Ranges.

The subject property is located south of the Transverse Ranges Geomorphic Province. The Transverse Ranges are characterized by roughly east-west trending mountains and the northern and southern boundaries are formed by reverse fault scarps. The convergent deformational features of the Transverse Ranges are a result of north-south shortening due to plate tectonics. This has resulted in local folding and uplift of the mountains along with the propagation of thrust faults (including blind thrusts). The intervening valleys have been filled with sediments derived from the bordering mountains.

REGIONAL FAULTING

Based on criteria established by the California Division of Mines and Geology (CDMG) now called California Geologic Survey (CGS), Faults may be categorized as Holocene-active, Pre-Holocene faults, and Age-undetermined faults. Holocene-active faults are those which show evidence of surface displacement within the last 11,700 years. Pre-Holocene faults are those that have not moved in the past 11,700 years. Age-undetermined faults are faults where the recency of fault movement has not been determined.

Buried thrust faults are faults without a surface expression but are a significant source of seismic activity. They are typically broadly defined based on the analysis of seismic wave recordings of hundreds of small and large earthquakes in the southern California area. Due to the buried nature of these thrust faults, their existence is usually not known until they produce an earthquake. The risk for surface rupture potential of these buried thrust faults is inferred to be low (Leighton, 1990). However, the seismic risk of these buried structures in terms of recurrence and maximum potential magnitude is not well established. Therefore, the potential for surface rupture on these surface-verging splays at magnitudes higher than 6.0 cannot be precluded.

Rialto-Colton Fault

Based on review of the Fault Activity Map of California (CGS, 2010), and Exhibit 5.1 of the City of Rialto General Plan (December 2010), the inferred location of the Rialto-Colton Fault terminates approximately ⅓-mile to the southeast of the site. Copies of these two maps have been enclosed in the Appendix of this report as the "Fault Activity Map" and the "City of Rialto Fault Map".

The Rialto-Colton Fault is categorized by the California Geologic Survey as a "Late Quaternary" Fault, which last displacement may have occurred within the past 700,000 years. The location of this fault is poorly constrained. No Special Studies Zones have been delineated by the State of California along any part of the Rialto-Colton Fault.

It should be noted that the City of Rialto shows that the groundwater barrier caused by the Rialto-Colton Fault extends beyond the fault trace, and transverses the subject site. This is illustrated in the enclosed City of Rialto Fault Map.

SEISMIC HAZARDS AND DESIGN CONSIDERATIONS

The primary geologic hazard at the site is moderate to strong ground motion (acceleration) caused by an earthquake on any of the local or regional faults. The potential for other earthquake-induced hazards was also evaluated including surface rupture, liquefaction, dynamic settlement, inundation and landsliding.

Surface Rupture

In 1972, the Alquist-Priolo Special Studies Zones Act (now known as the Alquist-Priolo Earthquake Fault Zoning Act) was passed into law. As revised in 2018, The Act defines "Holocene-active" Faults utilizing the same aging criteria as that used by California Geological

Survey (CGS). However, established state policy has been to zone only those faults which have direct evidence of movement within the last 11,700 years. It is this recency of fault movement that the CGS considers as a characteristic for faults that have a relatively high potential for ground rupture in the future.

CGS policy is to delineate a boundary from 200 to 500 feet wide on each side of the Holocene-Active fault trace based on the location precision, the complexity, or the regional significance of the fault. If a site lies within an Earthquake Fault Zone, a geologic fault rupture investigation must be performed that demonstrates that the proposed building site is not threatened by surface displacement from the fault before development permits may be issued.

Ground rupture is defined as surface displacement which occurs along the surface trace of the causative fault during an earthquake. Based on research of available literature and results of site reconnaissance, no known Holocene-active or Pre-Holocene faults underlie the subject site. In addition, the subject site is not located within an Alquist-Priolo Earthquake Fault Zone. Based on these considerations, the potential for surface ground rupture at the subject site is considered low.

Liquefaction

Liquefaction is a phenomenon in which saturated silty to cohesionless soils below the groundwater table are subject to a temporary loss of strength due to the buildup of excess pore pressure during cyclic loading conditions such as those induced by an earthquake. Liquefaction-related effects include loss of bearing strength, amplified ground oscillations, lateral spreading, and flow failures.

Based on the historical highest groundwater level provided in Plate 4B, Generalized Depth to Groundwater (1960) for the Southwestern San Bernardino, Special Report 113 published by CDMG (1974), the depth to groundwater on the subject site is approximately 300 feet below the

ground surface. No groundwater was encountered during exploration, excavated to a maximum depth of 50 feet below existing ground surface.

Due to the depth to the historical highest groundwater level, and the density of the native soils, the soils underlying the site are not considered susceptible to liquefaction during the ground motion expected during the design basis earthquake.

Dynamic Dry Settlement

Seismically-induced settlement or compaction of dry or moist, cohesionless soils can be an effect related to earthquake ground motion. Such settlements are typically most damaging when the settlements are differential in nature across the length of structures.

Some seismically-induced settlement of the proposed structures should be expected as a result of strong ground-shaking, however, due to the uniform nature of the underlying geologic materials, and the density of these materials, excessive differential settlements are not expected to occur.

Tsunamis, Seiches and Flooding

The subject site is far and/or high enough from the ocean or lakes such that it would not be prone to hazards of a tsunami, seiche, or flooding from a breached upgradient reservoir.

Based on review of Exhibit 5.2 of the City of Rialto General Plan (December 2010), the site is located in an area considered outside the 500-year flood plain.

Landsliding

The probability of seismically-induced landslides occurring on the site is considered to be low due to the general lack of elevation difference across or adjacent to the site.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the exploration, laboratory testing, and research, it is the finding of Geotechnologies, Inc. that construction of the proposed development is considered feasible from a geotechnical engineering standpoint provided the advice and recommendations presented herein are followed and implemented during construction.

During exploration, fill materials were observed to extend to depths ranging between 3 and 5 feet below the existing grade. The existing fill materials are not suitable for support of the proposed foundations and interior slabs-on-grade, but may be reused for the preparation of a compacted fill pad. The fill is in turn underlain by native alluvial soils, consisting primarily of interlayered mixtures of sand and silty sand. Groundwater was not encountered during exploration, conducted to a maximum depth of 50 feet below the existing site grade.

The proposed industrial building may be supported by conventional foundations bearing in a uniform compacted fill pad. For the construction of a uniform compacted fill pad, all existing fill materials and upper alluvial soils shall be removed and recompacted to a minimum depth of 5 feet below the proposed grade, or of 3 feet below the bottom of the proposed foundations, whichever is deeper. In addition, the compacted fill should extend horizontally a minimum of 3 feet beyond the edge of foundations or for a distance equal to the depth of fill below the foundation, whichever is greater.

Foundations for small outlying structures that will not be connected to the proposed structure, such as planter walls, screen walls, and trash enclosures, may be supported on conventional foundations bearing in properly placed compacted fill and/or undisturbed native alluvial soils.

Complete removal and recompaction of all existing fill soils is not necessary beneath paving sections or outdoor concrete flatwork such as walkways or patio areas. In order to provide uniform support it is recommended that a minimum of 12 inches of the exposed subgrade beneath the flatwork or paving sections be scarified and recompacted.

The validity of the conclusions and design recommendations presented herein is dependent upon review of the geotechnical aspects of the proposed construction by this firm. The subsurface conditions described herein have been projected from excavations on the site as indicated and should in no way be construed to reflect any variations which may occur between these excavations or which may result from changes in subsurface conditions. Any changes in the design, as outlined in this report, should be reviewed by this office. The recommendations contained herein should not be considered valid until reviewed and modified or reaffirmed subsequent to such review.

SEISMIC DESIGN CONSIDERATIONS

California Building Code Seismic Parameters

Based on information derived from the subsurface investigation, the subject site is classified as Site Class D, which corresponds to a "Stiff Soil" Profile, according to Table 20.3-1 of ASCE 7-16. This information and the site coordinates were input into the OSHPD seismic utility program in order to calculate ground motion parameters for the site.

CALIFORNIA BUILDING CODE SEISMIC PARAMETERS	
California Building Code	2019
ASCE Design Standard	7-16
Site Class	D
Mapped Spectral Acceleration at Short Periods (S_S)	1.924g
Site Coefficient (F_a)	1.0
Maximum Considered Earthquake Spectral Response for Short Periods (S_{MS})	1.924g
Five-Percent Damped Design Spectral Response Acceleration at Short Periods (S_{DS})	1.283g
Mapped Spectral Acceleration at One-Second Period (S_1)	0.759g
Site Coefficient (F_v)	1.7*
Maximum Considered Earthquake Spectral Response for One-Second Period (S_{M1})	1.290g*
Five-Percent Damped Design Spectral Response Acceleration for One-Second Period (S_{D1})	0.860g*

* *According to ASCE 7-16, a Long Period Site Coefficient (F_v) of 1.7 may be utilized provided that the value of the Seismic Response Coefficient (C_s) is determined by Equation 12.8-2 for values of $T \leq 1.5T_s$ and taken as equal to 1.5 times the value computed in accordance with either Equation 12.8-3 for $T_L \geq T > 1.5T_s$ or equation 12.8-4 for $T > T_L$. Alternatively, a site-specific ground motion hazard analysis may be performed in accordance with ASCE 7-16 Section 21.1 and/or a ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 to determine ground motions for any structure.*

EXPANSIVE SOILS

The onsite geologic materials are in the very low expansion range. The Expansion Index was found to be 2 and 3 for bulk samples representative of the on-site soils.

WATER-SOLUBLE SULFATES

The Portland cement portion of concrete is subject to attack when exposed to water-soluble sulfates. Usually the two most common sources of exposure are from soil and marine environments.

The sources of natural sulfate minerals in soils include the sulfates of calcium, magnesium, sodium, and potassium. When these minerals interact and dissolve in subsurface water, a sulfate concentration is created, which will react with exposed concrete. Over time sulfate attack will destroy improperly proportioned concrete well before the end of its intended service life.

The water-soluble sulfate content of the onsite geologic materials was tested by California Test 417. The water-soluble sulfate content was determined to be less than 0.1% percentage by weight for the soils tested. Based on the most recent revision to American Concrete Institute (ACI) Standard 318, the sulfate exposure is considered to be negligible for geologic materials with less than 0.1% and Type I cement may be utilized for concrete foundations in contact with the site soils.

GRADING GUIDELINES

Site Preparation

- A thorough search should be made for possible underground utilities and/or structures. Any existing or abandoned utilities or structures located within the footprint of the proposed grading should be removed or relocated as appropriate.

- All vegetation, existing fill, and soft or disturbed geologic materials should be removed from the areas to receive controlled fill. All existing fill materials and any disturbed geologic materials resulting from grading operations shall be completely removed and properly recompacted prior to foundation excavation.

- Any vegetation or associated root system located within the footprint of the proposed structures should be removed during grading.

- Subsequent to the indicated removals, the exposed grade shall be scarified to a depth of six inches, moistened to optimum moisture content, and recompacted in excess of the minimum required comparative density.

- The excavated areas shall be observed by the geotechnical engineer prior to placing compacted fill.

Recommended Overexcavation

Within the proposed building area, all fill and upper native alluvial soils shall be excavated to a minimum depth of 5 feet below the bottom of the proposed grade, or 3 feet below the bottom of the proposed foundations, whichever is greater. The excavation shall extend at least 3 feet beyond the edge of foundations, or for a distance equal to the depth of fill below the foundations, whichever is greater. It is very important that the position of the proposed structure is accurately located so that the limits of the graded area are accurate, and the grading operation proceeds efficiently.

Compaction

All fill should be mechanically compacted in layers not more than 8 inches thick. All fill shall be compacted to at least 90 percent of the maximum laboratory density for the materials used. The maximum density shall be determined by the laboratory operated by Geotechnologies, Inc. using the test method described in the most recent revision of ASTM D 1557.

Field observation and testing shall be performed by a representative of the geotechnical engineer during grading to assist the contractor in obtaining the required degree of compaction and the proper moisture content. Where compaction is less than required, additional compactive effort shall be made with adjustment of the moisture content, as necessary, until a minimum of 90 percent compaction is obtained.

Acceptable Materials

The excavated onsite geologic materials are considered satisfactory for reuse in compacted fills as long as any oversize material, debris and/or organic matter is removed. Cobbles should be expected to be present in the on-site materials. Cobbles exceeding 6 inches in dimension shall not be utilized in compacted fills.

Any imported soil shall be observed and tested by the representative of the geotechnical engineer prior to use in fill areas. Imported materials should contain sufficient fines so as to be relatively impermeable and result in a stable subgrade when compacted. Any required import soil should have an expansion index less than 40. The water-soluble sulfate content of the import materials should be less than 0.1% percentage by weight.

Imported soil should be free from chemical or organic substances which could affect the proposed development. A competent professional should be retained in order to test imported materials and address environmental issues and organic substances which might affect the proposed development.

Utility Trench Backfill

Utility trenches should be backfilled with controlled fill. The utility should be bedded with clean sands at least one foot over the crown. The remainder of the backfill may be onsite soil compacted to 90 percent of the laboratory maximum density. Utility trench backfill should be tested by representatives of this firm in general accordance with the most recent revision of ASTM D 1557.

Shrinkage

Shrinkage results when a volume of soil removed at one density is compacted to a higher density. A shrinkage factor between 2 and 12 percent should be anticipated when excavating and recompacting the existing fill and underlying native geologic materials on the site to an average comparative compaction of 92 percent.

Weather Related Grading Considerations

When rain is forecast all fill that has been spread and awaits compaction shall be properly compacted prior to stopping work for the day or prior to stopping due to inclement weather. These fills, once compacted, shall have the surface sloped to drain to an area where water can be removed.

Temporary drainage devices should be installed to collect and transfer excess water to the street in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope.

Work may start again, after a period of rainfall, once the site has been reviewed by a representative of this office. Any soils saturated by the rain shall be removed and aerated so that the moisture content will fall within three percent of the optimum moisture content.

Surface materials previously compacted before the rain shall be scarified, brought to the proper moisture content and recompacted prior to placing additional fill, if considered necessary by a representative of this firm.

Abandoned Seepage Pits

No abandoned seepage pits were encountered during exploration and none are known to exist on the site. However, should such a structure be encountered during grading, options to permanently abandon seepage pits include complete removal and backfill of the excavation with compacted fill, or drilling out the loose materials and backfilling to within a few feet of grade with slurry, followed by a compacted fill cap.

If the subsurface structures are to be removed by grading, the entire structure should be demolished. The resulting void may be refilled with compacted soil. Concrete and brick generated during the seepage pit removal may be reused in the fill as long as all fragments are less than 6 inches in longest dimension and the debris comprises less than 15 percent of the fill by volume. All grading should comply with the recommendations of this report.

Where the seepage pit structure is to be left in place, the seepage pits should cleaned of all soil and debris. This may be accomplished by drilling. The pits should be filled with minimum 1-1/2 sack concrete slurry to within 5 feet of the bottom of the proposed foundations. In order to provide a more uniform foundation condition, the remainder of the void should be filled with controlled fill.

Geotechnical Observations and Testing During Grading

Geotechnical observations and testing during grading are considered to be a continuation of the geotechnical investigation. It is critical that the geotechnical aspects of the project be reviewed by representatives of Geotechnologies, Inc. during the construction process. Compliance with the design concepts, specifications or recommendations during construction requires review by this firm during the course of construction. Any fill which is placed should be observed, tested, and

verified if used for engineered purposes. Please advise this office at least twenty-four hours prior to any required site visit.

Proper compaction is necessary to reduce settlement of overlying improvements. Some settlement of compacted fill should be anticipated. Any utilities supported therein should be designed to accept differential settlement. Differential settlement should also be considered at the points of entry to the structure.

LEED Considerations

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System encourages adoption of sustainable green building and development practices. Credit for LEED Certification can be assigned for reuse of construction waste and diversion of materials from landfills in new construction.

In an effort to provide the design team with a viable option in this regard, demolition debris could be crushed onsite in order to use it in the ongoing grading operations. The environmental ramifications of this option, if any, should be considered by the team.

The demolition debris should be limited to concrete, asphalt and other non-deleterious materials. All deleterious materials should be removed including, but not limited to, paper, garbage, ceramic materials and wood.

For structural fill applications, the materials should be crushed to 2 inches in maximum dimension or smaller. The crushed materials should be thoroughly blended and mixed with onsite soils prior to placement as compacted fill. The amount of crushed material should not exceed 20 percent. The blended and mixed materials should be tested by this office prior to placement to insure it is suitable for compaction purposes. The blended and mixed materials

should be tested by Geotechnologies, Inc. during placement to ensure that it has been compacted in a suitable manner.

FOUNDATION DESIGN

Conventional

The proposed industrial building may be supported by conventional foundations bearing in a properly compacted fill pad. Continuous foundations may be designed for a bearing capacity of 2,750 pounds per square foot, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended compacted fill pad.

Column foundations may be designed for a bearing capacity of 3,250 pounds per square foot, and should be a minimum of 24 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended compacted fill pad.

The bearing capacity increase for each additional foot of width is 150 pounds per square foot. The bearing capacity increase for each additional foot of depth is 500 pounds per square foot. The maximum recommended bearing capacity is 6,000 pounds per square foot.

The bearing capacities indicated above are for the total of dead and frequently applied live loads, and may be increased by one third for short duration loading, which includes the effects of wind or seismic forces.

Miscellaneous Foundations

Conventional foundations for structures such as privacy walls or trash enclosures which will not be rigidly connected to the proposed structure may bear in properly compacted fill, or may be deepened through any existing fill to bear in undisturbed alluvial soils. Miscellaneous continuous

foundations may be designed for a bearing capacity of 2,000 pounds per square foot, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended bearing material. No bearing capacity increases are recommended. Since the recommended bearing capacity is a net value, the weight of concrete in the foundations may be taken as 50 pounds per cubic foot and the weight of the soil backfill may be neglected when determining the downward load on the foundations.

Foundation Reinforcement

All continuous foundations should be reinforced with a minimum of two #4 steel bars. One should be placed near the top of the foundation, and one should be placed near the bottom.

Lateral Design

Resistance to lateral loading may be provided by friction acting at the base of foundations and by passive earth pressure. An allowable coefficient of friction of 0.35 may be used with the dead load forces.

Passive geologic pressure for the sides of foundations poured against undisturbed or recompacted soil may be computed as an equivalent fluid having a density of 300 pounds per cubic foot with a maximum earth pressure of 1,500 pounds per square foot.

The passive and friction components may be combined for lateral resistance without reduction. A one-third increase in the passive value may be used for short duration loading such as wind or seismic forces.

Foundation Settlement

Settlement of the foundation system is expected to occur on initial application of loading. The maximum settlement is not expected to exceed ½-inch and occur below the heaviest loaded columns. Differential settlement is not expected to exceed ¼-inch.

Foundation Observations

It is critical that all foundation excavations are observed by a representative of this firm to verify penetration into the recommended bearing materials. The observation should be performed prior to the placement of reinforcement. Foundations should be deepened to extend into satisfactory geologic materials, if necessary.

Foundation excavations should be cleaned of all loose soils prior to placing steel and concrete. Any required foundation backfill should be mechanically compacted, flooding is not permitted.

RETAINING WALL DESIGN

Miscellaneous Cantilever Retaining Walls

The proposed building will be built near the existing site grade. Therefore, the only retaining walls anticipated would be associated with the construction of loading docks.

Miscellaneous retaining walls supporting a level backslope may be designed utilizing a triangular distribution of pressure. Cantilever retaining walls may be designed for 30 pounds per cubic foot for walls retaining up to 6 feet of earth.

For this equivalent fluid pressure to be valid, walls which are to be restrained at the top should be backfilled prior to the upper connection being made. Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures.

Dynamic (Seismic) Earth Pressure

Based on the 2019 California Building Code, retaining walls exceeding 6 feet in height shall be designed to resist the additional earth pressure caused by seismic ground shaking. Miscellaneous retaining walls anticipated for the proposed project are not expected to exceed 6 feet in height. Therefore the dynamic earth pressure may be omitted.

Retaining Wall Drainage

Retaining walls should be provided with a subdrain. Subdrains may consist of 4-inch diameter perforated pipes, places with perforated facing down. The pipe shall be encased in at least one foot of gravel around the pipe. The gravel shall be wrapped in filter fabric. The gravel may consist of three-quarter inch to one-inch crushed rock.

As an alternative to the standard perforated subdrain pipe and gravel drainage system, the use of gravel pockets and weepholes is an acceptable drainage method. Weepholes shall be a minimum of 2 inches in diameter, placed at 8 feet on center along the base of the wall. Gravel pockets shall be a minimum of 1 cubic foot in dimension, and may consist of three-quarter inch to one-inch crushed rocks, wrapped in filter fabric.

Certain types of subdrain pipe are not acceptable to the various municipal agencies, it is recommended that prior to purchasing subdrainage pipe, the type and brand is cleared with the proper municipal agencies. Subdrainage pipes should outlet to an acceptable location.

The lateral earth pressures recommended above for retaining walls assume that a permanent drainage system will be installed so that external water pressure will not be developed against the walls. If a drainage system is not provided, the walls should be designed to resist an external hydrostatic pressure due to water in addition to the lateral earth pressure. In any event, it is recommended that retaining walls be waterproofed.

Sump Pump Design

The purpose of the recommended retaining wall drainage system is to relieve hydrostatic pressure for retaining walls bearing above the design-based groundwater level, where the only water which could affect the proposed retaining walls would be irrigation waters and precipitation.

Based on these considerations the retaining wall drainage system is not expected to experience an appreciable flow of water, and in particular, no groundwater will affect it. However, for the purposes of design, a flow of 5 gallons per minute may be assumed.

Waterproofing

Moisture effecting retaining walls is one of the most common post construction complaints. Poorly applied or omitted waterproofing can lead to efflorescence or standing water inside the building. Efflorescence is a process in which a powdery substance is produced on the surface of the concrete by the evaporation of water. The white powder usually consists of soluble salts such as gypsum, calcite, or common salt. Efflorescence is common to retaining walls and does not affect their strength or integrity.

It is recommended that retaining walls be waterproofed. Waterproofing design and inspection of its installation is not the responsibility of the geotechnical engineer. A qualified waterproofing

consultant should be retained in order to recommend a product or method which would provide protection to below grade walls.

Retaining Wall Backfill

Any required backfill should be mechanically compacted in layers not more than 8 inches thick, to at least 90 percent of the maximum density obtainable by the most recent revision of ASTM D 1557 method of compaction. Flooding should not be permitted. Compaction within 5 feet, measured horizontally, behind a retaining structure should be achieved by use of light weight, hand operated compaction equipment.

Proper compaction of the backfill will be necessary to reduce settlement of overlying walks and paving. Some settlement of required backfill should be anticipated, and any utilities supported therein should be designed to accept differential settlement, particularly at the points of entry to the structure.

TEMPORARY EXCAVATIONS

The on-site fill and native soils are suitable for vertical excavations up to 5 feet where not surcharged by adjacent traffic, structures or property lines. Where sufficient space is available, temporary unsurcharged embankments could be cut at a uniform 1:1 slope gradient to a maximum depth of 10 feet. A uniform sloped excavation is sloped from bottom to top and does not have a vertical component.

Where sloped embankments are utilized, the tops of the slopes should be barricaded to prevent vehicles and storage loads near the top of slope within a horizontal distance equal to the depth of the excavation. If the temporary construction embankments are to be maintained during the rainy season, berms are strongly recommended along the tops of the slopes to prevent runoff water

from entering the excavation and eroding the slope faces. Water should not be allowed to pond on top of the excavation nor to flow towards it.

Excavation Observations

It is critical that the soils exposed in the cut slopes are observed by a representative of Geotechnologies, Inc. during excavation so that modifications of the slopes can be made if variations in the geologic material conditions occur. Many building officials require that temporary excavations should be made during the continuous observations of the geotechnical engineer. All excavations should be stabilized within 30 days of initial excavation.

SLABS ON GRADE

Concrete Slabs-on Grade

Interior concrete floor slabs should be a minimum of 4 inches in thickness. Slabs-on-grade should be cast over properly compacted fill materials. Any geologic materials loosened or over-excavated should be wasted from the site or properly compacted to 90 percent of the maximum dry density.

Outdoor concrete flatwork, not subject to vehicular traffic, should be a minimum of 4 inches in thickness. Outdoor concrete flatwork should be cast over undisturbed native soils or properly compacted fill materials. Any geologic materials loosened or over-excavated should be wasted from the site or properly compacted to 90 percent of the maximum dry density.

Design of Slabs That Receive Moisture-Sensitive Floor Coverings

Geotechnologies, Inc. does not practice in the field of moisture vapor transmission evaluation and mitigation. Therefore, it is recommended that a qualified consultant be engaged to evaluate

the general and specific moisture vapor transmission paths and any impact on the proposed construction. The qualified consultant should provide recommendations for mitigation of potential adverse impacts of moisture vapor transmission on various components of the structure.

Where dampness would be objectionable, it is recommended that the floor slabs should be waterproofed. A qualified waterproofing consultant should be retained in order to recommend a product or method which would provide protection for concrete slabs-on-grade.

All concrete slabs-on-grade should be supported on vapor retarder. The design of the slab and the installation of the vapor retarder should comply with the most recent revisions of ASTM E 1643 and ASTM E 1745. The vapor retarder should comply with ASTM E 1745 Class A requirements.

Where a vapor retarder is used, a low-slump concrete should be used to minimize possible curling of the slabs. The barrier can be covered with a layer of trimable, compactible, granular fill, where it is thought to be beneficial. Where a granular fill layer is utilized, this layer should be a minimum of 2 inches in thickness. See ACI 302.2R-32, Chapter 7 for information on the placement of vapor retarders and the use of a fill layer.

Concrete Crack Control

The recommendations presented in this report are intended to reduce the potential for cracking of concrete slabs-on-grade due to settlement. However even where these recommendations have been implemented, foundations, stucco walls and concrete slabs-on-grade may display some cracking due to minor soil movement and/or concrete shrinkage. The occurrence of concrete cracking may be reduced and/or controlled by limiting the slump of the concrete used, proper concrete placement and curing, and by placement of crack control joints at reasonable intervals, in particular, where re-entrant slab corners occur.

For standard control of concrete cracking, a maximum crack control joint spacing of 15 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle points are recommended. The crack control joints should be installed as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by a structural engineer.

Complete removal of the existing fill soils beneath outdoor flatwork such as walkways or patio areas, is not required, however, due to the rigid nature of concrete, some cracking, a shorter design life and increased maintenance costs should be anticipated. In order to provide uniform support beneath the flatwork it is recommended that a minimum of 12 inches of the exposed subgrade beneath the flatwork be scarified and recompacted to 90 percent relative compaction.

Slab Reinforcing

Concrete slabs-on-grade and outdoor flatwork should be reinforced with a minimum of #3 steel bars on 24-inch centers each way.

PAVEMENTS

Prior to placing paving, the existing grade should be scarified to a depth of 12 inches, moistened as required to obtain optimum moisture content, and recompacted to 95 percent of the maximum density as determined by the most recent revision of ASTM D 1557. The client should be aware that removal of all existing fill in the area of new paving is not required. However, pavement constructed in this manner will most likely have a shorter design life and increased maintenance costs. The following pavement sections are recommended:

Service	Asphalt Pavement Thickness Inches	Base Course Inches
Passenger Cars	3	4
Medium Trucks	4	6
Heavy Trucks	5	8

Concrete paving may also be utilized for the project. For concrete paving sections to be subject to passenger cars and medium truck traffic, concrete paving shall be a minimum of 6 inches in thickness, and shall be underlain by 4 inches of aggregate base. For concrete paving sections to be subject to heavy truck traffic, concrete paving shall be a minimum of 7 inches in thickness, and shall be underlain by 4 inches of aggregate base. For standard crack control maximum expansion joint spacing of 15 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle points are recommended. Concrete paving should be reinforced with a minimum of #3 steel bars on 24-inch centers each way.

Aggregate base should be compacted to a minimum of 95 percent of the most recent revision of ASTM D 1557 laboratory maximum dry density. Base materials should conform to Sections 200-2.2 or 200-2.4 of the "Standard Specifications for Public Works Construction", (Green Book), latest edition.

The performance of pavement is highly dependent upon providing positive surface drainage away from the edges. Ponding of water on or adjacent to pavement can result in saturation of the subgrade materials and subsequent pavement distress.

SITE DRAINAGE

Proper surface drainage is critical to the future performance of the project. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. Proper site drainage should be maintained at all times.

All site drainage, with the exception of any required to disposed of onsite by stormwater regulations, should be collected and transferred to the street in non-erosive drainage devices. The proposed structure should be provided with roof drainage. Discharge from downspouts, roof drains and scuppers should not be permitted on unprotected soils within five feet of the building perimeter. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope. Planters which are located within a distance equal to the depth of a retaining wall should be sealed to prevent moisture adversely affecting the wall. Planters which are located within five feet of a foundation should be sealed to prevent moisture affecting the earth materials supporting the foundation.

STORMWATER DISPOSAL

Introduction

Recently regulatory agencies have been requiring the disposal of a certain amount of stormwater generated on a site by infiltration into the site soils. Increasing the moisture content of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. This means that any overlying structure, including buildings, pavements and concrete flatwork, could sustain damage due to saturation of the subgrade soils. Structures serviced by subterranean levels could be adversely impacted by stormwater disposal by increasing the design fluid pressures on retaining walls and causing leaks in the walls. Proper site drainage is critical to the performance of any structure in the built environment.

The Proposed System

Due to the preliminary stage of the project, the type and location of any potential stormwater disposal system have not been specifically addressed for the proposed development. Based on

communication with the civil engineer, it is anticipated that the infiltration will be conducted at depths ranging between 10 and 15 feet below the existing site grade.

The final location and design of the proposed infiltration system shall be reviewed and approved by this office prior to construction to evaluate whether the intent of the recommendations provided by this firm are satisfied.

Percolation Testing

Percolation testing was conducted in Borings B7 and B8, following the Porchet Method. Both borings were drilled to a depth of 15 feet. At the completion of drilling, a 2-inch diameter casing was placed within the center of the borehole for the purpose of conducting percolation testing. The casing consisted of a slotted PVC pipe within the lower 5 feet of the borehole, and solid PVC pipe to the top of the borehole. A sand pack consisting of #3 Monterey Sand was poured into the annular space around the slotted portion of the casing. A 1-foot thick, hydrated bentonite seal was placed over the sand and drill cuttings were placed to the ground surface.

Prior to testing, the boreholes were filled with water for the purpose of pre-soaking for 2 hours. After presoaking, the boreholes were refilled with water, and the rate of drop in the water level was measured. The percolation test readings were recorded a minimum of 8 times or until a stabilized rate of drop was obtained, whichever occurred first.

The table below summarizes the results of the infiltration rate derived from the testing. Field readings and calculations for the percolation testing are included in the Appendix. These infiltration rates do not include a safety factor. A safety factor shall be added to this rate. The civil engineer shall determine and apply a safety factor which is adequate for the design of the proposed infiltration system.

Boring No.	Depth of Boring Below Existing Ground Surface (ft.)	Percolation Testing Conducted Between Depths (ft.)	Infiltration Rate (in./hr.)
B7	15	10 to 15	30.3
B8	15	10 to 15	37.0

At the completion of the percolation testing, the PVC casing was removed from the percolation testing well, and the resulting hole was backfilled with on-site soils to the ground surface.

Stormwater Disposal Recommendations

Based on the results of the exploration, testing and research, it is the finding of this firm that on-site stormwater infiltration disposal is feasible from a geotechnical standpoint. The potential infiltration system is not expected to impact the neighboring or proposed developments, provided the advice and recommendations presented herein are implemented during design and construction.

The native site soils encountered during the geotechnical explorations conducted by this firm consist mainly of sandy soils suitable for stormwater infiltration. The previous section of this report presents the anticipated infiltration rates of selected soil layers. These infiltration rates may be utilized by the civil engineer for the design of a stormwater infiltration system suitable for the project.

Any proposed stormwater infiltration system should be located at least 10 feet away from any building or private property line. The final location and design of the proposed infiltration system shall be reviewed and approved by this office prior to construction.

The infiltration system should permit percolation below a depth of 10 feet below grade. The alluvial deposits encountered below a depth of 10 feet should allow stormwater to percolate in a generally vertical manner. Therefore, there is no potential for creating a perched water condition.

The onsite soils are in the very low expansion range, and are not susceptible to hydroconsolidation. The site is not located in a hillside area and no slopes are nearby. The site is not located in an area considered susceptible to liquefaction.

It is recommended that the design team, including the structural engineer, waterproofing consultant, plumbing engineer, environmental engineer and landscape architect be consulted in regards to the design and construction of filtration systems. The design and construction of stormwater infiltration systems is not the responsibility of the geotechnical engineer. However, based on the experience of this firm, it is recommended that several aspects of the use of such facilities should be considered by the design and construction team:

- All infiltration devices should be provided with overflow protection. Once the device is full of water, additional water flowing to the device should be diverted to another acceptable disposal area, or disposed offsite in an acceptable manner.

- All connections associated with stormwater infiltration systems should be sealed and water-tight. Water leaking into the subgrade soils can lead to loss of strength, piping, erosion, settlement and/or expansion of the effected earth materials.

- Excavations proposed for the installation of stormwater systems should comply with the "Temporary Excavations" sections of this geotechnical engineering investigation, as well as CalOSHA Regulations where applicable.

- Caving should be expected during drilling of any potential drywells. Where caving occurs, it will be necessary to utilize casing to maintain an open shaft. Cobbles and gravel should be expected during drilling.

DESIGN REVIEW

Engineering of the proposed project should not begin until approval of the geotechnical report by the Building Official is obtained in writing. Significant changes in the geotechnical recommendations may result during the building department review process.

It is recommended that the geotechnical aspects of the project be reviewed by this firm during the design process. This review provides assistance to the design team by providing specific recommendations for particular cases, as well as review of the proposed construction to evaluate whether the intent of the recommendations presented herein are satisfied.

CONSTRUCTION MONITORING

Geotechnical observations and testing during construction are considered to be a continuation of the geotechnical investigation. It is critical that this firm review the geotechnical aspects of the project during the construction process. Compliance with the design concepts, specifications or recommendations during construction requires review by this firm during the course of construction. All foundations should be observed by a representative of this firm prior to placing concrete or steel. Any fill which is placed should be observed, tested, and verified if used for engineered purposes. Please advise Geotechnologies, Inc. at least twenty-four hours prior to any required site visit.

If conditions encountered during construction appear to differ from those disclosed herein, notify Geotechnologies, Inc. immediately so the need for modifications may be considered in a timely manner.

It is the responsibility of the contractor to ensure that all excavations and trenches are properly sloped or shored. All temporary excavations should be cut and maintained in accordance with applicable OSHA rules and regulations.

EXCAVATION CHARACTERISTICS

The exploration performed for this investigation is limited to the geotechnical excavations described. Direct exploration of the entire site would not be economically feasible. The owner, design team and contractor must understand that differing excavation and drilling conditions may be encountered based on boulders, gravel, oversize materials, groundwater and many other conditions. Fill materials, especially when they were placed without benefit of modern grading codes, regularly contain materials which could impede efficient grading and drilling. Southern California sedimentary bedrock is known to contain variable layers which reflect differences in depositional environment. Such layers may include abundant gravel, cobbles and boulders. Similarly bedrock can contain concretions. Concretions are typically lenticular and follow the bedding. They are formed by mineral deposits. Concretions can be very hard. Excavation and drilling in these areas may require full size equipment and coring capability. The contractor should be familiar with the site and the geologic materials in the vicinity.

CLOSURE AND LIMITATIONS

The purpose of this report is to aid in the design and completion of the described project. Implementation of the advice presented in this report is intended to reduce certain risks associated with construction projects. The professional opinions and geotechnical advice contained in this report are sought because of special skill in engineering and geology and were prepared in accordance with generally accepted geotechnical engineering practice. Geotechnologies, Inc. has a duty to exercise the ordinary skill and competence of members of the engineering profession. Those who hire Geotechnologies, Inc. are not justified in expecting infallibility, but can expect reasonable professional care and competence.

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the geologic conditions do not deviate from those disclosed in the investigation. If any variations are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geotechnologies, Inc. should be notified so that supplemental recommendations can be prepared.

This report is issued with the understanding that it is the responsibility of the owner, or the owner's representatives, to ensure that the information and recommendations contained herein are brought to the attention of the project architect and engineer and are incorporated into the plans. The owner is also responsible to see that the contractor and subcontractors carry out the geotechnical recommendations during construction.

The findings of this report are valid as of the date of this report. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside control of this firm. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Geotechnical observations and testing during construction is considered to be a continuation of the geotechnical investigation. It is, therefore, most prudent to employ the consultant performing the initial investigative work to provide observation and testing services during construction. This practice enables the project to flow smoothly from the planning stages through to completion.

Should another geotechnical firm be selected to provide the testing and observation services during construction, that firm should prepare a letter indicating their assumption of the responsibilities of geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for review. The letter should acknowledge the concurrence of the new geotechnical engineer with the recommendations presented in this report.

EXCLUSIONS

Geotechnologies, Inc. does not practice in the fields of methane gas, radon gas, environmental engineering, waterproofing, dewatering organic substances or the presence of corrosive soils or wetlands which could affect the proposed development including mold and toxic mold. Nothing in this report is intended to address these issues and/or their potential effect on the proposed development. A competent professional consultant should be retained in order to address environmental issues, waterproofing, organic substances and wetlands which might effect the proposed development.

GEOTECHNICAL TESTING

Classification and Sampling

The soil is continuously logged by a representative of this firm and classified by visual examination in accordance with the Unified Soil Classification system. The field classification is verified in the laboratory, also in accordance with the Unified Soil Classification System. Laboratory classification may include visual examination, Atterberg Limit Tests and grain size distribution. The final classification is shown on the excavation logs.

Samples of the geologic materials encountered in the exploratory excavations were collected and transported to the laboratory. Undisturbed samples of soil are obtained at frequent intervals. Unless noted on the excavation logs as an SPT sample, samples acquired while utilizing a

hollow-stem auger drill rig are obtained by driving a thin-walled, California Modified Sampler with successive 30-inch drops of a 140-pound automatic-trip hammer. The soil is retained in brass rings of 2.50 inches outside diameter and 1.00 inch in height. The central portion of the samples are stored in close fitting, waterproof containers for transportation to the laboratory. Samples noted on the excavation logs as SPT samples are obtained in general accordance with the most recent revision of ASTM D 1586. Samples are retained for 30 days after the date of the geotechnical report.

Moisture and Density Relationships

The field moisture content and dry unit weight are determined for each of the undisturbed soil samples, and the moisture content is determined for SPT samples in general accordance with the most recent revision of ASTM D 4959 or ASTM D 4643. This information is useful in providing a gross picture of the soil consistency between exploration locations and any local variations. The dry unit weight is determined in pounds per cubic foot and shown on the "Excavation Logs", A-Plates. The field moisture content is determined as a percentage of the dry unit weight.

Direct Shear Testing

Shear tests are performed in general accordance with the most recent revision of ASTM D 3080 with a strain controlled, direct shear machine manufactured by Soil Test, Inc. or a Direct Shear Apparatus manufactured by GeoMatic, Inc. The rate of deformation ranges between approximately 0.005 and 0.025 inches per minute. Each sample is sheared under varying confining pressures in order to determine the Mohr-Coulomb shear strength parameters of the cohesion intercept and the angle of internal friction. Samples are generally tested in an artificially saturated condition. Depending upon the sample location and future site conditions, samples may be tested at field moisture content. The results are plotted on the "Shear Test Diagram," B-Plates.

The most recent revision of ASTM 3080 limits the particle size to 10 percent of the diameter of the direct shear test specimen. The sheared sample is inspected by the laboratory technician running the test. The inspection is performed by splitting the sample along the sheared plane and observing the soils exposed on both sides. Where oversize particles are observed in the shear plane, the results are discarded and the test run again with a fresh sample.

Consolidation Testing

Settlement predictions of the soil's behavior under load are made on the basis of the consolidation tests in general accordance with the most recent revision of ASTM D 2435. The consolidation apparatus is designed to receive a single one-inch high ring. Loads are applied in several increments in a geometric progression, and the resulting deformations are recorded at selected time intervals. Porous stones are placed in contact with the top and bottom of each specimen to permit addition and release of pore fluid. Samples are generally tested at increased moisture content to determine the effects of water on the bearing soil. The normal pressure at which the water is added is noted on the drawing. Results are plotted on the "Consolidation Test," C-Plates.

Expansion Index Testing

The expansion tests performed on the remolded samples are in accordance with the Expansion Index testing procedures, as described in the most recent revision of ASTM D 4829. The soil sample is compacted into a metal ring at a saturation degree of 50 percent. The ring sample is then placed in a consolidometer, under a vertical confining pressure of 1 lbf/square inch and inundated with distilled water. The deformation of the specimen is recorded for a period of 24 hour or until the rate of deformation becomes less than 0.0002 inches/hour, whichever occurs first. The expansion index, EI, is determined by dividing the difference between final and initial

height of the ring sample by the initial height, and multiplied by 1,000. Results are presented in Plate D of this report.

Laboratory Compaction Characteristics

The maximum dry unit weight and optimum moisture content of a soil are determined in general accordance with the most recent revision of ASTM D 1557. A soil at a selected moisture content is placed in five layers into a mold of given dimensions, with each layer compacted by 25 blows of a 10 pound hammer dropped from a distance of 18 inches subjecting the soil to a total compactive effort of about 56,000 pounds per cubic foot. The resulting dry unit weight is determined. The procedure is repeated for a sufficient number of moisture contents to establish a relationship between the dry unit weight and the water content of the soil. The data when plotted represent a curvilinear relationship known as the compaction curve. The values of optimum moisture content and modified maximum dry unit weight are determined from the compaction curve. Results are presented in Plate D of this report.

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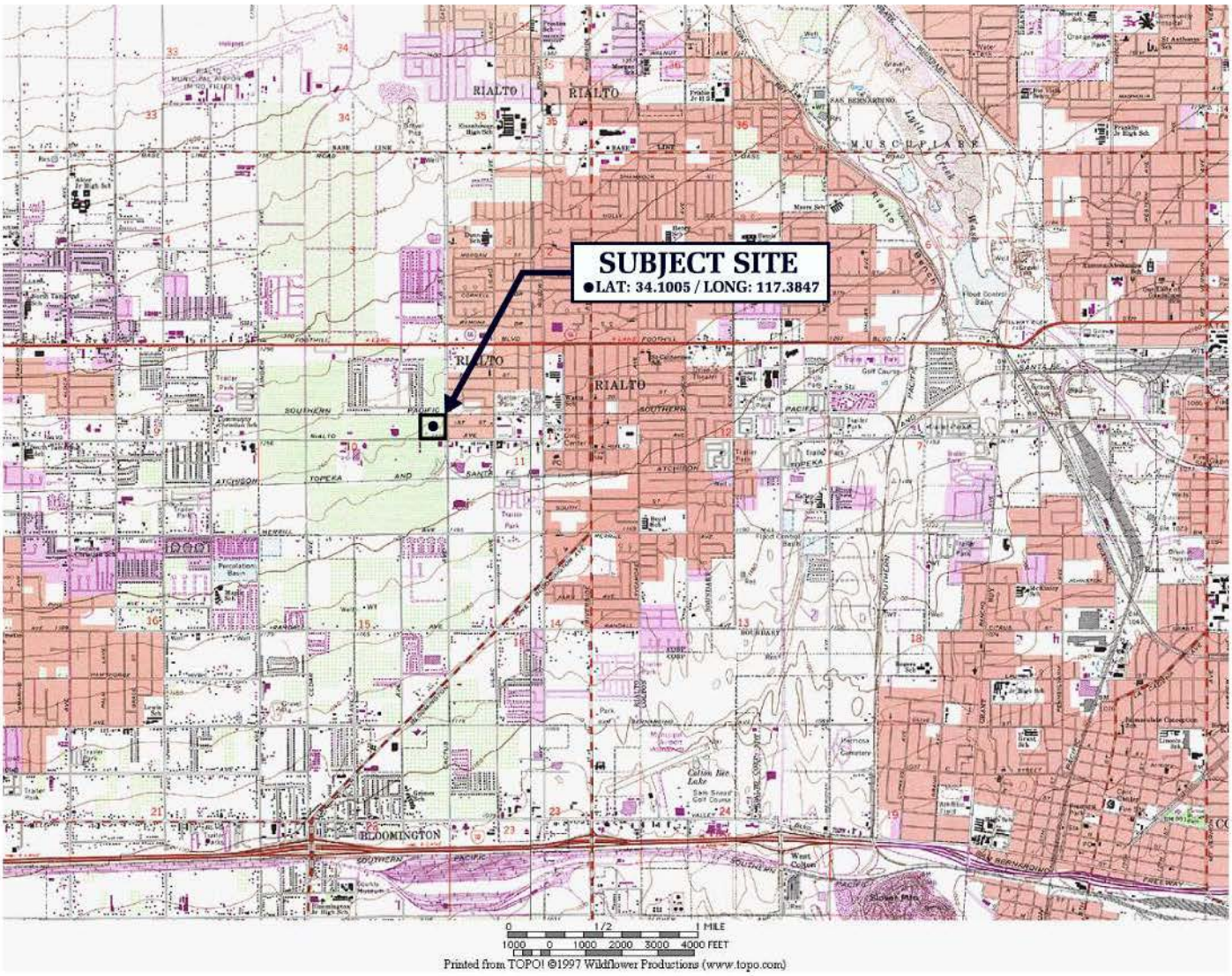


N

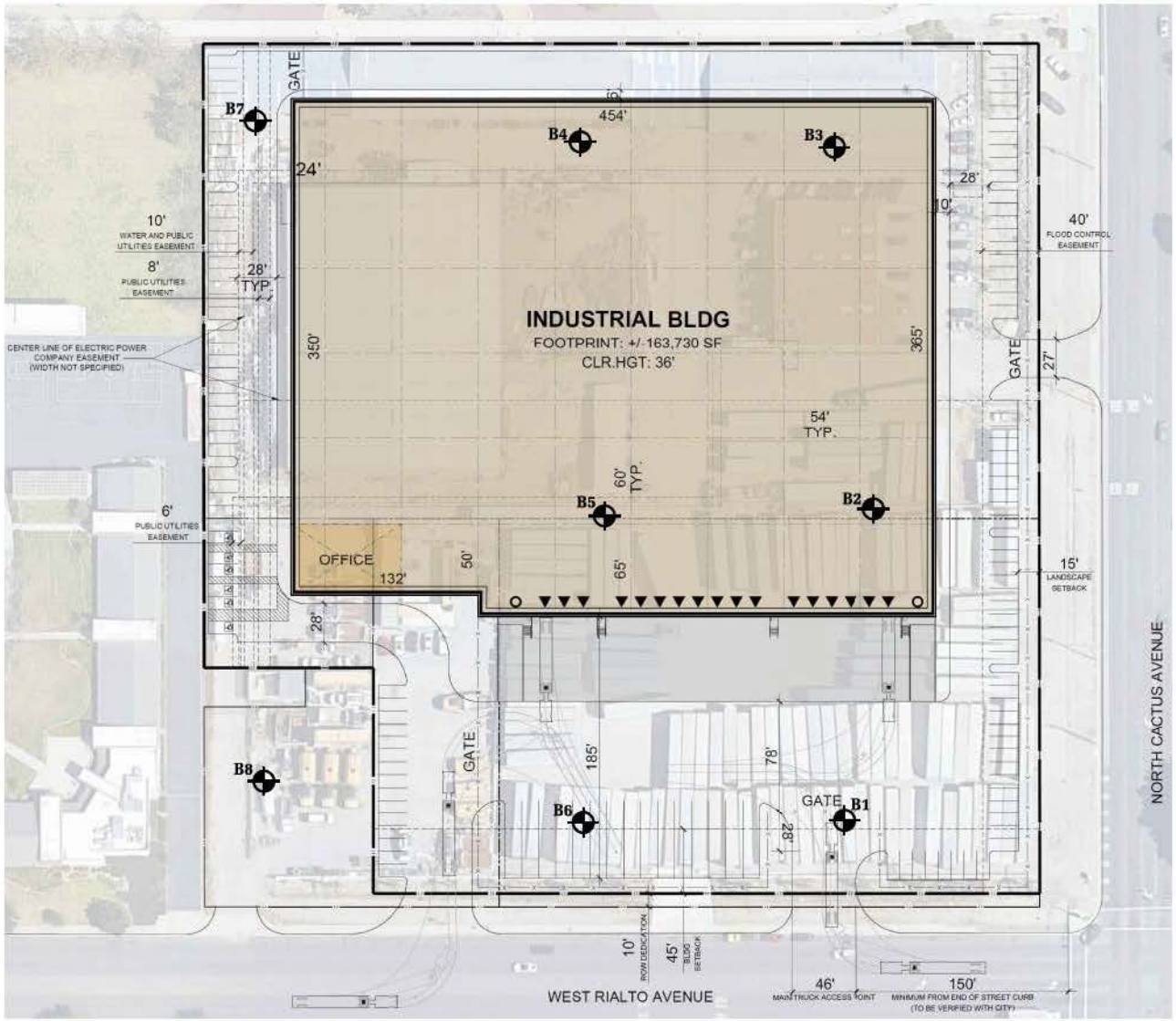
REFERENCE: U.S.G.S. TOPOGRAPHIC MAPS, 7.5 MINUTE SERIES, FONTANA, CA QUADRANGLE

VICINITY MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257



SCALE IN FEET

0 80 160

LEGEND

B8 LOCATION & NUMBER OF BORING

REFERENCE: CONCEPTUAL SITE PLAN BY WARE MALCOMB DATED 05/23/22

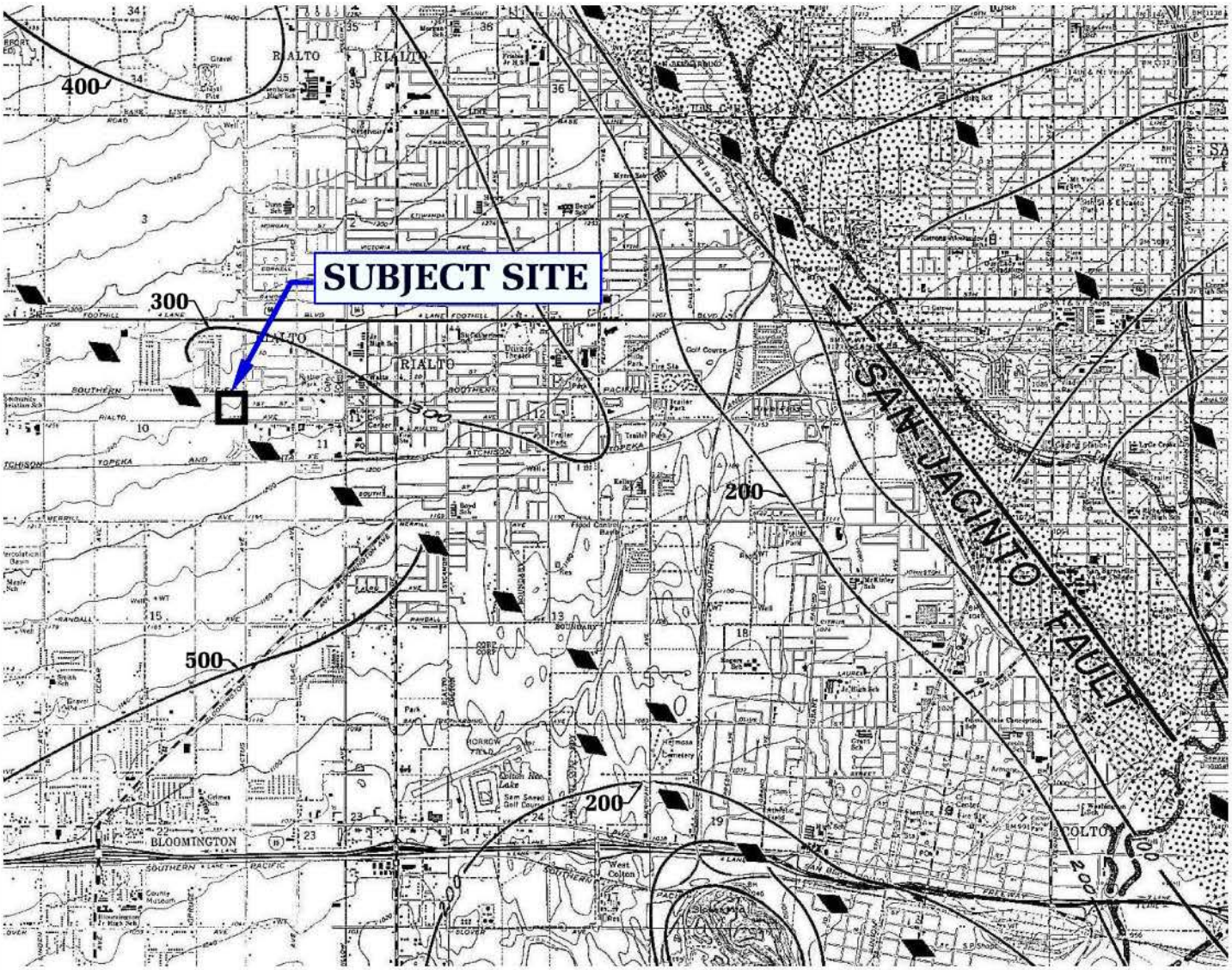
Geotechnologies, Inc.
Consulting Geotechnical Engineers

PLOT PLAN

LINCOLN PROPERTY COMPANY

File No.: 22257

Date: May 2022



SCALE IN MILES

0 1 2

300 Depth to groundwater in feet

N

REFERENCE:

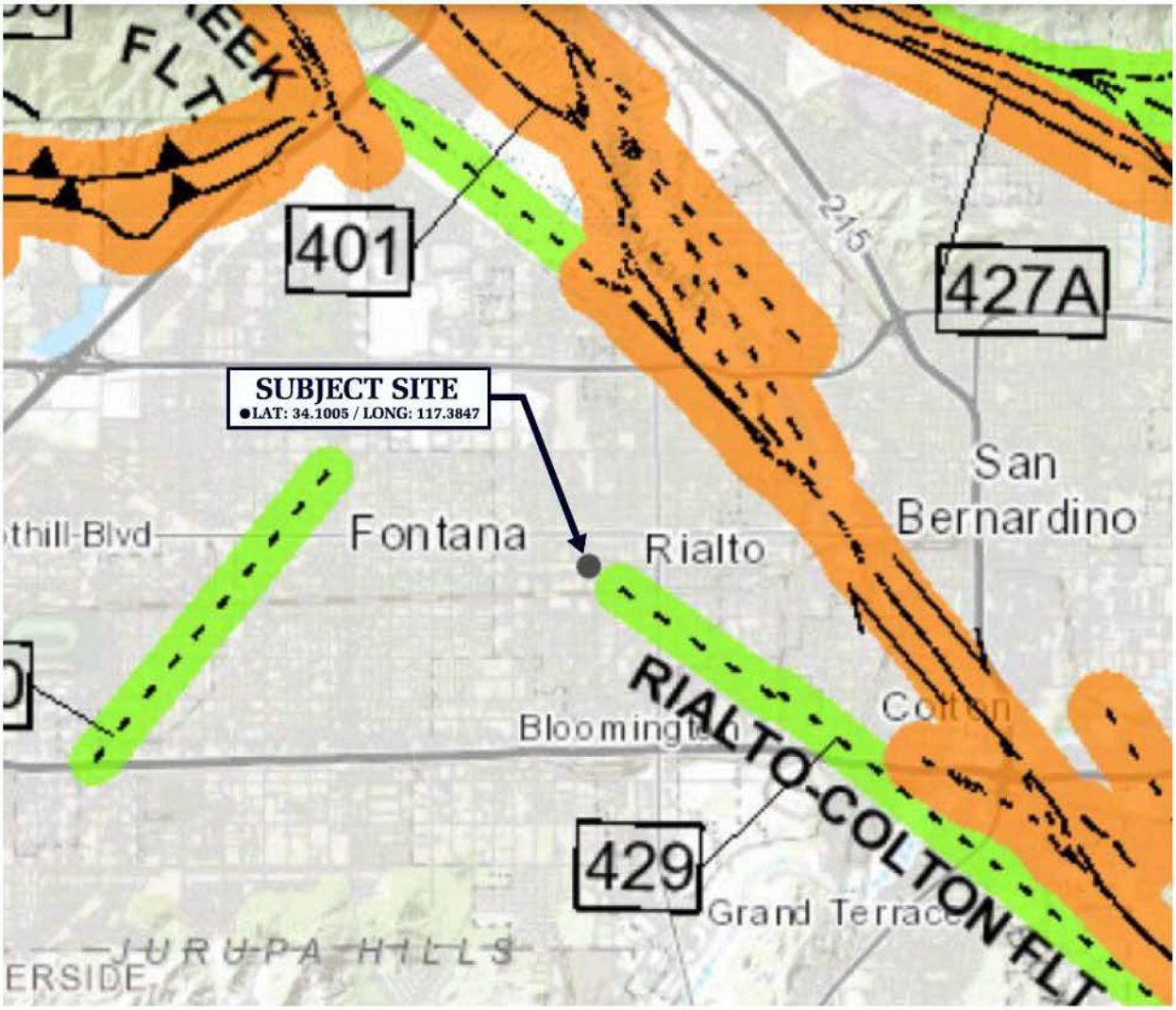
PLATE 4B, SPECIAL REPORT 113, 1974, MAP SHOWING SURFACE WATER AND MARSHES IN THE LATE 1800's, AND GENERALIZED DEPTH TO GROUNDWATER (1960), UPPER SANTA ANA VALLEY, SOUTHWESTERN SAN BERNARDINO COUNTY, CA

HISTORICALLY HIGHEST GROUNDWATER LEVELS

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE No. 22257



Holocene fault displacement (during past 11,700 years) without historic record.

Late Quaternary fault displacement (during past 700,000 years).

Quaternary fault (age undifferentiated).

Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement.

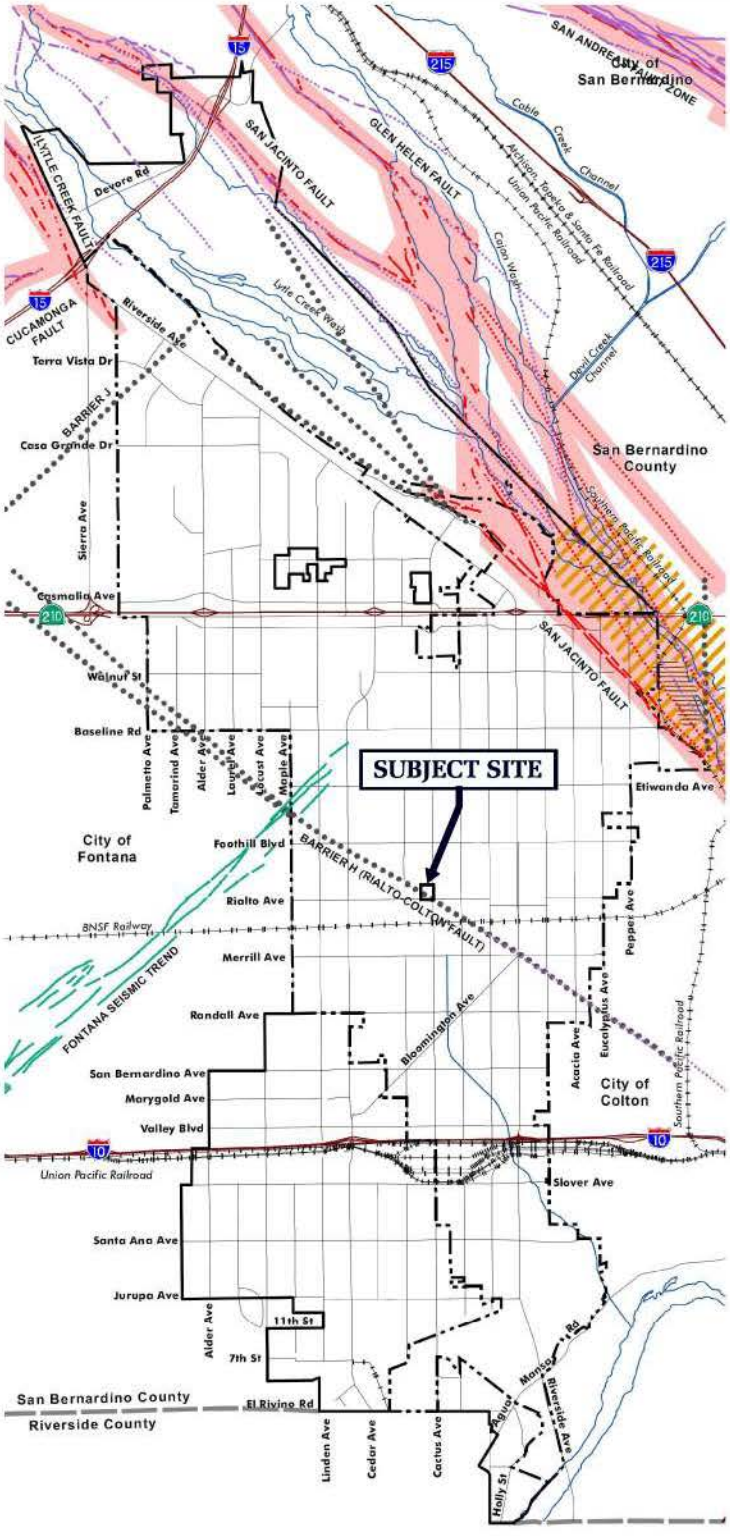
REFERENCE: FAULT ACTIVITY MAP OF CALIFORNIA (CGS, 2010)

FAULT ACTIVITY MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257



Seismic and Geologic Hazards

(Faults: Solid where location is known, dashed where approximate, dotted where inferred.)

- Fault (Morton and Miller, 2003)
- Alquist-Priolo Earthquake Fault (CGS, 2002)
- Alquist-Priolo Earthquake Fault Zone (CGS, 2002)
- Lineaments identified in aerial photos
- Groundwater barrier (Dutcher and Garrett, 1963) by F. Jordan (personal communication, 2002)
- Moderate liquefaction susceptibility. Sediment are young (less than 10,000 years old), unconsolidated, with fine-grained layers, and there has been artesian well activity historically.
- Approximate bog, swap, or marsh land area in the early 1900s

Base Map Features

- Rialto Incorporated Area
- Rialto Sphere of Influence
- County Boundary
- Freeway/Highway
- Local Road
- Railroad
- Hydrological Feature

Notes:
This map is intended for general land use planning only. Information on this map is not sufficent to serve as a substitute for detailed geologic investigations of individual sites, nor does it satisfy the evaluation requirements set forth in geologic hazard regulations.

Sources:
Earth Consultants International (ECI);
Morton and Miller (2003); Alquist-Priolo Earthquake Fault Zones in San Bernardino South (1977), San Bernardino North (1974), and Devore (1995) Quads. [reproduced with permission CGS CD-ROM 2001-05 (2002)]; Jennings (1994) [reproduced with permission CDMG, CD-ROM (2000)]; Dutcher and Garrett (1963); Jordan, F. (personal communications (2002); USGS 7.5-minute Digital Elevation Model and W.C. Mendenhall (1904)

0 0.5 1 1.5 2 Miles

REFERENCE: RIALTO GENERAL PLAN (DECEMBER, 2010)

CITY OF RIALTO FAULT MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257

BORING LOG NUMBER 1

Lincoln Property Company **Date: 4/12/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

In

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
				1 --		
				2 --		
2.5	45 50/5"	2.2	125.3	3 --		
					SP/SW	NATIVE SOILS: Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				4 --		
5	100/9"	1.6	115.3	5 --		
				6 --		
				7 --		
				8 --		
				9 --		
10	90	4.5	121.0	10 --		
					SP	Sand, yellowish brown, moist, very dense, fine to medium grained, few pebbles
				11 --		
				12 --		
				13 --		
				14 --		
15	100/10"	2.7	116.5	15 --		
					SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				16 --		
				17 --		
				18 --		
				19 --		
20	100/9"	5.6	102.5	20 --		
						Total Depth: 20 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				21 --		
				22 --		
				23 --		
				24 --		
				25 --		

BORING LOG NUMBER 2

Lincoln Property Company **Date: 4/12/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

In

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0		FILL: Silty Sand, yellowish brown, moist, medium dense, fine grained, few cobbles
				1		
				2		
2.5	5	10.1	100.1			
				3	SM	NATIVE SOILS: Silty Sand, yellowish brown, moist, medium dense, fine grained
				4		
5	16	6.2	SPT	5		
				6		
				7		
7.5	56	12.9	119.1			
				8		yellow and light brown, medium dense to dense, fine to medium grained
				9		
10	31	2.7	SPT	10		
				11	SP/SW	Sand to Gravelly Sand, dark and yellowish brown, moist, medium dense, fine to coarse grained
				12		
12.5	79	3.4	110.3	13		
				14		
15	49	3.3	SPT	15		dense
				16		
				17		
17.5	90	2.8	124.6	18		
				19		
20	49	2.9	SPT	20		
				21		
				22		
22.5	45 50/4"	2.6	124.0	23	SP	Cobbly Sand, grayish brown, slightly moist, very dense, fine to coarse grained
				24		
25	40 50/3"	2.3	SPT	25	SP/SW	Sand, grayish brown, moist, very dense, fine to coarse grained, some pebbles

BORING LOG NUMBER 2

Lincoln Property Company

File No. 22257

In

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				26		**NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.**
				27		
27.5	79	5.1	128.5	28		**Used 8-inch diameter Hollow-Stem Auger**
				29		**140-lb. Automatic Hammer, 30-inch drop**
30	40 50/4"	3.1	SPT	30		**Modified California Sampler used unless otherwise noted**
				31		**SPT=Standard Penetration Test**
				32		
32.5	100/9"	2.3	122.1	33		
				34		
35	88	3.4	SPT	35		
				36		
				37		
37.5	100/8"	2.8	116.4	38		
				39		
40	80	3.6	SPT	40	SP	**Sand, yellow and grayish brown, moist, very dense, fine to medium grained**
				41		
				42		
42.5	100/9"	2.3	118.9	43	SP/SW	**Sand to Gravelly Sand, grayish brown, moist, very dense, fine to coarse grained**
				44		
45	69 50/3"	3.5	SPT	45		
				46		
				47		
47.5	89	4.2	114.8	48	SP	**Sand, yellowish brown, moist, very dense, fine to medium grained**
				49		
50	74	3.0	SPT	50		**Total Depth: 50 Feet** **No Water** **Fill To 3 Feet**

BORING LOG NUMBER 3

Lincoln Property Company **Date: 4/12/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

In

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		3 Inch Asphalt, No Base
				1 --		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
2.5	81	6.5	118.2	2 --		
				3 --	SM/SP	NATIVE SOILS: Silty Sand to Sand, dark brown, moist, dense, fine grained, few cobbles
5	74 50/4"	4.1	133.5	4 -- 5 --	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				6 -- 7 -- 8 -- 9 --		
10	88	15.4	116.6	10 --	SM/SP	Silty Sand to Sand, dark and yellowish brown, moist, dense, fine grained, few cobbles
				11 -- 12 -- 13 -- 14 --		
15	42 50/5"	3.6	124.8	15 --	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				16 -- 17 -- 18 -- 19 --		
20	100/9"	2.7	114.8	20 --		Total Depth: 20 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				21 -- 22 -- 23 -- 24 -- 25 --		

BORING LOG NUMBER 4

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

In

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Concrete Slab
				0 – 1 – 2 –		FILL: Silty Sand to Sand, dark brown, moist, medium dense, fine grained, few cobbles
2.5	83	6.7	129.1	3 – 4 –	SM/SP	NATIVE SOILS: Silty Sand to Sand, dark and yellowish brown, moist, dense, fine grained, few cobbles
5	72	11.9	121.3	5 – 6 – 7 – 8 – 9 –	SM	Silty Sand, dark brown, moist, dense, fine grained, few cobbles
10	45 50/4"	3.6	118.2	10 – 11 – 12 – 13 – 14 –	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
15	43 50/5"	4.1	116.8	15 – 16 – 17 – 18 – 19 –		
20	40 50/3"	3.7	116.8	20 – 21 – 22 – 23 – 24 – 25 –		Total Depth: 20 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted

BORING LOG NUMBER 5

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

In

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		
				-		
				1 --		
				-		
				2 --		
2.5	40 50/5"	1.5	129.0	-		
				3 --		
				-	SP/SW	NATIVE SOILS: Sand with Pebbles, dark and yellowish brown, moist, very dense, fine to coarse grained
				4 --		
				-		
5	45 50/4"	7.6	115.1	5 --		
				-	SM	Silty Sand, dark brown, moist, very dense, fine grained, few cobbles
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	88	2.0	117.9	10 --		
				-	SP	Sand, dark brown, moist, very dense, fine to medium grained
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	44 50/3"	3.3	122.4	15 --		
				-	SP	Sand, dark brwon, moist, very dense, fine to medium grained
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	100/8"	3.5	107.4	20 --		
				-		Total Depth: 20 Feet No Water Fill To 3 Feet
				21 --		
				-		
				22 --		
				-		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				23 --		
				-		
				24 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				25 --		
				-		

BORING LOG NUMBER 6

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

In

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
				1		
				2		
2.5	40 50/5"	1.8	129.0	3		
				4	SW	NATIVE SOILS: Gravelly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
5	89	1.5	122.2	5		
				6		
				7		
				8		
				9		
10	95	2.3	122.0	10		
				11		
				12		
				13		
				14		
15	42 50/5"	2.0	113.7	15	SP	Sand, dark and yellowish brown, moist, very dense, fine to medium grained
				16		
				17		
				18		
				19		
20	100/9"	2.2	115.1	20		Total Depth: 20 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				21		
				22		
				23		
				24		
				25		

BORING LOG NUMBER 7

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

In

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Concrete Slab
				0		5 Inch Concrete, No Base
				1		FILL: Silty Sand to Sand, dark and yellowish brown, moist, medium dense, fine grained, minor cobbles
2.5	71	2.6	117.3	2		
				3	SP	NATIVE SOILS: Sand, yellowish brown, moist, dense, fine grained
				4		
5	40 50/5"	1.7	130.2	5	SP/SW	Sand to Cobbly Sand, yellowish brown, moist, very dense, fine to coarse grained
				6		
				7		
				8		
				9		
10	45 50/4"	3.0	123.3	10		
				11		
				12		
				13		
				14		
15	100/10"	2.7	122.9	15		Total Depth: 15 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				16		
				17		
				18		
				19		
				20		
				21		
				22		
				23		
				24		
				25		

BORING LOG NUMBER 8

Lincoln Property Company **Date: 4/13/22**

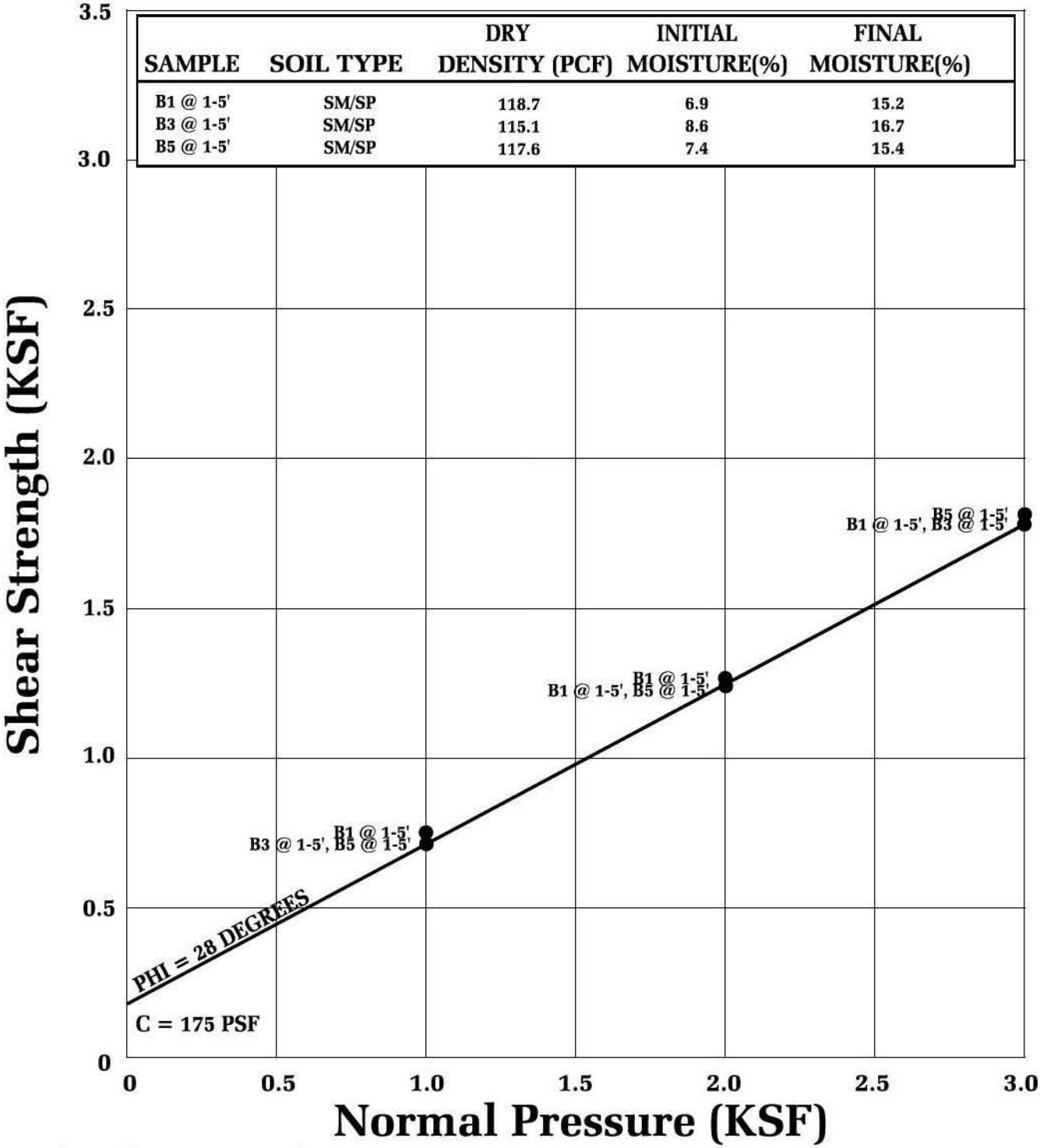
File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

In

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0		FILL: Silty sand with Cobbles, dark brown, moist, medium dense, fine grained
				1		
				2		
2.5	100/10"	4.5	109.3	3		
				4		
5	100/8"	1.9	126.3	5	SW	NATIVE SOILS: Sand with Cobbles, dark and yellowish brown, moist, very dense, fine to coarse grained
				6		
				7		
				8		
				9		
10	100/9"	3.3	121.5	10	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				11		
				12		
				13		
				14	SP	Sand, yellowish brown, moist, very dense, fine to medium grained, few pebbles
15	42 50/4"	3.1	114.1	15		Total Depth: 15 Feet No Water Fill To 5 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				16		
				17		
				18		
				19		
				20		
				21		
				22		
				23		
				24		
				25		

BULK SAMPLE REMOLDED TO 90 PERCENT OF THE MAXIMUM LABORATORY DENSITY

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE(%)	FINAL MOISTURE(%)
B1 @ 1-5'	SM/SP	118.7	6.9	15.2
B3 @ 1-5'	SM/SP	115.1	8.6	16.7
B5 @ 1-5'	SM/SP	117.6	7.4	15.4



● Direct Shear, Saturated

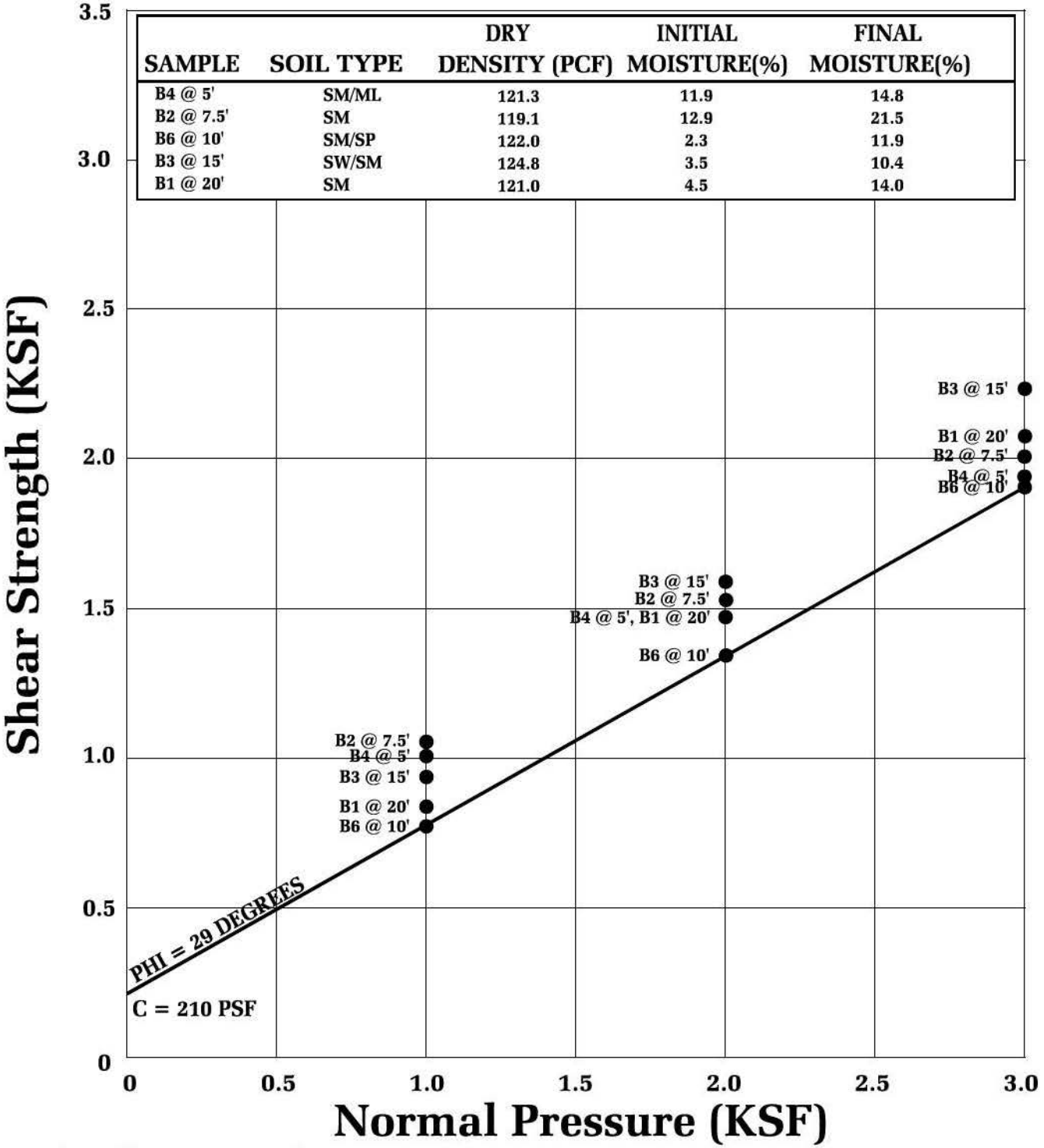
SHEAR TEST DIAGRAM

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | PLATE: B-1

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE(%)	FINAL MOISTURE(%)
B4 @ 5'	SM/ML	121.3	11.9	14.8
B2 @ 7.5'	SM	119.1	12.9	21.5
B6 @ 10'	SM/SP	122.0	2.3	11.9
B3 @ 15'	SW/SM	124.8	3.5	10.4
B1 @ 20'	SM	121.0	4.5	14.0



● Direct Shear, Saturated

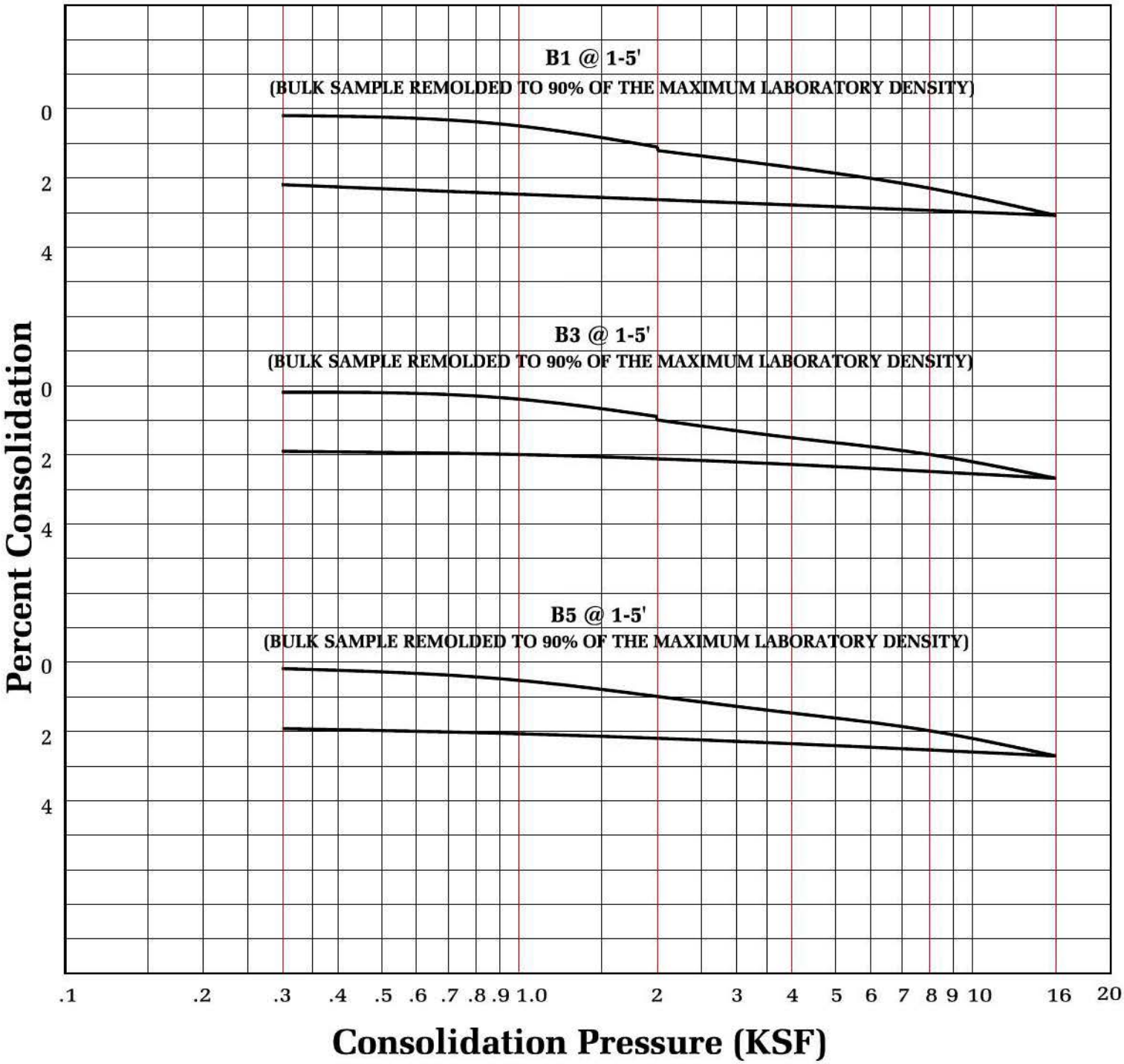
SHEAR TEST DIAGRAM

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | PLATE: B-2

WATER ADDED AT 2 KSF



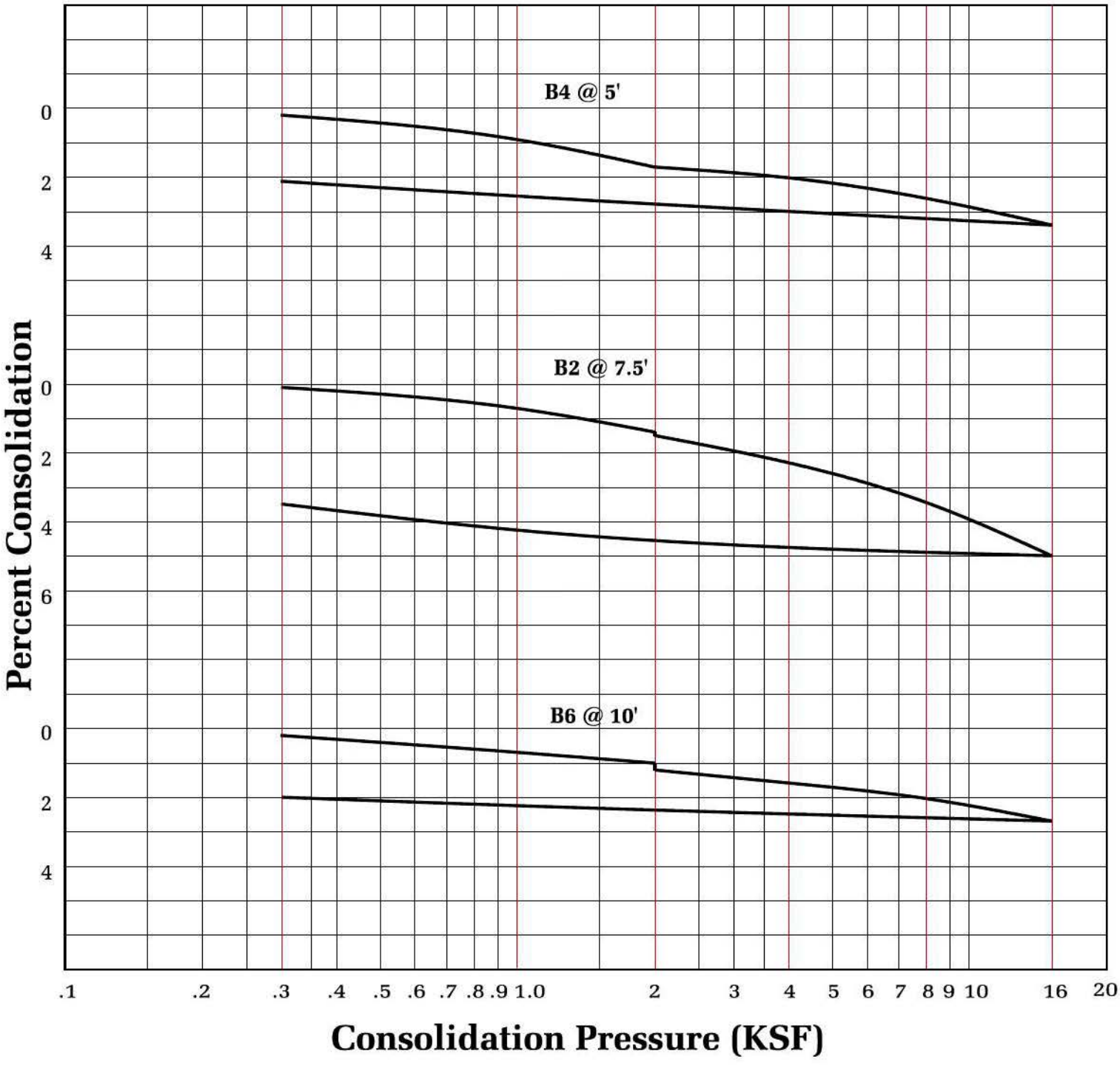
CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | **PLATE: C-1**

WATER ADDED AT 2 KSF



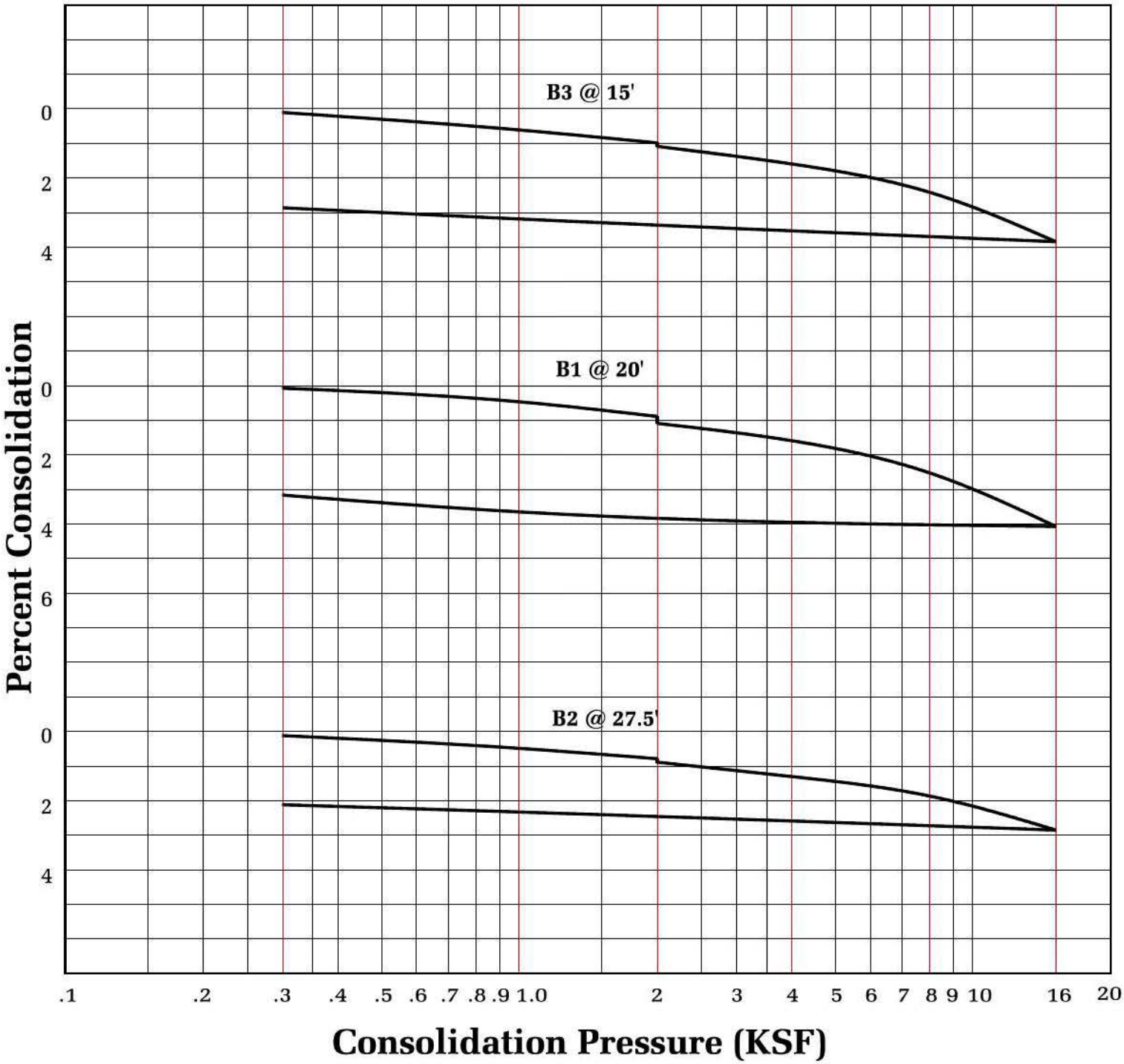
CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | **PLATE: C-2**

WATER ADDED AT 2 KSF



CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | **PLATE: C-3**

ASTM D 1557

SAMPLE	B1 @ 1- 3'	B3 @ 1-3'	B5 @ 1-3'
SOIL TYPE:	SM/SP	SM/SP	SM/SP
MAXIMUM DENSITY pcf.	131.9	127.9	130.7
OPTIMUM MOISTURE %	6.9	8.6	7.4

ASTM D 4829

SAMPLE	B1 @ 1- 5'	B3 @ 1-5'	B5 @ 1-5'
SOIL TYPE:	SM/SP	SM/SP	SM/SP
EXPANSION INDEX UBC STANDARD 18-2	3	2	3
EXPANSION CHARACTER	VERY LOW	VERY LOW	VERY LOW

SULFATE CONTENT

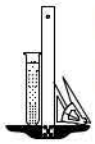
SAMPLE	B1 @ 1- 5'	B3 @ 1-5'	B5 @ 1-5'
SULFATE CONTENT: (percentage by weight)	< 0.10%	< 0.10%	< 0.10%

COMPACTION/EXPANSION DATA SHEET

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | PLATE: D



Geotechnologies, Inc.

Test Date: 13-Apr-22
File No. 22257
File Name : Lincoln Property Company

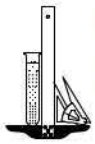
Percolation Rate Calculation for Boring - Porchet Method

Boring Number		7
Boring Diameter		8 inches
Boring Radius		4 inches
Depth of Boring		15 feet
Length of Casing (dc)		15 feet
Pre-soak Time		2 hours
Measured By	H.C.	

Terms
Δt = Time Interval
Do = Initial Depth to Water
Df = Final Depth to Water
Dt = Total Depth of Test Hole

Reading Number	Clock Time	Elapsed Time	Water Measurement (Do) and (D_f)	Initial Height of Water	Final Height of Water	Change in Height	Average Head	Infiltration Rate Calculation - Porchet Equation
				(Ho)	(Hf)	(ΔH)	Havg	If = [(ΔH*60*r)/(Δt(r + 2Havg)]
		Min	feet	in	in	in	in	in/hour
1	1:15		10.00	60.00	8.40	51.60	34.2	34.2
	1:20	5	14.30					
2	1:30		10.00	60.00	12.00	48.00	36	30.3
	1:35	5	14.00					
3	1:42		10.00	60.00	10.20	49.80	35.1	32.2
	1:47	5	14.15					
4	1:55		10.00	60.00	10.20	49.80	35.1	32.2
	2:00	5	14.15					
5	2:10		10.00	60.00	10.20	49.80	35.1	32.2
	2:15	5	14.15					

Lowest Calculated Infiltration Rate = **30.3 in/hr**
(Safety Factor Not Applied)



Geotechnologies, Inc.

Test Date: 13-Apr-22
File No. 22257
File Name : Lincoln Property Company

Percolation Rate Calculation for Boring - Porchet Method

Boring Number	8	
Boring Diameter	8	inches
Boring Radius	4	inches
Depth of Boring	15	feet
Length of Casing (dc)	15	feet
Pre-soak Time	2	hours
Measured By	H.C.	

Terms
Δt = Time Interval
Do = Initial Depth to Water
Df = Final Depth to Water
Dt = Total Depth of Test Hole

Reading Number	Clock Time	Elapsed Time	Water Measurement (Do) and (D_f)	Initial Height of Water	Final Height of Water	Change in Height	Average Head	Infiltration Rate Calculation - Porchet Equation
				(Ho)	(Hf)	(ΔH)	Havg	If = [(ΔH*60*r)/(Δt(r + 2Havg)]
		Min	feet	in	in	in	in	in/hour
1	1:15		10.00	60.00	2.40	57.60	31.2	41.6
	1:20	5	14.80					
2	1:30		10.00	60.00	3.60	56.40	31.8	40.0
	1:35	5	14.70					
3	1:42		10.00	60.00	6.00	54.00	33	37.0
	1:47	5	14.50					
4	1:55		10.00	60.00	6.00	54.00	33	37.0
	2:00	5	14.50					
5	2:10		10.00	60.00	6.00	54.00	33	37.0
	2:15	5	14.50					

Lowest Calculated Infiltration Rate = **37.0 in/hr**
(Safety Factor Not Applied)

Appendix E
Greenhouse Gas Analysis

160 N. Cactus Avenue

GREENHOUSE GAS ANALYSIS

CITY OF RIALTO

PREPARED BY:

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Ali Dadabhoy
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JANUARY 31, 2022

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LIST OF ABBREVIATED TERMS

%	Percent
°C	Degrees Celsius
°F	Degrees Fahrenheit
(1)	Reference
2017 Scoping Plan	*Final 2017 Scoping Plan Update*
AB	Assembly Bill
AB 32	Global Warming Solutions Act of 2006
AB 1493	Pavley Fuel Efficiency Standards
AB 1881	California Water Conservation Landscaping Act of 2006
Annex I	Industrialized Nations
APA	Administrative Procedure Act
AQIA	*160 N. Cactus Avenue Air Quality Impact Analysis*
BAU	Business as Usual
C_2F_6	Hexafluoroethane
C_2H_6	Ethane
$C_2H_2F_4$	Tetrafluroethane
$C_2H_4F_2$	Ethylidene Fluoride
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGAPS	California LBNL GHG Analysis of Policies Spreadsheet
CALGreen	California Green Building Standards Code
CalSTA	California State Transportation Agency
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CBSC	California Building Standards Commission
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CEQA Guidelines	*2019 CEQA Statute and Guidelines*
CDFA	California Department of Food and Agriculture
CF_4	Tetrafluoromethane
CFC	Chlorofluorocarbons
CFC-113	Trichlorotrifluoroethane

CH_4	Methane
City	City of Rialto
CNRA	California Natural Resources Agency
CNRA 2009	*2009 California Climate Adaptation Strategy*
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
Convention	United Nation's Framework Convention on Climate Change
COP	Conference of the Parties
CPUC	California Public Utilities Commission
CTC	California Transportation Commission
DOF	Department of Finance
DWR	Department of Water Resources
EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
EV	Electric Vehicle
FED	Functional Equivalent Document
Final EIR	Renaissance Specific Plan Final Environmental Impact Report
GCC	Global Climate Change
Gg	Gigagram
GHGA	Greenhouse Gas Analysis
GO-Biz	Governor's Office of Business and Economic Development
gpd	Gallons Per Day
gpm	Gallons Per Minute
GWP	Global Warming Potential
H_2O	Water
HFC	Hydrofluorocarbons
HDT	Heavy-Duty Trucks
HFC-23	Fluoroform
HFC-134a	1,1,1,2-tetrafluoroethane
HFC-152a	1,1-difluoroethane
HHDT	Heavy-Heavy-Duty Trucks
hp	Horsepower
IBANK	California Infrastructure and Economic Development Bank
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Planning
ISO	Independent System Operator
ITE	Institute of Transportation Engineers

kWh	Kilowatt Hours
lbs	Pounds
LBNL	Lawrence Berkeley National Laboratory
LCA	Life-Cycle Analysis
LCD	Liquid Crystal Display
LCFS	Low Carbon Fuel Standard or Executive Order S-01-07
LDA	Light-Duty Auto
LDT1/LDT2	Light-Duty Trucks
LEV III	Low-Emission Vehicle
LHDT1/LHDT2	Light-Heavy-Duty Trucks
LULUCF	Land-Use, Land-Use Change and Forestry
MCA	Municipal Code Amendment
MCY	Motorcycles
MD	Medium Duty
MDT	Medium-Duty Trucks
MDV	Medium-Duty Vehicles
MHDT	Medium-Heavy-Duty Tucks
MMR	Mandatory Reporting Rule
$MMTCO_2e$	Million Metric Ton of Carbon Dioxide Equivalent
mpg	Miles Per Gallon
MPOs	Metropolitan Planning Organizations
$MMTCO_2e/yr$	Million Metric Ton of Carbon Dioxide Equivalent Per Year
MT/yr	Metric Tons Per Year
$MTCO_2e$	Metric Ton of Carbon Dioxide Equivalent
$MTCO_2e/yr$	Metric Ton of Carbon Dioxide Equivalent Per Year
MW	Megawatts
MWh	Megawatts Per Hour
MWELO	California Department of Water Resources' Model Water Efficient
N_2O	Nitrous Oxide
NDC	Nationally Determined Contributions
NF_3	Nitrogen Trifluoride
NHTSA	National Highway Traffic Safety Administration
NIOSH	National Institute for Occupational Safety and Health
NO_X	Nitrogen Oxides
Non-Annex I	Developing Nations
OAL	Office of Administrative Law
OPR	Office of Planning and Research

PFC	Perfluorocarbons
ppb	Parts Per Billion
ppm	Parts Per Million
ppt	Parts Per Trillion
Project	160 N. Cactus Avenue
RSP	Renaissance Specific Plan
RTP	Regional Transportation Plan
SAFE	Safer Affordable Fuel-Efficient Vehicles Rule
SB	Senate Bill
SB 32	California Global Warming Solutions Act of 2006
SB 375	Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies
SB 1078	Renewable Portfolio Standards
SB 1368	Statewide Retail Provider Emissions Performance Standards
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
Scoping Plan	California Air Resources Board Climate Change Scoping Plan
SCS	Sustainable Communities Strategy
sf	Square Feet
SF_6	Sulfur Hexaflouride
SGC	Strategic Growth Council
SHGC	Solar Heat Gain Coefficient
SLPS	Short-Lived Climate Pollutant Strategy
SP	Service Population
SWCRB	State Water Resources Control Board
TDM	Transportation Demand Measures
Title 20	Appliance Energy Efficiency Standards
Title 24	California Building Code
U.N.	United Nations
U.S.	United States
UNFCCC	United Nations' Framework Convention on Climate Change
URBEMIS	Urban Emissions
UTR	Utility Tractors
VFP	Vehicle Fueling Positions
VMT	Vehicle Miles Traveled

WCI	Western Climate Initiative
WRI	World Resources Institute
ZE/NZE	Zero and Near-Zero Emissions
ZEV	Zero-Emissions Vehicles

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *160 N. Cactus Avenue Greenhouse Gas Analysis* (GHGA) is summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the *California Environmental Quality Act (CEQA) Guidelines* (*CEQA Guidelines*) (1). Table ES-1 shows the findings of significance for potential greenhouse gas (GHG) impacts under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact #1: Would the Project generate GHG emissions either directly or indirectly, that may have a significant impact on the environment?	3.7	*Less Than Significant*	*n/a*
GHG Impact #2: Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?	3.7	*Less Than Significant*	*n/a*

ES.2 PROJECT REQUIREMENTS

The Project would be required to comply with regulations imposed by the State of California and the South Coast Air Quality Management District (SCAQMD) aimed at the reduction of air pollutant emissions. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of GHG emissions include:

- Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) (2).
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (Senate Bill [SB] 375) (3).
- Pavley Fuel Efficiency Standards (AB 1493). Establishes fuel efficiency ratings for new vehicles (4).
- California Building Code (Title 24 California Code of Regulations [CCR]). Establishes energy efficiency requirements for new construction (5).
- Appliance Energy Efficiency Standards (Title 20 CCR). Establishes energy efficiency requirements for appliances (6).
- Low Carbon Fuel Standard (LCFS). Requires carbon content of fuel sold in California to be 10 percent (%) less by 2020 (7).
- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions (8).

- Renewable Portfolio Standards (RPS) Required electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 20% by 2010 and 33% by 2020. SB 350 mandated a 50% RPS by 2030. SB 100 increased the RPS requirements to 60% by 2030 with new interim targets of 44% by 2024 and 52% by 2027 (9).
- California Global Warming Solutions Act of 2006 (SB 32). Requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15 (10).
- SCAQMD Rule 2305. The SCAQMD adopted Rule 2305, the Warehouse Indirect Source Rule, on May 7, 2021. Owners and operators associated with warehouses 100,000 square feet (sf) or larger are required to directly reduce nitrogen oxides (NO_X) and particulate matter emissions, or to otherwise facilitate emission and exposure reductions of these pollutants in nearby communities.

Promulgated regulations that would affect the Project's emissions are accounted for in the Project's GHG calculations provided in this report. In particular, AB 1493, LCFS, and RPS, and therefore are accounted for in the Project's emission calculations.

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1 INTRODUCTION

This report presents the results of the GHGA prepared by Urban Crossroads, Inc., for the proposed 160 N. Cactus Avenue (Project). The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of GHG impacts as a result of constructing and operating the Project.

1.1 SITE LOCATION

The 160 N. Cactus Avenue Project is located on the northwest corner of North Cactus Avenue and W. Rialto Avenue in the City of Rialto as shown on Exhibit 1-A.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of a single 159,680 square foot warehouse building as shown on Exhibit 1-B. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2024.

EXHIBIT 1-A: LOCATION MAP

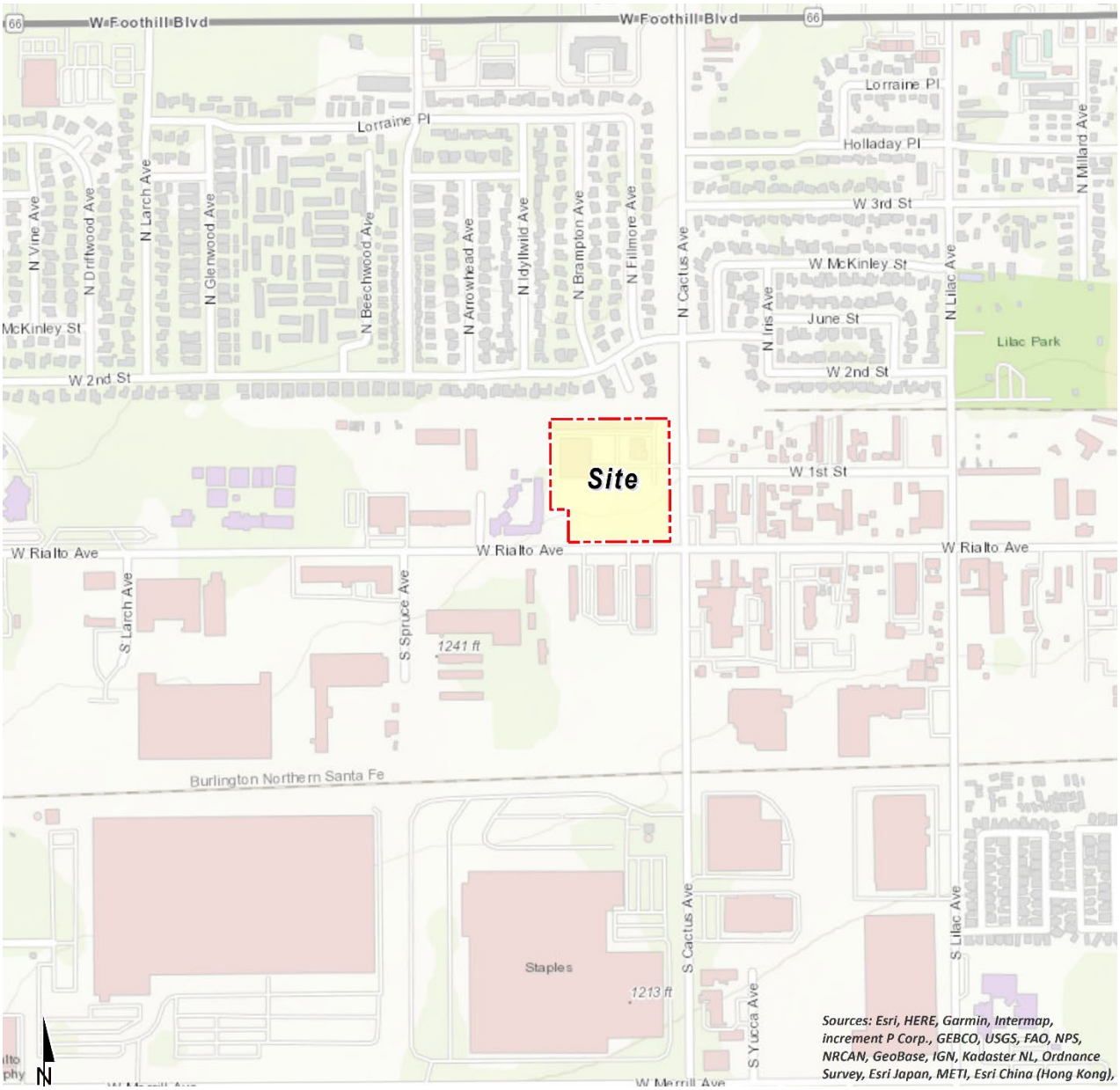
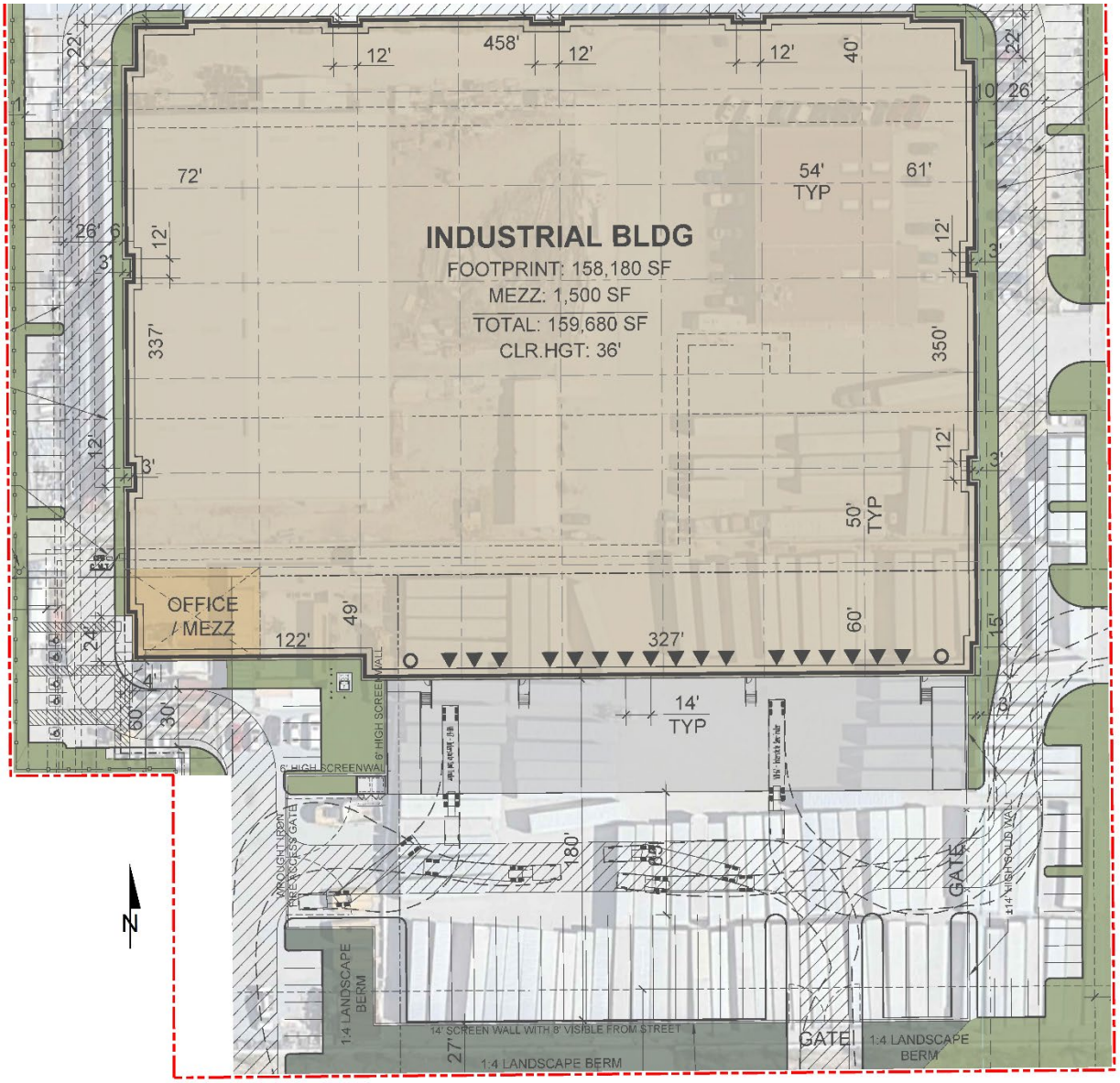


EXHIBIT 1-B: SITE PLAN



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2 CLIMATE CHANGE SETTING

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE (GCC)

GCC is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The majority of scientists believe that the climate shift taking place since the Industrial Revolution is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of GHGs in the earth's atmosphere, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. The majority of scientists believe that this increased rate of climate change is the result of GHGs resulting from human activity and industrialization over the past 200 years.

An individual project like the Project evaluated in this GHGA cannot generate enough GHG emissions to affect a discernible change in global climate. However, the Project may participate in the potential for GCC by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 4.0 will evaluate the potential for the Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GLOBAL CLIMATE CHANGE DEFINED

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation, and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2, N_2O, CH_4, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic activity. Without the natural GHG effect, the earth's average temperature would be approximately 61 degrees Fahrenheit (°F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

2.3 GHGS

2.3.1 GHGS AND HEALTH EFFECTS

GHGs trap heat in the atmosphere, creating a GHG effect that results in global warming and climate change. Many gases demonstrate these properties and as discussed in Table 2-1. For the purposes of this analysis, emissions of CO_2, CH_4, and N_2O were evaluated (see Table 4-1 later in this report) because these gases are the primary contributors to GCC from development projects. Although there are other substances such as fluorinated gases that also contribute to GCC, these

fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

TABLE 2-1: GHGS

GHGs	Description	Sources	Health Effects
Water	Water is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. Climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop would continue is unknown as there are also dynamics that hold the positive	The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.	There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

GHGs	Description	Sources	Health Effects
	feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it would eventually condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up) (11).		
CO_2	CO_2 is an odorless and colorless GHG. Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO_2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30%. Left unchecked, the concentration of CO_2 in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (12).	CO_2 is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. CO_2 is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (13).	Outdoor levels of CO_2 are not high enough to result in negative health effects. According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of CO_2 can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of CO_2 in the earth's atmosphere are estimated to be approximately 370 ppm, the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15-minute period (14).

GHGs	Description	Sources	Health Effects
CH_4	CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than CO_2 and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs.	CH_4 in the atmosphere is generated by many different sources, such as fossil fuel production, transport and use, from the decay of organic matter in wetlands, and as a byproduct of digestion by ruminant animals such as cows. Determining which specific sources are responsible for variations in annual increases of CH_4 is complex, but scientists estimate that fossil fuel production and use contributes roughly 30% of the total CH_4 emissions. These industrial sources of CH_4 are relatively simple to pinpoint and control using current technology (15).	CH_4 is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to elevated levels of CH_4 can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate.
N_2O	N_2O, also known as laughing gas, is a colorless GHG. Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb).	N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions)	N_2O can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (16).

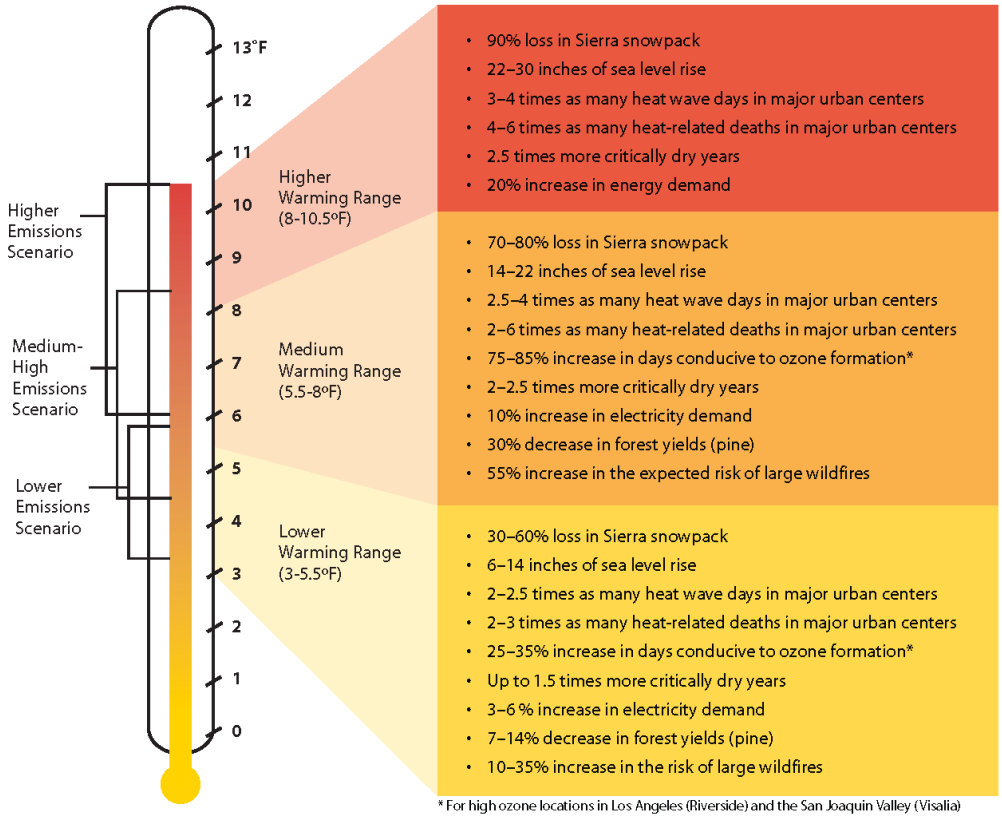
GHGs	Description	Sources	Health Effects
		also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. N_2O can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction (16).	
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	CFCs have no natural source. They are found in aerosol sprays, blowing agents for foams and packing materials, as solvents, and as refrigerants. (17).	In confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.
HFCs	HFCs are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential (GWP). The HFCs with the largest measured atmospheric abundances are (in order), Fluoroform (HFC-23), 1,1,1,2-tetrafluoroethane (HFC-134a), and 1,1-difluoroethane (HFC-152a). Prior to 1990, the only significant emissions were of HFC-23. HCF-134a emissions are increasing due to its use as a refrigerant.	HFCs are manmade for applications such as automobile air conditioners and refrigerants.	No health effects are known to result from exposure to HFCs.

GHGs	Description	Sources	Health Effects
PFCs	PFCs have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have exceptionally long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The EPA estimates that concentrations of CF_4 in the atmosphere are over 70 parts per trillion (ppt).	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.	No health effects are known to result from exposure to PFCs.
SF_6	SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900) (18). The EPA indicates that concentrations in the 1990s were about 4 ppt.	SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

GHGs	Description	Sources	Health Effects
Nitrogen Trifluoride (NF_3)	NF_3 is a colorless gas with a distinctly moldy odor. The World Resources Institute (WRI) indicates that NF_3 has a 100-year GWP of 17,200 (19).	NF_3 is used in industrial processes and is produced in the manufacturing of semiconductors, Liquid Crystal Display (LCD) panels, types of solar panels, and chemical lasers.	Long-term or repeated exposure may affect the liver and kidneys and may cause fluorosis (20).

The potential health effects related directly to the emissions of CO_2, CH_4, and N_2O as they relate to development projects such as the Project are still being debated in the scientific community. Their cumulative effects to GCC have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport those higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change would likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (21). Exhibit 2-A presents the potential impacts of global warming (22).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT, 2070-2099 (AS COMPARED WITH 1961-1990)



Source: Barbara H. Allen-Diaz. "Climate change affects us all." *University of California, Agriculture and Natural Resources*, 2009.

2.4 GLOBAL WARMING POTENTIAL

GHGs have varying GWP values. GWP of a GHG indicates the amount of warming a gas cause over a given period of time and represents the potential of a gas to trap heat in the atmosphere. CO_2 is utilized as the reference gas for GWP, and thus has a GWP of 1. CO_2 equivalent (CO_2e) is a term used for describing the difference GHGs in a common unit. CO_2e signifies the amount of CO_2 which would have the equivalent GWP.

The atmospheric lifetime and GWP of selected GHGs are summarized at Table 2-2. As shown in the table below, GWP for the 2nd Assessment Report, the Intergovernmental Panel on Climate Change (IPCC)'s scientific and socio-economic assessment on climate change, range from 1 for CO_2 to 23,900 for SF_6 and GWP for the IPCC's 5th Assessment Report range from 1 for CO_2 to 23,500 for SF_6 (23).

TABLE 2-2: GWP AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	GWP (100-year time horizon)	
		2nd Assessment Report	5th Assessment Report
CO_2	See*	1	1
CH_4	12 .4	21	28
N_2O	121	310	265
HFC-23	222	11,700	12,400
HFC-134a	13.4	1,300	1,300
HFC-152a	1.5	140	138
SF_6	3,200	23,900	23,500

*As per Appendix 8.A. of IPCC's 5th Assessment Report, no single lifetime can be given.
Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

2.5 GHG EMISSIONS INVENTORIES

2.5.1 GLOBAL

Worldwide anthropogenic GHG emissions are tracked by the IPCC for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2018. Based on the latest available data, the sum of these emissions totaled approximately 28,768,440 gigagram (Gg) CO_2e[1] (24) (25) as summarized on Table 2-3.

[1] The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2018 data, the United Nations' Framework Convention on Climate Change (UNFCCC) data for the most recent year were used U.N. Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," The most recent GHG emissions for China and India are from 2014 and 2010, respectively.

2.5.2 UNITED STATES

As noted in Table 2-3, the United States, as a single country, was the number two producer of GHG emissions in 2018.

TABLE 2-3: TOP GHG PRODUCING COUNTRIES AND THE EUROPEAN UNION [2]

Emitting Countries	GHG Emissions (Gg CO_2e)
China	12,300,200
United States	6,676,650
European Union (28-member countries)	4,232,274
Russian Federation	2,220,123
India	2,100,850
Japan	1,238,343
Total	**28,768,440**

2.5.3 STATE OF CALIFORNIA

California has significantly slowed the rate of growth of GHG emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls but is still a substantial contributor to the United States (U.S.) emissions inventory total (26). The California Air Resource Board (CARB) compiles GHG inventories for the State of California. Based upon the 2021 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2019 GHG emissions period, California emitted an average 418.2 million metric tons of CO_2e per year ($MMTCO_2e/yr$) or 418,200 Gg CO_2e (6.26% of the total United States GHG emissions) (27).

2.6 EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

2.6.1 PUBLIC HEALTH

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35% under the lower warming range to 75 to 85% under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. Based on *Our Changing Climate Assessing the Risks to California by the California Climate Change Center*, large wildfires could become up to 55% more frequent if GHG emissions are not significantly reduced (28).

In addition, under the higher warming range scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a

[2] Used http://unfccc.int data for Annex I countries. Consulted the CAIT Climate Data Explorer in https://www.climatewatchdata.org site to reference Non-Annex I countries of China and India.

significant increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

2.6.2 WATER RESOURCES

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90%. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

2.6.3 AGRICULTURE

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25% of the water supply needed. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits, and nuts.

In addition, continued GCC could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued GCC could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

2.6.4 FORESTS AND LANDSCAPES

GCC has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55%, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks would not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90% due to decreased precipitation.

Moreover, continued GCC has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80% by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of GCC.

2.6.5 RISING SEA LEVELS

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

2.7 REGULATORY SETTING

2.7.1 INTERNATIONAL

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

IPCC

In 1988, the United Nations (U.N.) and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

UNITED NATION'S FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

On March 21, 1994, the U.S. joined a number of countries around the world in signing the Convention. Under the UNFCCC, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

INTERNATIONAL CLIMATE CHANGE TREATIES

The Kyoto Protocol is an international agreement linked to the UNFCCC. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at an average of 5% against 1990 levels over the five-year period 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the UN Climate Change Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2 degrees Celsius (°C) above pre-industrial levels, subject to a review in 2015. The Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings gradually gained consensus among participants on individual climate change issues.

On September 23, 2014, more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the U.N. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the UNFCCC reached a landmark agreement on December 12, 2015, in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties (COP) 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2°C, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they would "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly would not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC (C2ES 2015a) (29).

Following President Biden's day one executive order, the United States officially rejoined the landmark Paris Agreement on February 19, 2021, positioning the country to once again be part of the global climate solution. Meanwhile, city, state, business, and civic leaders across the country and around the world have been ramping up efforts to drive the clean energy advances needed to meet the goals of the agreement and put the brakes on dangerous climate change.

2.7.2 NATIONAL

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

GHG ENDANGERMENT

In *Massachusetts v. Environmental Protection Agency* 549 U.S. 497 (2007), decided on April 2, 2007, the United States Supreme Court (Supreme Court) found that four GHGs, including CO_2, are air pollutants subject to regulation under Section 202(a)(1) of the Clean Air Act (CAA). The Supreme Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned

decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the CAA:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs— CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section "Clean Vehicles" below. After a lengthy legal challenge, the Supreme Court declined to review an Appeals Court ruling that upheld the EPA Administrator's findings (30).

CLEAN VEHICLES

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA, and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty (MD) passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the NHTSA issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012. The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and MD passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 mpg if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks (HDT) and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20% reduction in CO_2 emissions and fuel consumption by the 2018 model year. For HDT and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10% reduction for gasoline vehicles and a 15% reduction for diesel vehicles by the 2018 model year (12 and 17% respectively if

accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10% reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

On April 2, 2018, the EPA signed the Mid-term Evaluation Final Determination, which declared that the MY 2022-2025 GHG standards are not appropriate and should be revised (31). This Final Determination serves to initiate a notice to further consider appropriate standards for MY 2022-2025 light-duty vehicles. On August 2, 2018, the NHTSA in conjunction with the EPA, released a notice of proposed rulemaking, the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). The SAFE Vehicles Rule was proposed to amend existing Corporate Average Fuel Economy (CAFE) and tailpipe CO_2 standards for passenger cars and light trucks and to establish new standards covering model years 2021 through 2026. As of March 31, 2020, the NHTSA and EPA finalized the SAFE Vehicle Rule which increased stringency of CAFE and CO_2 emissions standards by 1.5% each year through model year 2026 (32). On December 21, 2021, after reviewing all the public comments submitted on NHTSA's April 2021 Notice of Proposed Rulemaking, NHTSA finalizes the CAFE Preemption rulemaking to withdraw its portions of the so-called SAFE I Rule. The final rule concludes that the SAFE I Rule overstepped the agency's legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests. The final rule ensures that the SAFE I Rule will no longer form an improper barrier to states exploring creative solutions to address their local communities' environmental and public health challenges (33).

On March 31, 2022, NHTSA finalized CAFE standards for MY 2024-2026. The standards for passenger cars and light trucks for MYs 2024-2025 were increased at a rate of 8% per year and then increased at a rate of 10% per year for MY 2026 vehicles. NHTSA currently projects that the revised standards would require an industry fleet-wide average of roughly 49 mpg in MY 2026 and would reduce average fuel outlays over the lifetimes of affected vehicles that provide consumers hundreds of dollars in net savings. These standards are directly responsive to the agency's statutory mandate to improve energy conservation and reduce the nation's energy dependence on foreign sources (34).

MANDATORY REPORTING OF GHGS

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of GHGs Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S. and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons per year (MT/yr) or more of GHG emissions are required to submit annual reports to the EPA.

NEW SOURCE REVIEW

The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V

Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these CAA permitting programs to limit which facilities would be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

> *"This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the CAA, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to GHG sources, starting with the largest GHG emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for GHG emissions until at least April 30, 2016."*

The EPA estimates that facilities responsible for nearly 70% of the national GHG emissions from stationary sources would be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

STANDARDS OF PERFORMANCE FOR GHG EMISSIONS FOR NEW STATIONARY SOURCES: ELECTRIC UTILITY GENERATING UNITS

As required by a settlement agreement, the EPA proposed new performance standards for emissions of CO_2 for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts (MW) would be required to meet an output-based standard of 1,000 pounds (lbs) of CO_2 per MW-hour (MWh), based on the performance of widely used natural gas combined cycle technology. It should be noted that on February 9, 2016, the Supreme Court issued a stay of this regulation pending litigation. Additionally, the current EPA Administrator has also signed a measure to repeal the Clean Power Plan, including the CO_2 standards. The Clean Power Plan was officially repealed on June 19, 2019, when the EPA issued the final Affordable Clean Energy rule (ACE). Under ACE, new state-specific emission guidelines were established that provided existing coal-fired electric utility generating units with achievable standards.

On January 19, 2021, the D.C. Circuit Court of Appeals ruled that the EPA's ACE Rule for GHG emissions from power plants rested on an erroneous interpretation of the CAA that barred EPA from considering measures beyond those that apply at and to an individual source. The court therefore vacated and remanded the ACE Rule and adopted a replacement rule which regulates CO_2 emissions from existing power plants, potentially again considering generation shifting and other measures to more aggressively target power sector emissions.

CAP-AND-TRADE

Cap-and-trade refers to a policy tool where emissions are limited to a certain amount and can be traded or provides flexibility on how the emitter can comply. Successful examples in the U.S. include the Acid Rain Program and the N_2O Budget Trading Program and Clean Air Interstate Rule in the northeast. There is no federal GHG cap-and-trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap-and-trade.

The Regional GHG Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps CO_2 emissions from power plants, auctions CO_2 emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008 and in 2020 has retained all participating states.

The Western Climate Initiative (WCI) partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15% below 2005 levels by 2020. The partners were originally California, British Columbia, Manitoba, Ontario, and Quebec. However, Manitoba and Ontario are not currently participating. California linked with Quebec's cap-and-trade system January 1, 2014, and joint offset auctions took place in 2015. While the WCI has yet to publish whether it has successfully reached the 2020 emissions goal initiative set in 2007, SB 32 requires that California, a major partner in the WCI, adopt the goal of reducing statewide GHG emissions to 40% below the 1990 level by 2030.

SMARTWAY PROGRAM

The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both GHG emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components (35):

1. SmartWay Transport Partnership: A partnership in which freight carriers and shippers commit to benchmark operations, track fuel consumption, and improve performance annually.
2. SmartWay Technology Program: A testing, verification, and designation program to help freight companies identify equipment, technologies, and strategies that save fuel and lower emissions.
3. SmartWay Vehicles: A program that ranks light-duty cars and small trucks and identifies superior environmental performers with the SmartWay logo.
4. SmartWay International Interests: Guidance and resources for countries seeking to develop freight sustainability programs modeled after SmartWay.

SmartWay effectively refers to requirements geared towards reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. Moreover, over time, all HDTs would have to comply with the CARB GHG Regulation that is designed with the SmartWay Program in mind, to reduce GHG emissions by making them more fuel-efficient. For instance, in 2015, 53 foot or longer dry vans or refrigerated trailers equipped

with a combination of SmartWay-verified low-rolling resistance tires and SmartWay-verified aerodynamic devices would obtain a total of 10% or more fuel savings over traditional trailers.

Through the SmartWay Technology Program, the EPA has evaluated the fuel saving benefits of various devices through grants, cooperative agreements, emissions, and fuel economy testing, demonstration projects and technical literature review. As a result, the EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications, and has verified certain products:

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.
- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel would eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

EXECUTIVE ORDER 13990

On January 20, 2021, Federal agencies were directed to immediately review, and take action to address, Federal regulations promulgated and other actions taken during the last 4 years that conflict with national objectives to improve public health and the environment; ensure access to clean air and water; limit exposure to dangerous chemicals and pesticides; hold polluters accountable, including those who disproportionately harm communities of color and low-income communities; reduce GHG emissions; bolster resilience to the impacts of climate change; restore and expand our national treasures and monuments; and prioritize both environmental justice and employment.

2.7.3 CALIFORNIA

2.7.3.1 LEGISLATIVE ACTIONS TO REDUCE GHGS

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

AB 1881

The Water Conservation in Landscaping Act of 2006 requires local agencies to adopt the updated DWR model ordinance or equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

SB 1368

California SB 1368 adds Sections 8340 and 8341 to the Public Utilities Code (effective January 1, 2007) with the intent "to prevent long-term investments in power plants with GHG emissions in excess of those produced by a combined-cycle natural gas power plant" with the aim of "reducing emissions of GHGs from the state's electricity consumption, not just the state's electricity production." SB 1368 provides a mechanism for reducing the GHG emissions of electricity providers, both in-state and out-of-state, thereby assisting CARB in meeting its mandate under AB 32, the Global Warming Solutions Act of 2006.

AB 32

The California State Legislature enacted AB 32, which required that GHGs emitted in California be reduced to 1990 levels by the year 2020 (this goal has been met[3]). GHGs as defined under AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Since AB 32 was enacted, a seventh chemical, NF_3, has also been added to the list of GHGs. CARB is the state agency charged with monitoring and regulating sources of GHGs. Pursuant to AB 32, CARB adopted regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 states the following:

> *"Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems."*

SB 375

On September 30, 2008, SB 375 was signed by Governor Schwarzenegger. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40% of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California would not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires metropolitan planning organizations (MPOs) to include sustainable community strategies in their

[3] Based upon the 2019 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2017 GHG emissions period, California emitted an average 424.1 $MMTCO_2e$ (57). This is less than the 2020 emissions target of 431 $MMTCO_2e$.

regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

SB 375 requires MPOs to prepare a Sustainable Communities Strategy (SCS) within the Regional Transportation Plan (RTP) that guides growth while taking into account the transportation, housing, environmental, and economic needs of the region. SB 375 uses CEQA streamlining as an incentive to encourage residential projects, which help achieve AB 32 goals to reduce GHG emissions. Although SB 375 does not prevent CARB from adopting additional regulations, such actions are not anticipated in the foreseeable future.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network, if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that CARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the MMs required by an applicable prior environmental document.

AB 1493 - Pavley Fuel Efficiency Standards

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program (LEV III) or the Advanced Clean Cars (ACC) program. The ACC program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for MY 2017 through 2025. The regulation will reduce GHGs from new cars by 34% from 2016 levels by 2025. The new rules will clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid EV and hydrogen fuel cell cars. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California. On March 9, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards for cars and light trucks, which other states can also adopt and enforce. With this authority restored, EPA will continue partnering with states to advance the next generation of clean vehicle technologies.

CLEAN ENERGY AND POLLUTION REDUCTION ACT OF 2015 (SB 350)

In October 2015, the legislature approved, and Governor Jerry Brown signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for EV charging stations. Provisions for a 50% reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33% to 50% by 2030, with interim targets of 40% by 2024, and 25% by 2027.
- Double the energy efficiency in existing buildings by 2030. This target would be achieved through the California Public Utilities Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which would facilitate the growth of renewable energy markets in the western United States.

SB 32

On September 8, 2016, Governor Brown signed SB 32 and its companion bill, AB 197. SB 32 requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80% below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that CARB not only responds to the Governor, but also the Legislature (10).

CARB SCOPING PLAN UPDATE

In December 2022, CARB released the *Final 2022 Scoping Plan Update* (*2022 Scoping Plan*), which identifies the State's strategies to reduce GHG emissions by 85% and achieve carbon neutrality by 2045. The *2022 Scoping Plan* reflects an accelerated target of an 85% reduction in GHG emissions compared to 1990 levels by 2045 (36). This third update relies on key programs in place, including the Cap-and-Trade Regulation and the LCFS, while stressing the need to increase their pace and scale.

In order to meet these targets, the *2022 Scoping Plan* would require contributions from all sectors of the economy and includes an enhanced focus on reducing fossil fuel demand by 94% by 2045 compared to 2022 consumption.

Major elements of the *2022 Scoping Plan* framework include:

- Maintaining progress on meeting SB 32 GHG reduction targets of at least 40% below 1990 emissions by 2030.
- Implementation of strategies for reducing California's dependence on petroleum by providing consumers with clean energy options.
- Integrating equity and protecting California's most impacted communities.
- Incorporation of natural and working lands to the state's GHG emissions, as well as their role in achieving carbon neutrality.
- Use of all viable tools to address climate change, including carbon capture and sequestration, as well as direct air capture.
- ingency (18% by 2030).
- Implementing SB 350, which expands the RPS to 50% RPS and doubles energy efficiency savings by 2030.

- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing CH_4 and HCF emissions by 40% and anthropogenic black carbon emissions by 50% by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20% reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the *2022 Scoping Plan* also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the previous *2017 Scoping Plan*, CARB recommended that local governments achieve a community-wide goal to achieve emissions of no more than 6 metric tons of CO_2e ($MTCO_2e$) or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. However, because the state is now pursuing carbon neutrality no later than 2045, CARB now recommends that local governments instead focus on developing locally-appropriate, plan-level targets that align with the goal of carbon neutrality rather than focusing on a 2050 target. CARB identifies several "priority areas," including transportation electrification, VMT reduction, and building decarbonization, as these are the GHG reduction opportunities over which local governments have the most authority and the highest GHG reduction potential.

CAP-AND-TRADE PROGRAM

The *2022 Scoping Plan* identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to CARB, a cap-and-trade program would help put California on the path to meet its goal of achieving a 40% reduction in GHG emissions from 1990 levels by 2030. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap would be able to trade permits to emit GHGs within the overall limit.

CARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. The Cap-and-Trade Program is designed to reduce GHG emissions from regulated entities by more than 16% between 2013 and 2020, and by an additional 40% by 2030. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and would decline over time, achieving GHG emission reductions throughout the program's duration.

Covered entities that emit more than 25,000 $MTCO_2e$/yr must comply with the Cap-and-Trade Program. Triggering of the 25,000 $MTCO_2e$/yr "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or "MRR").

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities.

Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender "compliance instruments" for each $MTCO_2e$ of GHG they emit. There also are requirements to surrender compliance instruments covering 30% of the prior year's compliance obligation by November of each year (37).

The Cap-and-Trade Program provides a firm cap, which provides the highest certainty of achieving the 2030 target. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by CARB in the *First Update to the Climate Change Scoping Plan*:

> *"The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative."* (38)

The Cap-and-Trade Program covers approximately 80% of California's GHG emissions (39). The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported.

2.7.3.2 EXECUTIVE ORDERS RELATED TO GHG EMISSIONS

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

EXECUTIVE ORDER S-3-05

California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that would stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

EXECUTIVE ORDER S-01-07 (LCFS)

Governor Schwarzenegger signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020. CARB adopted the LCFS on April 23, 2009.

After a series of legal changes, in order to address the Court ruling, CARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon intensity fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. On November 16, 2015, the Office of Administrative Law (OAL) approved the Final Rulemaking Package. The new LCFS regulation became effective on January 1, 2016.

In 2018, CARB approved amendments to the regulation, which included strengthening the carbon intensity benchmarks through 2030 in compliance with the SB 32 GHG emissions reduction target for 2030. The amendments included crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector (40).

EXECUTIVE ORDER S-13-08

Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the Order, the *2009 California Climate Adaptation Strategy* (*CNRA 2009*) was adopted, which is the "…first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying, and exploring strategies to adapt to climate change, and specifying a direction for future research.

EXECUTIVE ORDER B-30-15

On April 29, 2015, Governor Brown issued an executive order to establish a California GHG reduction target of 40% below 1990 levels by 2030. The Governor's executive order aligned California's GHG reduction targets with those of leading international governments ahead of the U.N. Climate Change Conference in Paris late 2015. The Order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40% below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80% below 1990 levels by 2050 and directs CARB to update the *2017 Scoping Plan* to express the 2030 target in terms of $MMTCO_2e$. The Order also requires the state's climate adaptation plan to be updated every three

years, and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Order is not legally enforceable as to local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

EXECUTIVE ORDER B-55-18 AND SB 100

SB 100 and Executive Order B-55-18 were signed by Governor Brown on September 10, 2018. Under the existing RPS, 25% of retail sales of electricity are required to be from renewable sources by December 31, 2016, 33% by December 31, 2020, 40% by December 31, 2024, 45% by December 31, 2027, and 50% by December 31, 2030. SB 100 raises California's RPS requirement to 50% renewable resources target by December 31, 2026, and to achieve a 60% target by December 31, 2030. SB 100 also requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours (kWh) of those products sold to their retail end-use customers achieve 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030. In addition to targets under AB 32 and SB 32, Executive Order B-55-18 establishes a carbon neutrality goal for the state of California by 2045; and sets a goal to maintain net negative emissions thereafter. The Executive Order directs the California Natural Resources Agency (CNRA), California EPA (CalEPA), the California Department of Food and Agriculture (CDFA), and CARB to include sequestration targets in the Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal.

2.7.3.3 CALIFORNIA REGULATIONS AND BUILDING CODES

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

TITLE 20 CCR SECTIONS 1601 ET SEQ. – APPLIANCE EFFICIENCY REGULATIONS

The Appliance Efficiency Regulations regulate the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. 23 categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles (RV) or other mobile equipment (CEC 2012).

TITLE 24 CCR PART 6 – CALIFORNIA ENERGY CODE

The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods.

TITLE 24 CCR PART 11 – CALIFORNIA GREEN BUILDING STANDARDS CODE

California Code of Regulations (CCR) Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on August 1, 2009, and is administered by the California Building Standards Commission.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2022 California Green Building Code Standards that will be effective on January 1, 2023. The CEC anticipates that the 2022 energy code will provide $1.5 billion in consumer benefits and reduce GHG emissions by 10 million metric tons (41). The Project would be required to comply with the applicable standards in place at the time plan check submittals are made. These require, among other items (42):

NONRESIDENTIAL MANDATORY MEASURES

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking for clean air vehicles. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106. 5.3.3 (5.106.5.3). Additionally, Table 5.106.5.4.1 specifies requirements for the installation of raceway conduit and panel power requirements for medium- and heavy-duty electric vehicle supply equipment for warehouses, grocery stores, and retail stores.
- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).

- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reuse or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage, and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor- mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
    - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor potable water uses in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day (GPD) (5.303.1.1 and 5.303.1.2).
- Outdoor water uses in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

CARB Refrigerant Management Program

CARB adopted a regulation in 2009 to reduce refrigerant GHG emissions from stationary sources through refrigerant leak detection and monitoring, leak repair, system retirement and retrofitting, reporting and recordkeeping, and proper refrigerant cylinder use, sale, and disposal. The regulation is set forth in sections 95380 to 95398 of Title 17, CCR. The rules implementing the regulation establish a limit on statewide GHG emissions from stationary facilities with refrigeration systems with more than 50 pounds of a high GWP refrigerant. The refrigerant management program is designed to (1) reduce emissions of high-GWP GHG refrigerants from leaky stationary, non-residential refrigeration equipment; (2) reduce emissions from the installation and servicing of refrigeration and air-conditioning appliances using high-GWP refrigerants; and (3) verify GHG emission reductions.

Tractor-Trailer GHG Regulation

The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the HD tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors MY 2011 and later must be SmartWay certified. All other tractors must use SmartWay verified low rolling resistance tires. There are also requirements for trailers to have low rolling resistance tires and aerodynamic devices.

Phase I and 2 Heavy-Duty Vehicle GHG Standards

In September 2011, CARB has adopted a regulation for GHG emissions from HDTs and engines sold in California. It establishes GHG emission limits on truck and engine manufacturers and harmonizes with the EPA rule for new trucks and engines nationally. Existing HD vehicle regulations in California include engine criteria emission standards, tractor-trailer GHG requirements to implement SmartWay strategies (i.e., the Heavy-Duty Tractor-Trailer GHG Regulation), and in-use fleet retrofit requirements such as the Truck and Bus Regulation. The EPA rule has compliance requirements for new compression and spark ignition engines, as well as trucks from Class 2b through Class 8. Compliance requirements began with MY 2014 with stringency levels increasing through MY 2018. The rule organizes truck compliance into three groupings, which include a) HD pickups and vans; b) vocational vehicles; and c) combination tractors. The EPA rule does not regulate trailers.

CARB staff has worked jointly with the EPA and the NHTSA on the next phase of federal GHG emission standards for medium-duty trucks (MDT) and HDT vehicles, called federal Phase 2. The federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 and later MY HDT vehicles, including trailers. The EPA and NHTSA have proposed to roll back GHG and fuel economy standards for cars and light-duty trucks, which suggests a similar rollback of Phase 2 standards for MDT and HDT vehicles may be pursued.

SB 97 AND THE CEQA GUIDELINES UPDATE

Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research (OPR) shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the OPR pursuant to subdivision (a)."

In 2012, Public Resources Code Section 21083.05 was amended to state:

> *"The Office of Planning and Research and the Natural Resources Agency shall periodically update the guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption, to incorporate new information or criteria established by the State Air Resources Board pursuant to Division 25.5 (commencing with Section 38500) of the Health and Safety Code."*

On December 28, 2018, the Natural Resources Agency announced the OAL approved the amendments to the *CEQA Guidelines* for implementing CEQA. The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing *CEQA Guidelines* to reference climate change.

Section 15064.4 was added the *CEQA Guidelines* and states that in determining the significance of a project's GHG emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively insignificant compared to statewide, national, or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes. Additionally, a lead agency may use a model or methodology to estimate GHG emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use (43).

2.7.4 REGIONAL

The project is within the SCAB, which is under the jurisdiction of the SCAQMD.

SCAQMD

SCAQMD is the agency responsible for air quality planning and regulation in the SCAB. The SCAQMD addresses the impacts to climate change of projects subject to SCAQMD permit as a

lead agency if they are the only agency having discretionary approval for the project and acts as a responsible agency when a land use agency must also approve discretionary permits for the project. The SCAQMD acts as an expert commenting agency for impacts to air quality. This expertise carries over to GHG emissions, so the agency helps local land use agencies through the development of models and emission thresholds that can be used to address GHG emissions.

In 2008, SCAQMD formed a Working Group to identify GHG emissions thresholds for land use projects that could be used by local lead agencies in the SCAB. The Working Group developed several different options that are contained in the SCAQMD Draft Guidance Document – Interim CEQA GHG Significance Threshold, which could be applied by lead agencies. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD Board has not approved the thresholds; however, the Guidance Document provides substantial evidence supporting the approaches to significance of GHG emissions that can be considered by the lead agency in adopting its own threshold. The current interim thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a GHG reduction plan. If a project is consistent with a qualifying local GHG reduction plan, it does not have significant GHG emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to the project's operational emissions. If a project's emissions are below one of the following screening thresholds, then the project is less than significant:
    - Residential and commercial land use: 3,000 $MTCO_2e$/yr
    - Industrial land use: 10,000 $MTCO_2e$/yr
    - Based on land use type: residential: 3,500 $MTCO_2e$/yr; commercial: 1,400 $MTCO_2e$/yr; or mixed use: 3,000 $MTCO_2e$/yr
- Tier 4 has the following options:
    - Option 1: Reduce Business-as-Usual (BAU) emissions by a certain percentage; this percentage is currently undefined.
    - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
    - Option 3: 2020 target for service populations (SP), which includes residents and employees: 4.8 $MTCO_2e$ per SP per year for projects and 6.6 $MTCO_2e$ per SP per year for plans;
    - Option 3, 2035 target: 3.0 $MTCO_2e$ per SP per year for projects and 4.1 $MTCO_2e$ per SP per year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's interim thresholds used the Executive Order S-3-05-year 2050 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap CO_2 concentrations at 450 ppm, thus stabilizing global climate.

SCAQMD only has authority over GHG emissions from development projects that include air quality permits. At this time, it is unknown if the project would include stationary sources of emissions subject to SCAQMD permits. Notwithstanding, if the Project requires a stationary permit, it would be subject to the applicable SCAQMD regulations.

SCAQMD Regulation XXVII, adopted in 2009 includes the following rules:

- Rule 2700 defines terms and post global warming potentials.
- Rule 2701, SoCal Climate Solutions Exchange, establishes a voluntary program to encourage, quantify, and certify voluntary, high quality certified GHG emission reductions in the SCAQMD.
- Rule 2702, GHG Reduction Program created a program to produce GHG emission reductions within the SCAQMD. The SCAQMD would fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

2.7.5 LOCAL

CITY OF RIALTO CLIMATE ADAPTATION PLAN (PLAN)

This Plan lays the groundwork to help prepare the City and its residents for the expected impacts of climate change, as required by State law. This Plan builds on the City's existing General Plan Safety Element and Local Hazard Mitigation Plan to evaluate Rialto's vulnerabilities and capabilities and propose policy around four climate-related hazards: air pollution, extreme heat, wildfire, and flooding. These hazards were selected because they currently threaten the health and safety of Rialto residents and are the most likely to get worse as a result of climate change. This Plan pays particular attention to addressing the needs of those most vulnerable in the community. Specifically, the recommendations provided in this Plan focus on the communities that are already disproportionately exposed to these hazards and are the least able to respond to climate change due to their physiological conditions or socio- economic factors (44).

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3 PROJECT GHG IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant GHG impact. The significance of these potential impacts is described in the following sections.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related GHG impacts are taken from the Initial Study Checklist in Appendix G of the State *CEQA Guidelines* (14 CCR of Regulations §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to GHG if it would (45):

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

The City has determined that each of the CEQA threshold considerations presented herein establish a separate and independent basis upon which to substantiate the significance of the Project's potential GHG emissions impact.

3.2.1 DISCUSSION ON ESTABLISHMENT OF SIGNIFICANCE THRESHOLDS

The SCAQMD's adopted numerical threshold of 10,000 $MTCO_2e$/yr for industrial stationary source emissions is typically selected as the significance criterion. However, the City has determined that the SCAQMD's draft threshold of 3,000 $MTCO_2e$/yr is more conservative and appropriate for industrial and warehouse land use development projects. The 3,000 $MTCO_2e$/yr threshold is based on the SCAQMD staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD Interim Thresholds. The SCAQMD Interim Threshold identifies a screening threshold to determine whether additional analysis is required.

3.3 MODELS EMPLOYED TO ANALYZE GHGS

3.3.1 CALIFORNIA EMISSIONS ESTIMATOR MODEL (CALEEMOD)

In May 2022 the California Air Pollution Control Officers Association (CAPCOA) in conjunction with other California air districts, including SCAQMD, released the latest version of CalEEMod Version 2022.1. The purpose of this model is to calculate construction-source and operational-source criteria pollutants and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (46). Accordingly, the latest version of CalEEMod has been used for this Project to determine GHG emissions. Output from the model runs for construction and operational activity are provided in Appendix 3.1. CalEEMod includes GHG emissions from the following source categories: construction, area, energy, mobile, waste, water, refrigerants.

3.4 LIFE-CYCLE ANALYSIS NOT REQUIRED

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (47). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the Project development, infrastructure, and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time, a LCA would be extremely speculative and thus has not been prepared.

Additionally, the SCAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood, or documented, and would be challenging to mitigate (48). Additionally, the science to calculate life cycle emissions is not yet established or well defined; therefore, SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

3.5 CONSTRUCTION EMISSIONS

Project construction actvities would generate CO_2 and CH_4 emissions The *160 N. Cactus Avenue Air Quality Impact Analysis* (AQIA) report contains detailed information regarding Project construction activities (49). As discussed in the AQIA, Construction related emissions are expected from the following construction activities:

- Demolition
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

3.5.1 CONSTRUCTION DURATION

For purposes of analysis, construction of Project is expected to commence in August 2023 and would last through August 2024. The construction schedule utilized in the analysis, shown in Table 3-1, represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent[4]. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines* (50).

[4] As shown in the CalEEMod User's Guide Version 2022.1, Section 4.3 "Off-Road Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

TABLE 3-1: CONSTRUCTION DURATION

Construction Activity	Start Date	End Date	Working Days
Demolition	8/16/2023	9/5/2023	15
Site Preparation	9/6/2023	9/26/2023	15
Grading	9/27/2023	10/27/2023	23
Building Construction	11/9/2023	6/26/2024	165
Paving	6/27/2024	7/27/2024	22
Architectural Coating	7/29/2024	8/28/2024	23

3.5.2 CONSTRUCTION EQUIPMENT

Consistent with industry standards and typical construction practices, each piece of equipment listed in Table 3-4 will operate up to a total of eight (8) hours per day, or more than two-thirds of the period during which construction activities are allowed pursuant to the code.

TABLE 3-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Construction Activity	Equipment[1]	Amount	Hours Per Day
Demolition/Crushing	Concrete/Industrial Saws	1	8
	Excavators	3	8
	Rubber Tired Dozers	2	8
Site Preparation	Rubber Tired Dozers	3	8
	Crawler Tractors	4	8
Grading	Excavators	1	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Crawler Tractors	3	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
	Tractors/Loaders/Backhoes	2	8
Architectural Coating	Air Compressors	1	8
	Aerial Lifts	4	8

3.5.3 CONSTRUCTION EMISSIONS SUMMARY

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total GHG emissions for the construction activities, dividing it by a 30-year Project life then adding that number to the annual operational phase GHG emissions (51). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions. The amortized construction emissions are presented in Table 3-3.

TABLE 3-3: AMORTIZED ANNUAL CONSTRUCTION EMISSIONS

Year	Emissions (MT/yr)				
	CO_2	CH_4	N_2O	Refrigerants	Total CO_2e[5]
2023	199.00	0.01	0.01	0.08	202.00
2024	268.00	0.01	0.01	0.14	271.00
Total GHG Emissions	467.00	0.02	0.02	0.22	473.00
Amortized Construction Emissions	**15.57**	**0.00**	**0.00**	**0.01**	**15.77**

Source: CalEEMod annual construction-source emissions are presented in Appendix 3.1.

3.6 OPERATIONAL EMISSIONS

Operational activities associated with the Project would result in emissions of CO_2, CH_4, N_2O and R from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- On-Site Cargo Handling Equipment Emissions
- Water Supply, Treatment, and Distribution
- Solid Waste
- Refrigerants

3.6.1 AREA SOURCE EMISSIONS

LANDSCAPE MAINTENANCE EQUIPMENT

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. It should be noted that as October 9, 2021, Governor Gavin Newsom signed AB 1346. The bill aims to ban the sale of new gasoline-powered equipment under 25 gross

[5] CalEEMod reports the most common GHGs emitted which include CO_2, CH_4, N_2O and R. These GHGs are then converted into the CO_2e by multiplying the individual GHG by the GWP.

horsepower (known as small off-road engines [SOREs]) by 2024. For purposes of analysis, the emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod.

3.6.2 ENERGY SOURCE EMISSIONS

COMBUSTION EMISSIONS ASSOCIATED WITH NATURAL GAS AND ELECTRICITY

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building; the building energy use emissions do not include street lighting[6]. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Natural gas and electricity usage associated with the Project were calculated by CalEEMod using default parameters.

3.6.3 MOBILE SOURCE EMISSIONS

The Project related GHG emissions derive primarily from vehicle trips generated by the Project, including employee trips to and from the site and truck trips associated with the proposed uses. Trip characteristics available from the *160 N. Cactus Avenue Trip Generation* were utilized in this analysis (52).

APPROACH FOR ANALYSIS OF THE PROJECT

In order to determine emissions from passenger car vehicles, CalEEMod defaults for trip length and trip purpose were utilized. Default vehicle trip lengths for primary trips will be populated using data from the local metropolitan planning organizations/Regional Transportation Planning Agencies (MPO/RTPA). Trip type percentages and trip lengths provided by MPO/RTPAs truncate data at their demonstrative borders. This analysis assumes that passenger cars include Light-Duty-Auto vehicles (LDA), Light-Duty-Trucks (LDT1[7] & LDT2[8]), Medium-Duty-Vehicles (MDV), and Motorcycles (MCY) vehicle types. In order to account for emissions generated by passenger cars, the fleet mix in Table 3-4 was utilized.

TABLE 3-4: PASSENGER CAR FLEET MIX

Land Use	% Vehicle Type				
	LDA	LDT1	LDT2	MDV	MCY
Warehouse	54.62%	4.53%	21.75%	16.80%	2.30%

Note: The Project-specific passenger car fleet mix used in this analysis is based on a proportional split utilizing the default CalEEMod percentages assigned to LDA, LDT1, LDT2, and MDV vehicle types.

[6] The CalEEMod emissions inventory model does not include indirect emission related to street lighting. Indirect emissions related to street lighting are expected to be negligible and cannot be accurately quantified at this time as there is insufficient information as to the number and type of street lighting that would occur.

[7] Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

[8] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

To determine emissions from trucks for the proposed industrial uses, the analysis incorporated the SCAQMD recommended truck trip length of 15.3 miles for 2-axle (LHDT1, LHDT2), 14.2 miles for 3-axle (MHDT) trucks, and 40 miles for 4+-axle (HHDT) trucks and weighting the average trip lengths using traffic trip percentages. The trip length function for the industrial uses have been revised to 31.98 mile and an assumption of 100% primary trips. This trip length assumption is higher than the CalEEMod defaults for trucks. In order to be consistent with the *160 N. Cactus Avenue Trip Generation* trucks are broken down by truck type. The truck fleet mix is estimated by rationing the trip rates for each truck type based on information provided by the SCAQMD recommended truck mix, by axle type. Heavy trucks are broken down by truck type (or axle type) and are categorized as either Light-Heavy-Duty Trucks (LHDT1[9] & LHDT2 [10])/2-axle, Medium-Heavy-Duty Trucks (MHDT)/3-axle, and Heavy-Heavy-Duty Trucks (HHDT)/4+-axle. To account for emissions generated by trucks, the fleet mix in Table 3-5 was utilized.

TABLE 3-5: TRUCK FLEET MIX

Land Use	% Vehicle Type			
	LHDT1	LHDT2	MHDT	HHDT
Warehouse	1.43%	0.39%	29.09%	69.09%

Note: Project-specific truck fleet mix is based on the number of trips generated by each truck type (LHDT1, LHDT2, MHDT, and HHDT) relative to the total number of truck trips.

3.6.4 On-Site Cargo Handling Equipment Emissions

It is common for industrial buildings to require the operation of exterior cargo handling equipment in the building's truck court areas. For this particular Project, on-site modeled operational equipment includes up to one (1) 175 horsepower (hp), natural gas-powered cargo handling equipment – port tractor operating at 4 hours a day[11] for 365 days of the year.

3.6.5 Water Supply, Treatment and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat, and distribute water and wastewater. The amount of electricity required to convey, treat, and distribute water depends on the volume of water as well as the sources of the water. Unless otherwise noted, CalEEMod default parameters were used.

3.6.6 Solid Waste

Industrial land uses would result in the generation and disposal of solid waste. A percentage of this waste would be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted would be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic

[9] Vehicles under the LHDT1 category have a GVWR of 8,501 to 10,000 lbs.

[10] Vehicles under the LHDT2 category have a GVWR of 10,001 to 14,000 lbs.

[11] Based on Table II-3, Port and Rail Cargo Handling Equipment Demographics by Type, from CARB's Technology Assessment: Mobile Cargo Handling Equipment document, a single piece of equipment could operate up to 2 hours per day (Total Average Annual Activity divided by Total Number Pieces of Equipment). As such, the analysis conservatively assumes that the tractor/loader/backhoe would operate up to 4 hours per day.

breakdown of material. GHG emissions associated with the disposal of solid waste associated with the proposed Project were calculated by CalEEMod using default parameters.

3.6.7 REFRIGERANTS

Air conditioning (A/C) and refrigeration equipment associated with the buildings are anticipated to generate GHG emissions. CalEEMod automatically generates a default A/C and refrigeration equipment inventory for each project land use subtype based on industry data from the USEPA (2016b). CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime and then derives average annual emissions from the lifetime estimate. Note that CalEEMod does not quantify emissions from the disposal of refrigeration and A/C equipment at the end of its lifetime. Per 17 CCR 95371, new facilities with refrigeration equipment containing more than 50 pounds of refrigerant are prohibited from utilizing refrigerants with a GWP of 150 or greater as of January 1, 2022. As such, it was conservatively assumed that refrigeration systems installed at the supermarket portion of the Project would utilize refrigerants with a GWP of 150. GHG emissions associated with refrigerants were calculated by CalEEMod.

3.6.8 EMISSIONS SUMMARY

EXISTING EMISSIONS

The Project site is currently occupied, GHG emissions from the existing development were calculated using CalEEMod and driveway counts presented in the Project trip generation. Emissions from the existing development are summarized on Table 3-6.

TABLE 3-6: EMISSIONS FROM EXISTING DEVELOPMENT

Emission Source	Emissions (MT/yr)				
	CO_2	CH_4	N_2O	R	Total CO_2e
Mobile Source	691.00	0.05	0.08	1.27	718.00
Area Source	1.58	< 0.005	< 0.005	0.00	1.63
Energy Source	135.00	0.01	< 0.005	0.00	136.00
Water Usage	25.10	0.59	0.01	0.00	44.00
Waste	6.53	0.65	0.00	0.00	22.90
Refrigerants	0.00	0.00	0.00	13.10	13.10
On-Site Equipment					47.37
Total CO_2e (All Sources)	**983.00**				

Source: CalEEMod output, See Appendix 3.2 for detailed model outputs.

PROPOSED PROJECT EMISSIONS

The annual GHG emissions associated with the Project are summarized in Table 3-7. As shown in Table 3-7, construction and operation of the Project would generate a net total of approximately 1,047.49 $MTCO_2e$/yr.

TABLE 3-7: PROJECT GHG EMISSIONS

Emission Source	Emissions (MT/yr)				
	CO_2	CH_4	N_2O	R	Total CO_2e
Amortized Construction Emissions	15.57	6.67E-04	6.67E-04	7.33E-03	15.77
Mobile Source	1,447.00	0.12	0.21	1.62	1,514.00
Area Source	3.24	< 0.005	< 0.005	0.00	3.25
Energy Source	285.00	0.03	< 0.005	0.00	286.00
Water Usage	51.50	1.21	0.03	0.00	90.30
Waste	13.40	1.34	0.00	0.00	46.90
Refrigerants	0.00	0.00	0.00	26.90	26.90
On-Site Equipment					47.37
Total CO_2e (All Sources)	**2,030.48**				
Existing Emissions	*983.00*				
Total Net CO_2e (All Sources)	**1,047.49**				

Source: CalEEMod output, See Appendix 3.1 for detailed model outputs.

3.7 GHG EMISSIONS FINDINGS AND RECOMMENDATIONS

3.7.1 GHG IMPACT 1

Potential to generate direct or indirect GHG emissions that would result in a significant impact on the environment.

A numerical threshold for determining the significance of GHG emissions in the SCAB has not been established by the SCAQMD for Projects where it is not the lead agency. As an interim threshold based on guidance provided in the CAPCOA *CEQA and Climate Change* handbook, the City has opted to use a non-zero threshold approach based on Approach 2 of the handbook, and as established by Threshold 2.5 (Unit-Based Thresholds Based on Market Capture) a numerical threshold based on capture of approximately 90% of emissions from future development. The latest threshold developed by SCAQMD using this method is 3,000 $MTCO_2e$/yr for all projects (53). This threshold is more conservative than SCAQMD's 10,000 $MTCO_2e$/yr threshold for industrial projects and is an appropriate screening threshold to determine whether additional analysis is required.

The Project would result in approximately 1,047.49 $MTCO_2e$/yr; the proposed Project would not exceed the SCAQMD's numeric threshold of 3,000 $MTCO_2e$/yr. Thus, the Project would result in a less than significant impact with respect to GHG emissions.

Based on the preceding, the Project would not have the potential to generate direct or indirect GHG emissions that would result in a significant impact on the environment.

3.7.2 GHG IMPACT 2

The Project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

The Project's consistency with the 2022 Scoping Plan is discussed below.

2022 SCOPING PLAN CONSISTENCY

Pursuant to 15604.4 of the CEQA Guidelines, a lead agency may rely on qualitative analysis or performance-based standards to determine the significance of impacts from GHG emissions (54).

In November 2022, CARB released the Final 2022 Scoping Plan Update, which identifies the State's progress towards the statutory 2030 target, while providing a path towards carbon neutrality and reduce greenhouse gases emissions by 85% below 1990 levels by 2045. Recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40% below 1990 levels by 2030 (55). The Project would not conflict with any of the 2022 Scoping Plan elements as any regulations adopted would apply directly or indirectly to the Project.

Finally, the Project is consistent with the general plan land use designation, density, building intensity, and applicable policies specified for the Project area in SCAG's Sustainable Community Strategy/Regional Transportation Plan, which pursuant to SB 375 calls for the integration of transportation, land-use and housing policies to plan for achievement of the GHG-emissions target for the region. Thus, a less than significant impact related to GHG emissions from Project construction and operation would occur and no mitigation is required.

CONSISTENCY WITH THE CITY'S PLAN

The City of Rialto has prepared a Draft Climate Adaption Plan (56). The Climate Adaption Plan provides general guidance and policies that would "prepare the City and its residents for the expected impacts of climate change, as required by State law" (Climate Adaptation Plan, Introduction, n.p.).

The Project would comply with and would implement state and regional regulations and strategies that would minimize and control GHG emissions, and in this regard supports the City's Climate Adaptation Plan. The Project does not propose or require elements or operations that would obstruct or conflict with the Climate Adaptation Plan. Moreover, the analysis presented here substantiates that the Project would not have the potential to generate direct or indirect GHG emissions that would result in a significant impact on the environment.

Based on the preceding, the potential for the Project to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs is considered less-than-significant.

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5 CERTIFICATIONS

The contents of this GHG study report represent an accurate depiction of the GHG impacts associated with the proposed 160 N. Cactus Avenue Project. The information contained in this GHG report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at hqureshi@urbanxroads.com.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
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APPENDIX 3.1:

CALEEMOD PROJECT EMISSIONS MODEL OUTPUTS

15203-160 N. Cactus Avenue Detailed Report

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Data Field	Value
Project Name	15203-160 N. Cactus Avenue
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	14.2
Location	160 N Cactus Ave, Rialto, CA 92376, USA
County	San Bernardino-South Coast
City	Rialto
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5330
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Unrefrigerated Warehouse-No Rail	160	1000sqft	3.67	159,680	0.00	—	—	—
Parking Lot	127	Space	1.14	0.00	4,979	—	—	—

Other Asphalt Surfaces	3.00	Acre	3.00	0.00	0.00	—	—	—
User Defined Industrial	160	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.94	34.8	47.2	39.6	0.06	2.53	5.90	8.44	2.33	2.74	5.07	—	7,961	7,961	0.64	0.72	9.96	8,201
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.37	2.84	25.6	22.7	0.03	1.49	2.47	3.96	1.37	0.99	2.36	—	4,050	4,050	0.19	0.13	0.15	4,094
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.84	2.86	6.35	7.91	0.01	0.31	0.69	1.00	0.29	0.23	0.52	—	1,618	1,618	0.07	0.05	0.86	1,635
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.15	0.52	1.16	1.44	< 0.005	0.06	0.13	0.18	0.05	0.04	0.10	—	268	268	0.01	0.01	0.14	271

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	5.94	5.00	47.2	39.6	0.06	2.53	5.90	8.44	2.33	2.74	5.07	—	7,961	7,961	0.64	0.72	9.96	8,201
2024	1.99	34.8	13.1	20.2	0.03	0.55	1.02	1.56	0.50	0.24	0.75	—	4,107	4,107	0.19	0.13	5.29	4,156
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	3.37	2.84	25.6	22.7	0.03	1.49	2.47	3.96	1.37	0.99	2.36	—	4,050	4,050	0.19	0.13	0.15	4,094
2024	1.97	1.64	13.2	18.8	0.03	0.55	1.02	1.56	0.50	0.24	0.75	—	4,027	4,027	0.19	0.13	0.14	4,071
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.84	0.69	6.35	6.21	0.01	0.31	0.69	1.00	0.29	0.23	0.52	—	1,202	1,202	0.07	0.05	0.48	1,218
2024	0.80	2.86	5.48	7.91	0.01	0.22	0.38	0.60	0.21	0.09	0.30	—	1,618	1,618	0.07	0.05	0.86	1,635
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.15	0.13	1.16	1.13	< 0.005	0.06	0.13	0.18	0.05	0.04	0.10	—	199	199	0.01	0.01	0.08	202
2024	0.15	0.52	1.00	1.44	< 0.005	0.04	0.07	0.11	0.04	0.02	0.05	—	268	268	0.01	0.01	0.14	271

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.09	5.61	12.9	18.4	0.11	0.23	1.89	2.13	0.23	0.42	0.65	152	13,985	14,137	16.5	1.93	194	15,317
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.81	4.43	13.4	10.7	0.11	0.22	1.89	2.12	0.22	0.42	0.64	152	13,891	14,042	16.5	1.93	164	15,194

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.19	5.01	10.1	12.9	0.08	0.19	1.39	1.57	0.18	0.31	0.50	152	10,716	10,868	16.2	1.46	173	11,882
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	0.91	1.85	2.35	0.02	0.03	0.25	0.29	0.03	0.06	0.09	25.1	1,774	1,799	2.69	0.24	28.6	1,967

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.76	0.78	12.0	10.7	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,997	11,997	0.96	1.74	30.9	12,571
Area	1.23	4.79	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	3.09	5.61	12.9	18.4	0.11	0.23	1.89	2.13	0.23	0.42	0.65	152	13,985	14,137	16.5	1.93	194	15,317
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.72	0.74	12.5	10.1	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,931	11,931	0.97	1.75	0.80	12,476
Area	—	3.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163

Total	1.81	4.43	13.4	10.7	0.11	0.22	1.89	2.12	0.22	0.42	0.64	152	13,891	14,042	16.5	1.93	164	15,194
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.26	0.54	9.28	7.46	0.08	0.12	1.39	1.50	0.11	0.31	0.42	—	8,737	8,737	0.71	1.28	9.76	9,145
Area	0.85	4.43	0.04	4.76	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.6	19.6	< 0.005	< 0.005	—	19.6
Energy	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	1,719	1,719	0.16	0.01	—	1,726
Water	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Waste	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	2.19	5.01	10.1	12.9	0.08	0.19	1.39	1.57	0.18	0.31	0.50	152	10,716	10,868	16.2	1.46	173	11,882
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.23	0.10	1.69	1.36	0.01	0.02	0.25	0.27	0.02	0.06	0.08	—	1,447	1,447	0.12	0.21	1.62	1,514
Area	0.15	0.81	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25
Energy	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	285	285	0.03	< 0.005	—	286
Water	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.21	0.03	—	90.3
Waste	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9
Total	0.40	0.91	1.85	2.35	0.02	0.03	0.25	0.29	0.03	0.06	0.09	25.1	1,774	1,799	2.69	0.24	28.6	1,967

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	3.39	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	—	3.27	3.27	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.12	1.12	0.97	< 0.005	0.05	—	0.05	0.05	—	0.05	—	141	141	0.01	< 0.005	—	141
Demolition	—	—	—	—	—	—	0.13	0.13	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.21	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.3	23.3	< 0.005	< 0.005	—	23.4
Demolition	—	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.39	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	220	220	0.01	0.01	0.94	224
Vendor	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.9	46.9	< 0.005	0.01	0.13	49.2
Hauling	0.59	0.09	5.39	3.00	0.03	0.05	1.11	1.16	0.05	0.30	0.36	—	4,269	4,269	0.49	0.68	8.89	4,492

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.42	8.42	< 0.005	< 0.005	0.02	8.53
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.93	1.93	< 0.005	< 0.005	< 0.005	2.02
Hauling	0.02	< 0.005	0.23	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01	—	175	175	0.02	0.03	0.16	184
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.39	1.39	< 0.005	< 0.005	< 0.005	1.41
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Hauling	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.0	29.0	< 0.005	< 0.005	0.03	30.5

3.3. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.83	4.90	47.0	38.0	0.05	2.53	—	2.53	2.33	—	2.33	—	5,530	5,530	0.22	0.04	—	5,549
Dust From Material Movement	—	—	—	—	—	—	5.66	5.66	—	2.69	2.69	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.93	1.56	< 0.005	0.10	—	0.10	0.10	—	0.10	—	227	227	0.01	< 0.005	—	228
Dust From Material Movement	—	—	—	—	—	—	0.23	0.23	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.35	0.28	< 0.005	0.02	—	0.02	0.02	—	0.02	—	37.6	37.6	< 0.005	< 0.005	—	37.8
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.62	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	257	257	0.01	0.01	1.10	261
Vendor	0.01	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.9	46.9	< 0.005	0.01	0.13	49.2
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.82	9.82	< 0.005	< 0.005	0.02	9.96
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.93	1.93	< 0.005	< 0.005	< 0.005	2.02

Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.63	1.63	< 0.005	< 0.005	< 0.005	1.65
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Hauling	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	0.00

3.5. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.28	2.76	25.4	21.6	0.03	1.49	—	1.49	1.37	—	1.37	—	3,134	3,134	0.13	0.03	—	3,144
Dust From Material Movement	—	—	—	—	—	—	2.26	2.26	—	0.94	0.94	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.28	2.76	25.4	21.6	0.03	1.49	—	1.49	1.37	—	1.37	—	3,134	3,134	0.13	0.03	—	3,144
Dust From Material Movement	—	—	—	—	—	—	2.26	2.26	—	0.94	0.94	—	—	—	—	—	—	—
Onsite truck	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.17	1.60	1.36	< 0.005	0.09	—	0.09	0.09	—	0.09	—	197	197	0.01	< 0.005	—	198
Dust From Material Movement	—	—	—	—	—	—	0.14	0.14	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.29	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	32.7	32.7	< 0.005	< 0.005	—	32.8
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.39	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	220	220	0.01	0.01	0.94	224
Vendor	0.01	< 0.005	0.09	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.9	71.9	0.01	0.01	0.20	75.4
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.09	1.04	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	204
Vendor	0.01	< 0.005	0.09	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	72.0	72.0	0.01	0.01	0.01	75.3
Hauling	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	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	< 0.005	0.01	0.07	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.9	12.9	< 0.005	< 0.005	0.03	13.1
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.53	4.53	< 0.005	< 0.005	0.01	4.75
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.14	2.14	< 0.005	< 0.005	< 0.005	2.17
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.75	0.75	< 0.005	< 0.005	< 0.005	0.79
Hauling	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	0.00

3.7. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.62	1.36	12.8	14.3	0.03	0.60	—	0.60	0.55	—	0.55	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.33	1.48	< 0.005	0.06	—	0.06	0.06	—	0.06	—	273	273	0.01	< 0.005	—	274
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.03	0.03	0.24	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	45.2	45.2	< 0.005	< 0.005	—	45.3
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.41	4.67	0.00	0.00	0.88	0.88	0.00	0.21	0.21	—	903	903	0.04	0.03	0.11	914
Vendor	0.06	0.01	0.64	0.34	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	517	517	0.04	0.08	0.04	541
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.04	0.51	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	95.0	95.0	< 0.005	< 0.005	0.19	96.3
Vendor	0.01	< 0.005	0.07	0.03	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	—	53.6	53.6	< 0.005	0.01	0.06	56.2
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.7	15.7	< 0.005	< 0.005	0.03	15.9
Vendor	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.88	8.88	< 0.005	< 0.005	0.01	9.30
Hauling	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	0.00

3.9. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	12.2	14.2	0.03	0.54	—	0.54	0.49	—	0.49	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.55	1.30	12.2	14.2	0.03	0.54	—	0.54	0.49	—	0.49	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.54	0.45	4.24	4.96	0.01	0.19	—	0.19	0.17	—	0.17	—	916	916	0.04	0.01	—	919
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.77	0.90	< 0.005	0.03	—	0.03	0.03	—	0.03	—	152	152	0.01	< 0.005	—	152
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.35	0.33	5.67	0.00	0.00	0.88	0.88	0.00	0.21	0.21	—	966	966	0.04	0.03	3.86	980
Vendor	0.05	0.01	0.59	0.31	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	511	511	0.04	0.08	1.43	536
Hauling	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.37	0.33	0.38	4.29	0.00	0.00	0.88	0.88	0.00	0.21	0.21	—	885	885	0.04	0.03	0.10	896
Vendor	0.05	0.01	0.61	0.32	< 0.005	0.01	0.14	0.15	0.01	0.04	0.05	—	512	512	0.04	0.08	0.04	535
Hauling	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	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.13	0.11	0.13	1.57	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	313	313	0.01	0.01	0.58	317
Vendor	0.02	< 0.005	0.21	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	178	178	0.01	0.03	0.21	187
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.02	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	51.8	51.8	< 0.005	< 0.005	0.10	52.5
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	29.5	29.5	< 0.005	< 0.005	0.04	30.9
Hauling	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	0.00

3.11. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.29	1.09	10.2	13.9	0.02	0.50	—	0.50	0.46	—	0.46	—	2,093	2,093	0.08	0.02	—	2,100
Paving	—	0.49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.62	0.84	< 0.005	0.03	—	0.03	0.03	—	0.03	—	126	126	0.01	< 0.005	—	127
Paving	—	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.11	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	20.9	20.9	< 0.005	< 0.005	—	21.0
Paving	—	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.10	1.69	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	288	288	0.01	0.01	1.15	292
Vendor	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	68.0	68.0	0.01	0.01	0.19	71.4
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.03	16.4
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.10	4.10	< 0.005	< 0.005	< 0.005	4.30
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.67	2.67	< 0.005	< 0.005	< 0.005	2.71
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.68	0.68	< 0.005	< 0.005	< 0.005	0.71
Hauling	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	0.00

3.13. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.34	4.11	4.66	0.01	0.06	—	0.06	0.06	—	0.06	—	768	768	0.03	0.01	—	771
Architectural Coatings	—	34.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.26	0.29	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	48.4	48.4	< 0.005	< 0.005	—	48.6
Architectural Coatings	—	2.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	0.05	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.02	8.02	< 0.005	< 0.005	—	8.04
Architectural Coatings	—	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	0.07	1.13	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	193	193	0.01	0.01	0.77	196
Vendor	0.01	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	71.2	71.2	0.01	0.01	0.20	74.7
Hauling	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	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	11.5
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	4.49	4.49	< 0.005	< 0.005	0.01	4.70
Hauling	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	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.87	1.87	< 0.005	< 0.005	< 0.005	1.90
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.74	0.74	< 0.005	< 0.005	< 0.005	0.78
Hauling	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	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.63	0.59	0.26	4.68	0.01	< 0.005	0.30	0.31	< 0.005	0.05	0.06	—	867	867	0.04	0.03	3.35	879
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	1.14	0.19	11.7	6.05	0.10	0.16	1.59	1.75	0.15	0.37	0.52	—	11,130	11,130	0.92	1.72	27.6	11,692
Total	1.76	0.78	12.0	10.7	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,997	11,997	0.96	1.74	30.9	12,571
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.59	0.56	0.29	3.99	0.01	< 0.005	0.30	0.31	< 0.005	0.05	0.06	—	799	799	0.05	0.03	0.09	809
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00

User Defined Industrial	1.13	0.18	12.2	6.07	0.10	0.16	1.59	1.75	0.15	0.37	0.52	—	11,132	11,132	0.92	1.72	0.71	11,668
Total	1.72	0.74	12.5	10.1	0.11	0.16	1.89	2.06	0.16	0.42	0.58	—	11,931	11,931	0.97	1.75	0.80	12,476
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.08	0.07	0.04	0.55	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	98.1	98.1	0.01	< 0.005	0.18	99.5
Parking Lot	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	0.00
Other Asphalt Surfaces	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	0.00
User Defined Industrial	0.15	0.03	1.65	0.81	0.01	0.02	0.21	0.23	0.02	0.05	0.07	—	1,348	1,348	0.11	0.21	1.44	1,415
Total	0.23	0.10	1.69	1.36	0.01	0.02	0.25	0.27	0.02	0.06	0.08	—	1,447	1,447	0.12	0.21	1.62	1,514

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	704	704	0.07	0.01	—	709

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	41.7	41.7	< 0.005	< 0.005	—	41.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	746	746	0.07	0.01	—	750
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	704	704	0.07	0.01	—	709
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	41.7	41.7	< 0.005	< 0.005	—	41.9
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	746	746	0.07	0.01	—	750
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	117	117	0.01	< 0.005	—	117
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	6.90	6.90	< 0.005	< 0.005	—	6.94

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	124	124	0.01	< 0.005	—	124

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.09	0.04	0.82	0.68	< 0.005	0.06	—	0.06	0.06	—	0.06	—	973	973	0.09	< 0.005	—	976
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	161	161	0.01	< 0.005	—	162
Parking Lot	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
Other Asphalt Surfaces	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
User Defined Industrial	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
Total	0.02	0.01	0.15	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	161	161	0.01	< 0.005	—	162

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	3.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.23	1.14	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Total	1.23	4.79	0.06	6.94	< 0.005	0.01	—	0.01	0.01	—	0.01	—	28.6	28.6	< 0.005	< 0.005	—	28.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	3.43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	3.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.15	0.14	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25
Total	0.15	0.81	0.01	0.87	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.24	3.24	< 0.005	< 0.005	—	3.25

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	70.8	240	311	7.28	0.18	—	545
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.41	0.41	< 0.005	< 0.005	—	0.41
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	70.8	240	311	7.28	0.18	—	545
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.41	0.41	< 0.005	< 0.005	—	0.41

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	70.8	241	311	7.28	0.18	—	545
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.20	0.03	—	90.2
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.07	0.07	< 0.005	< 0.005	—	0.07
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	11.7	39.8	51.5	1.21	0.03	—	90.3

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehou Rail	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	80.9	0.00	80.9	8.09	0.00	—	283
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	13.4	0.00	13.4	1.34	0.00	—	46.9

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	163	163

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	26.9	26.9

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	8/16/2023	9/5/2023	5.00	15.0	—
Site Preparation	Site Preparation	9/6/2023	9/26/2023	5.00	15.0	—
Grading	Grading	9/27/2023	10/27/2023	5.00	23.0	—
Building Construction	Building Construction	11/9/2023	6/26/2024	5.00	165	—
Paving	Paving	6/27/2024	7/27/2024	5.00	22.0	—
Architectural Coating	Architectural Coating	7/29/2024	8/28/2024	5.00	23.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40

Site Preparation	Crawler Tractors	Diesel	Average	4.00	8.00	87.0	0.43
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Paving	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Architectural Coating	Aerial Lifts	Diesel	Average	4.00	8.00	46.0	0.31

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	1.48	10.2	HHDT,MHDT
Demolition	Hauling	59.7	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT

Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	1.48	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	2.27	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	67.1	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	16.3	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	2.17	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.4	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	2.27	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	239,520	79,840	10,831

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	77,900	—
Site Preparation	—	—	52.5	0.00	—
Grading	—	—	57.5	0.00	—
Paving	0.00	0.00	0.00	0.00	4.14

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Unrefrigerated Warehouse-No Rail	0.00	0%
Parking Lot	1.14	100%

Other Asphalt Surfaces	3.00	100%
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	349	0.03	< 0.005
2024	0.00	349	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	164	14.4	5.75	43,804	1,135	99.4	39.8	303,044
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User Defined Industrial	110	9.58	3.83	29,383	3,518	306	123	939,670

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	239,520	79,840	10,831

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	737,515	349	0.0330	0.0040	3,035,625
Parking Lot	43,615	349	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	349	0.0330	0.0040	0.00
User Defined Industrial	0.00	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	36,926,000	0.00
Parking Lot	0.00	79,957
Other Asphalt Surfaces	0.00	0.00
User Defined Industrial	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	150	0.00
Parking Lot	0.00	0.00
Other Asphalt Surfaces	0.00	0.00
User Defined Industrial	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Unrefrigerated Warehouse-No Rail	Cold storage	User Defined	150	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type
—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	26.4	annual days of extreme heat
Extreme Precipitation	4.90	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	98.7
AQ-PM	83.5
AQ-DPM	41.9

Drinking Water	88.0
Lead Risk Housing	49.2
Pesticides	0.00
Toxic Releases	77.0
Traffic	34.1
Effect Indicators	—
CleanUp Sites	28.4
Groundwater	0.00
Haz Waste Facilities/Generators	78.1
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	80.5
Cardio-vascular	92.8
Low Birth Weights	39.9
Socioeconomic Factor Indicators	—
Education	80.3
Housing	91.0
Linguistic	59.0
Poverty	82.1
Unemployment	90.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	13.28114975

Employed	12.60105223
Median HI	20.74939048
Education	—
Bachelor's or higher	18.02900038
High school enrollment	5.042987296
Preschool enrollment	10.36827922
Transportation	—
Auto Access	25.2662646
Active commuting	68.0354164
Social	—
2-parent households	59.89991018
Voting	5.82574105
Neighborhood	—
Alcohol availability	22.87950725
Park access	10.90722443
Retail density	49.30065443
Supermarket access	72.71910689
Tree canopy	40.72885923
Housing	—
Homeownership	23.81624535
Housing habitability	26.52380341
Low-inc homeowner severe housing cost burden	87.25779546
Low-inc renter severe housing cost burden	9.508533299
Uncrowded housing	21.00603105
Health Outcomes	—
Insured adults	24.03438984
Arthritis	63.4

Asthma ER Admissions	13.3
High Blood Pressure	65.9
Cancer (excluding skin)	91.6
Asthma	3.8
Coronary Heart Disease	69.4
Chronic Obstructive Pulmonary Disease	25.1
Diagnosed Diabetes	28.6
Life Expectancy at Birth	6.3
Cognitively Disabled	28.0
Physically Disabled	18.7
Heart Attack ER Admissions	1.9
Mental Health Not Good	8.9
Chronic Kidney Disease	55.3
Obesity	9.6
Pedestrian Injuries	96.9
Physical Health Not Good	16.6
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	66.7
Current Smoker	10.9
No Leisure Time for Physical Activity	18.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	23.1
Elderly	81.9
English Speaking	37.7

Foreign-born	42.0
Outdoor Workers	21.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	59.1
Traffic Density	27.9
Traffic Access	23.0
Other Indices	—
Hardship	90.4
Other Decision Support	—
2016 Voting	15.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0
Healthy Places Index Score for Project Location (b)	7.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Taken from site plan
Construction: Off-Road Equipment	Client Provided/Confirmed equipment list T/L/B replaced with Crawler Tractor to accurately calculate disturbance for Site Preparation and Grading phases Standard 8-hour work day
Construction: Architectural Coatings	SCAQMD Rule 1113
Construction: Trips and VMT	Vendor Trips adjusted based on CalEEMod defaults for Building Construction and number of days for Demolition, Site Preparation, Grading, Building Construction, Paving and Architectural Coatings
Operations: Vehicle Data	Trip Characteristics based on information provided in the Traffic Analysis
Operations: Fleet Mix	Passenger Car Mix estimated based on CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, MCY). Truck Fleet Mix based on 2, 3 and 4 axle trucks.
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Refrigerants	As of 1 January 2022, new commercial refrigeration equipment may not use refrigerants with a GWP of 150 or greater. Further, R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively.

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APPENDIX 3.2:

CALEEMOD EXISTING EMISSIONS MODEL OUTPUTS

15203-160 N Cactus Avenue (Existing) Detailed Report

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8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	15203-160 N Cactus Avenue (Existing)
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	14.2
Location	160 N Cactus Ave, Rialto, CA 92376, USA
County	San Bernardino-South Coast
City	Rialto
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5330
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Unrefrigerated Warehouse-No Rail	77.9	1000sqft	1.79	77,900	0.00	—	—	—
User Defined Industrial	77.9	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.76	3.10	5.53	11.5	0.05	0.10	1.02	1.12	0.10	0.22	0.33	74.0	5,632	5,706	7.90	0.64	99.2	6,194
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.12	2.51	5.75	7.47	0.05	0.10	1.02	1.12	0.10	0.22	0.32	74.0	5,556	5,630	7.91	0.64	79.9	6,099
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.42	2.82	5.31	9.21	0.04	0.10	0.92	1.01	0.09	0.20	0.30	74.0	5,121	5,195	7.87	0.59	87.1	5,654
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.26	0.51	0.97	1.68	0.01	0.02	0.17	0.19	0.02	0.04	0.05	12.2	848	860	1.30	0.10	14.4	936

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	1.11	0.76	5.11	7.83	0.04	0.07	1.02	1.09	0.07	0.22	0.29	—	4,683	4,683	0.33	0.55	19.8	4,874
Area	0.60	2.32	0.03	3.39	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	13.9	13.9	< 0.005	< 0.005	—	14.3
Energy	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	818	818	0.07	< 0.005	—	822
Water	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
Waste	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Total	1.76	3.10	5.53	11.5	0.05	0.10	1.02	1.12	0.10	0.22	0.33	74.0	5,632	5,706	7.90	0.64	99.2	6,194
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.08	0.72	5.35	7.13	0.04	0.07	1.02	1.09	0.07	0.22	0.29	—	4,621	4,621	0.34	0.55	0.51	4,794
Area	—	1.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	818	818	0.07	< 0.005	—	822
Water	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
Waste	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Total	1.12	2.51	5.75	7.47	0.05	0.10	1.02	1.12	0.10	0.22	0.32	74.0	5,556	5,630	7.91	0.64	79.9	6,099
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.97	0.65	4.89	6.55	0.04	0.06	0.92	0.98	0.06	0.20	0.26	—	4,176	4,176	0.30	0.50	7.69	4,339
Area	0.41	2.15	0.02	2.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.54	9.54	< 0.005	< 0.005	—	9.82
Energy	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	818	818	0.07	< 0.005	—	822
Water	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
Waste	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Total	1.42	2.82	5.31	9.21	0.04	0.10	0.92	1.01	0.09	0.20	0.30	74.0	5,121	5,195	7.87	0.59	87.1	5,654
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.18	0.12	0.89	1.20	0.01	0.01	0.17	0.18	0.01	0.04	0.05	—	691	691	0.05	0.08	1.27	718
Area	0.08	0.39	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.58	1.58	< 0.005	< 0.005	—	1.63

Energy	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	135	135	0.01	< 0.005	—	136
Water	—	—	—	—	—	—	—	—	—	—	—	5.72	19.4	25.1	0.59	0.01	—	44.0
Waste	—	—	—	—	—	—	—	—	—	—	—	6.53	0.00	6.53	0.65	0.00	—	22.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.1	13.1
Total	0.26	0.51	0.97	1.68	0.01	0.02	0.17	0.19	0.02	0.04	0.05	12.2	848	860	1.30	0.10	14.4	936

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.60	0.56	0.26	4.54	0.01	< 0.005	0.27	0.28	< 0.005	0.05	0.05	—	801	801	0.04	0.03	3.37	813
User Defined Industrial	0.52	0.20	4.84	3.28	0.04	0.07	0.75	0.81	0.06	0.18	0.24	—	3,882	3,882	0.29	0.52	16.4	4,062
Total	1.11	0.76	5.11	7.83	0.04	0.07	1.02	1.09	0.07	0.22	0.29	—	4,683	4,683	0.33	0.55	19.8	4,874
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated Warehouse-No Rail	0.56	0.53	0.29	3.86	0.01	< 0.005	0.27	0.28	< 0.005	0.05	0.05	—	738	738	0.04	0.03	0.09	747
User Defined Industrial	0.51	0.20	5.06	3.27	0.04	0.07	0.75	0.81	0.06	0.18	0.24	—	3,883	3,883	0.29	0.52	0.42	4,047
Total	1.08	0.72	5.35	7.13	0.04	0.07	1.02	1.09	0.07	0.22	0.29	—	4,621	4,621	0.34	0.55	0.51	4,794
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.09	0.09	0.05	0.66	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	112	112	0.01	< 0.005	0.22	113
User Defined Industrial	0.08	0.03	0.84	0.54	0.01	0.01	0.12	0.13	0.01	0.03	0.04	—	580	580	0.04	0.08	1.06	605
Total	0.18	0.12	0.89	1.20	0.01	0.01	0.17	0.18	0.01	0.04	0.05	—	691	691	0.05	0.08	1.27	718

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	344	344	0.03	< 0.005	—	346

User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	344	344	0.03	< 0.005	—	346
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	344	344	0.03	< 0.005	—	346
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	344	344	0.03	< 0.005	—	346
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	56.9	56.9	0.01	< 0.005	—	57.2
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	56.9	56.9	0.01	< 0.005	—	57.2

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrige Warehouse-No Rail	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	475	475	0.04	< 0.005	—	476
User Defined Industrial	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
Total	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	475	475	0.04	< 0.005	—	476
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	475	475	0.04	< 0.005	—	476
User Defined Industrial	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
Total	0.04	0.02	0.40	0.33	< 0.005	0.03	—	0.03	0.03	—	0.03	—	475	475	0.04	< 0.005	—	476
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.6	78.6	0.01	< 0.005	—	78.8
User Defined Industrial	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
Total	0.01	< 0.005	0.07	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.6	78.6	0.01	< 0.005	—	78.8

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.67	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.60	0.56	0.03	3.39	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	13.9	13.9	< 0.005	< 0.005	—	14.3
Total	0.60	2.32	0.03	3.39	< 0.005	< 0.005	—	< 0.005	0.01	—	0.01	—	13.9	13.9	< 0.005	< 0.005	—	14.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	1.67	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	1.77	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	—	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	—	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.08	0.07	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.58	1.58	< 0.005	< 0.005	—	1.63

Total	0.08	0.39	< 0.005	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.58	1.58	< 0.005	< 0.005	—	1.63

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	34.5	117	152	3.55	0.09	—	266
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated	—	—	—	—	—	—	—	—	—	—	—	5.72	19.4	25.1	0.59	0.01	—	44.0
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.72	19.4	25.1	0.59	0.01	—	44.0

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138

User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	39.5	0.00	39.5	3.94	0.00	—	138
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	6.53	0.00	6.53	0.65	0.00	—	22.9
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	6.53	0.00	6.53	0.65	0.00	—	22.9

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unrefrigerated	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	79.4	79.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.1	13.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.1	13.1

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Unrefrigerated Warehouse-No Rail	148	98.5	95.7	48,713	1,024	681	662	337,003
User Defined Industrial	65.0	43.2	42.1	21,386	1,652	1,099	1,069	543,633

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	116,850	38,950	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Unrefrigerated Warehouse-No Rail	359,797	349	0.0330	0.0040	1,480,932
User Defined Industrial	0.00	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Unrefrigerated Warehouse-No Rail	18,014,375	0.00
User Defined Industrial	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Unrefrigerated Warehouse-No Rail	73.2	0.00
User Defined Industrial	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Unrefrigerated Warehouse-No Rail	Cold storage	User Defined	150	7.50	7.50	7.50	25.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

—	—

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	26.4	annual days of extreme heat
Extreme Precipitation	4.90	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth

Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3

Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	98.7
AQ-PM	83.5
AQ-DPM	41.9
Drinking Water	88.0
Lead Risk Housing	49.2
Pesticides	0.00
Toxic Releases	77.0
Traffic	34.1

Effect Indicators	—
CleanUp Sites	28.4
Groundwater	0.00
Haz Waste Facilities/Generators	78.1
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	80.5
Cardio-vascular	92.8
Low Birth Weights	39.9
Socioeconomic Factor Indicators	—
Education	80.3
Housing	91.0
Linguistic	59.0
Poverty	82.1
Unemployment	90.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	13.28114975
Employed	12.60105223
Median HI	20.74939048
Education	—
Bachelor's or higher	18.02900038
High school enrollment	5.042987296

Preschool enrollment	10.36827922
Transportation	—
Auto Access	25.2662646
Active commuting	68.0354164
Social	—
2-parent households	59.89991018
Voting	5.82574105
Neighborhood	—
Alcohol availability	22.87950725
Park access	10.90722443
Retail density	49.30065443
Supermarket access	72.71910689
Tree canopy	40.72885923
Housing	—
Homeownership	23.81624535
Housing habitability	26.52380341
Low-inc homeowner severe housing cost burden	87.25779546
Low-inc renter severe housing cost burden	9.508533299
Uncrowded housing	21.00603105
Health Outcomes	—
Insured adults	24.03438984
Arthritis	63.4
Asthma ER Admissions	13.3
High Blood Pressure	65.9
Cancer (excluding skin)	91.6
Asthma	3.8
Coronary Heart Disease	69.4

Chronic Obstructive Pulmonary Disease	25.1
Diagnosed Diabetes	28.6
Life Expectancy at Birth	6.3
Cognitively Disabled	28.0
Physically Disabled	18.7
Heart Attack ER Admissions	1.9
Mental Health Not Good	8.9
Chronic Kidney Disease	55.3
Obesity	9.6
Pedestrian Injuries	96.9
Physical Health Not Good	16.6
Stroke	29.9
Health Risk Behaviors	—
Binge Drinking	66.7
Current Smoker	10.9
No Leisure Time for Physical Activity	18.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	23.1
Elderly	81.9
English Speaking	37.7
Foreign-born	42.0
Outdoor Workers	21.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	59.1
Traffic Density	27.9

Traffic Access	23.0
Other Indices	—
Hardship	90.4
Other Decision Support	—
2016 Voting	15.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0
Healthy Places Index Score for Project Location (b)	7.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	Trip Characteristics based on information provided in the Traffic Analysis

Operations: Fleet Mix	Passenger Car Mix estimated based on CalEEMod default fleet mix and the ratio of the vehicle classes (LDA, LDT1, LDT2, MDV, MCY). Truck Fleet Mix based on 2, 3 and 4 axle trucks.
Operations: Architectural Coatings	SCAQMD Rule 1113
Operations: Refrigerants	R-404A (the CalEEMod default) is unacceptable for new supermarket and cold storage systems as of 1 January 2019 and 2023, respectively

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Appendix F

Phase I Environmental Site Assessment

D R A F T

PHASE I ENVIRONMENTAL SITE ASSESSMENT

MIROS ENTERPRISES LLC
160 NORTH CACTUS AVENUE
RIALTO, CALIFORNIA

Prepared For:
LPC West, Inc.

Prepared By:
Ramboll US Consulting, Inc.
Los Angeles, California

Date
March 2022

Project Number
1690025979

RAMBOLL

ENVIRONMENT
& HEALTH

SIGNATURE AND ENVIRONMENTAL PROFESSIONAL STATEMENT

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312.

We have the specific qualifications based on education, training, and experience to assess a property of the nature, history and setting of the subject property. We have developed and performed the all-appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

_____

Alexis Hillman, PG, CHG
Senior Managing Consultant

_____

Eddie Arslanian, PE
Principal and Regional COO, West

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Appendix D: Qualifications of Environmental Professionals

1. SUMMARY OF CONCLUSIONS

Ramboll US Consulting, Inc. (Ramboll) was retained by LPC West, Inc. (or the "Client") to perform a Phase I Environmental Site Assessment (ESA) of the site located at 160 North Cactus Avenue in Rialto, California (herein referred to as the "facility" or the "site"). Ramboll's assessment was conducted in connection with a potential purchase of the property. The objective of the Phase I ESA, which was conducted in conformance with the scope and limitations of ASTM International's *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* E1527-13 (the "ASTM Standard"), was to identify Recognized Environmental Conditions (RECs), as defined in the ASTM Standard (see Section 7). The scope of work for the Phase I ESA was expanded to include a review of certain items that the ASTM standard considers "non-scope considerations", namely, a qualitative evaluation of the potential for the on-site existence of asbestos-containing materials, lead-based paint, water intrusion, and radon.

1.1 Site Summary

Miros Enterprises LLC owns and leases the site located at 160 North Cactus Avenue in Rialto, California to Nelson Adams NACO, a manufacturer of markerboards, chalkboards, tackboards, and tables and benches for school districts, and M.R. Tudor, a heavy machinery rental company. The approximately 7.9-acre site is split into a northern portion, occupied by Nelson Adams NACO, and a southern portion, occupied by M.R. Tudor, collectively "the Companies". The northern portion of the site is developed with an approximately 49,250-square-foot central warehouse and administrative office building, an approximately 28,500-square-foot northern warehouse that spans the northern boundary of the site, and an approximately 7,400-square-foot event space on the northeastern portion of the site. The southern portion of the site is developed with two trailers that house administrative offices and a break room, approximately 1,500 square feet in total, on the western side of the site and three metal containers that store miscellaneous equipment, each approximately 330 square feet. The eastern side of the southern portion of the site is used as a truck trailer and heavy machinery parking lot.

The site was undeveloped, vacant land until it began to be used as farmland in 1949 through 1968. The site was undeveloped, vacant land again from after 1968 until at least 1985. Around 1989, the site was redeveloped for industrial purposes with three of the existing buildings present. The current central warehouse was added around 2002. Notable previous site occupants include Rialto Lumber and Coast Machinery Movers/Warehouse. M.R. Tudor owned the site from 2006 to 2015. Miros Enterprises LLC purchased the site in 2015 and Nelson Adams NACO and M.R. Tudor have leased the site since that time.

1.2 Recognized Environmental Conditions

Ramboll performed a Phase I ESA of the site at 160 North Cactus Avenue in Rialto, California in conformance with the scope and limitations of the ASTM Standard. Any exceptions to, or deletions from, this practice are described in Section 6.2 of this report. This assessment has revealed no RECs in connection with the site.

1.3 Other Findings

Although not considered RECs, Ramboll identified the following notable other findings. The term "other finding" is not defined by ASTM; rather, Ramboll uses the term to connote areas of contingent risk that are not clearly defined by the ASTM Standard.

- **Past Light Industrial Operations at the Site.** The site was first developed in 1986 and was used by Rialto Lumber Co from 1986 until 1993 for the production and storage of lumber. Records indicate that gasoline, hydraulic oil, and oil were used at the site by Rialto Lumber Co. From 1993

to 2015, site occupants included Western American Forest Prod, Hutting Dist Products, M.R. Tudor-California, Inc., a heavy construction equipment dealer, SSI Express, Inc., a trucking repair shop, and Able Crane & Rigging Inc, a crane rental service. There is no readily available information as to the specific use of chemicals during this time period, but there is no indication that these operations were chemically intensive or involved the use of significant amounts of petroleum products or other hazardous substances. The site is not listed on any environmental databases indicative of a release or of hazardous waste generation. Also, Ramboll notes that these operations were conducted during a time period when robust environmental regulations were in place regarding chemical handling and waste management. While Ramboll cannot rule out the possibility that inadvertent spills or releases of chemicals or petroleum products have occurred in the past, no specific contamination concerns were identified (e.g., obvious evidence of contamination, former underground storage tanks, listings indicating past chlorinated solvent use in significant quantities, known releases), and thus this matter is not considered a REC. However, the former site occupant, Coast Machinery Movers/Warehouse, is known to have disposed of waste containing benzene, PCE, and TCE. Quantities of these wastes are unknown, and no spills or releases have been reported while Coast Machinery Movers/Warehouse was occupying the site. In addition, Nelson Adams NACO and M.R. Tudor have leased the facility for a short period of time and its operations are not chemically intensive and are unlikely to have caused significant contamination, if any. As such, Ramboll does not consider this finding a REC.

- **Staining on Unpaved, Gravel Surface.** Ramboll observed staining on gravel ground underneath the hazardous waste drums of M.R. Tudor. The staining is located on the southeast corner of M.R. Tudor's lot. The staining likely resulted from minor drips or spills when transferring hazardous waste into the drums. The staining does not indicate widespread release or loss. Because of the localized nature of the staining and unlikeliness to result in significant contamination, Ramboll does not consider this finding a REC.

A discussion of *de minimis* conditions identified during this review is presented in Section 6 of this report.

1.4 Non-Scope Considerations

Ramboll identified the following findings that relate to non-scope considerations:

- **Asbestos-Containing Materials.** Given that the buildings were constructed between 1985 and 1985, the possibility that some asbestos is present in the building materials cannot be ruled out. Facility personnel knew of no ACMs within the buildings. Concurrent with this Phase I ESA, Ramboll contracted with Panacea, Inc. to perform a visual survey for potential ACMs at the site, the results of which are pending as of the date of this report.
- **Water Intrusion/Mold.** Ramboll did not perform a water intrusion or mold survey at the site; however, facility personnel provided information regarding past water intrusion events. According to facility personnel, the facility has not experienced problems with water intrusion.
- **Lead-Based Paint.** Lead was a major ingredient in paint pigment prior to and through the 1940s. While other pigments were used in the 1950s, the use of lead in paint continued until the early 1970s. In 1978, the Consumer Products Safety Commission banned paint and other surfacing coating materials that are "lead-containing paint." Based on the construction date of the buildings between 1985 and 1989, it is possible that lead-based paint was used historically on facility structures. Facility personnel knew of no lead-based paint on structures at the facility. Ramboll observed the paint to be in good condition. In addition, concurrent with this Phase I ESA, Ramboll

contracted with Panacea to perform a visual survey for potential lead-based paint at the site, the results of which are pending as of the date of this report.

- **Radon.** Based on information included in the environmental database report, the site is located in an area categorized as Zone 2, which has average indoor basement radon levels between 2 and 4 picoCuries per liter (pCi/L). The United States Environmental Protection Agency's (USEPA's) continuous exposure limit, which is the limit at which further testing or remedial action is suggested, is 4.0 pCi/L. This USEPA continuous exposure limit applies to residential, not commercial, properties. According to the California Radon database, out of 13 radon tests reported, none of the tests resulted in radon levels greater than 4 pCi/L and the highest radon level found was 1.9 pCi/L.

2. INTRODUCTION

2.1 Scope of Work

Ramboll conducted a Phase I ESA of the Miros Enterprises LLC facility in Rialto, California. The Phase I ESA relied upon the references noted below and included the following tasks:

- A visit to the site by Kelly Chen and Jacob Totaro of Ramboll on March 23, 2022 to observe the exterior and interior features of the site and to identify the uses and conditions specified in Sections 9.4.1 through 9.4.4.7 of the ASTM Standard. In addition, Ramboll observed the adjoining properties from the site or adjacent public thoroughfares. Photographs taken during the site visit are presented in Appendix A.
- An interview during the site visit with the following individuals (year of initial hire at the site indicated in parentheses): Alberto Cardenas, Senior Manager of Nelson Adams NACO (2015) and Nate Williams, Service Manager of M.R. Tudor (2014). The aforementioned individuals are referred to herein as "facility personnel". The facility personnel interviewed by Ramboll were identified by the Companies as having good knowledge of the uses and physical characteristics of the site.
- A review of information contained in federal and state environmental databases, as obtained from the sources noted below:
  - A radius report prepared by Environmental Data Resources, LLC (EDR, see Appendix B), which presents the results of searches of federal and state databases for the site, as well as properties near the site. The radius searched for each database, as well as the databases themselves, was selected in accordance with the ASTM Standard.
  - The United States Environmental Protection Agency's (USEPA's) Envirofacts database, which provides site information contained in multiple USEPA regulatory databases.
  - The California State Water Resources Control Board (SWRCB) GeoTracker database and the Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's EnviroStor (EnviroStor) database for the site and immediately adjacent properties, which contain information about certain regulated facilities in California.
  - The California Geologic Energy Management Division (CalGEM) website, which provides information regarding the locations of oil and gas wells on and in the vicinity of the site.
- A review of standard historical sources (included as Appendix C) and local agency inquiries, as defined in the ASTM Standard. The following resources were reviewed:
  - Readily available historical sources (as identified in Section 4.2 of this report and included as Appendix C) to develop a history of the previous uses of the site and surrounding area.
  - Local building permit information, as obtained via EDR's Lightbox application
  - Historical and site-specific information obtained from the following local agencies: the San Bernardino County Fire Department, the City of Rialto Building Department, and the San Bernardino County Assessor's Office. Ramboll also requested information from the City of Rialto Fire Department, but personnel from these agencies reported having no information pertaining to the site.
- A review of physical setting sources, as defined in the ASTM Standard, including:
  - The current United States Geological Survey (USGS) 7.5-minute topographic map that shows the area on which the site is located.

  - Geologic, hydrogeologic, or hydrologic sources as provided in the environmental database report.

- A review of any information provided by the user of this assessment, including information consistent with Appendix X3 of the ASTM Standard. Pertinent information, if any, is discussed in the appropriate sections of this report

This assessment was conducted in accordance with the methodology specified in ASTM Standard E1527-13, as agreed upon by Ramboll and LPC West, Inc. in March 2022. The standard ASTM scope was expanded to include a limited review of asbestos-containing materials, lead-based paint, water intrusion/mold, and radon.

2.2 Significant Assumptions

In conducting this review, no significant assumptions were made, except for the following:

- Site-specific field measurements or other detailed hydrogeological information was not publicly available or reasonably ascertainable. In the absence of such data, Ramboll has assumed that the flow direction of shallow groundwater beneath the site and in the local vicinity generally mimics surface topography. Therefore, in evaluating potential on-site impacts from off-site sources, those off-site facilities not located adjacent to or within one-quarter mile upgradient of the site are not considered to represent a significant concern to the site. This interpretation is based on the assumption that a hazardous material released to the subsurface generally does not migrate laterally within the unsaturated soil for a significant distance, although a hazardous material can migrate in the groundwater in a generally downgradient direction. There are, however, limits to this interpretation.

2.3 Reliance and General Limitations

This report has been prepared for the exclusive use of LPC West, Inc. and may not be relied upon by any other person or entity without Ramboll's prior express written permission.

This report is considered current only for a period of 180 days from the site inspection. The conclusions presented in this report represent Ramboll's best professional judgment based upon the information available and conditions existing as of the date of this report. In performing its assignment, Ramboll must rely upon publicly available information, information provided by the client, and information provided by third parties. Accordingly, the conclusions in this report are valid only to the extent that the information provided to Ramboll was accurate and complete. This review is not intended as legal advice, nor is it an exhaustive review of site conditions or facility compliance. Ramboll makes no representations or warranties, expressed or implied, about the conditions of the site.

Ramboll's scope of work for this assignment did not include collecting samples of any environmental media. As such, this review cannot rule out the existence of latent conditions including contamination not identified and defined by the data and information available for Ramboll's review; however, this report is intended, consistent with normal standards of practice and care, to assist the client in identifying the risks of such latent conditions.

Ramboll retained Panacea to perform visual surveys for ACMs and lead-based paint at the site. The ACM visual survey was performed under the oversight of an OSHA certified asbestos consultant (CAC). Comments in this report regarding the condition of presumed or suspect ACM represent those observations at the time of the site visit based on the visual surveys.

Other issues considered outside the scope of the ASTM Standard and this review include regulatory compliance, lead in drinking water, wetlands, PCBs in building materials, cultural and historic resources, ecological resources, endangered species, fire safety, and high voltage power lines.

3. SITE DESCRIPTION

3.1 Site Setting

Miros Enterprises, LLC owns the site located at 160 North Cactus Avenue in Rialto, San Bernardino County, California, (the "site" or the "facility"). The approximately 7.9-acre site is located approximately 54 miles east of Downtown Los Angeles (Figure 1). The site is leased by Nelson Adams NACO and M.R. Tudor (Figure 2).

According to the Assessor's Office, the assessor's parcel numbers (APNs) for the site are 0128141700000 and 012814172000.

The northern portion of the site is leased to Nelson Adams NACO, a manufacturer of markerboards, chalkboards, tackboards, and tables and benches for school districts. The northern portion of the site is developed with an approximately 49,250-square-foot central warehouse and administrative office building, an approximately 28,500-square-foot northern warehouse that spans the northern boundary of the site, and an approximately 7,400-square-foot event space on the northeastern portion of the site.

The southern portion of the site is leased to M.R. Tudor, a heavy machinery rental company, to store heavy machinery and equipment on. Two trailers, approximately 1,500 square feet in total, are set-up on the western side of the site and are used to house administrative offices and a break room. Other smaller structures on the site include three metal containers on the western side of the southern portion of the site, each approximately 330 square feet, that store miscellaneous equipment. The eastern side of the southern portion of the site is used as a truck trailer and heavy machinery parking lot.

The primary site access is via North Cactus Avenue at the western site boundary but can also be accessed by a second entrance via West Rialto Avenue at the southern site boundary. One asphalt-paved parking area is present on the northeastern portion of the site. There are no on-site surface water bodies.

Table 1 provides an overview of physical setting and utility information for the site.

Table 1: Physical Setting and Utility Information

Conditions	Source	Description
Topography		
Elevation (above mean sea level)	USGS topographic map; Google Earth	Ranges from approximately 1,247 feet near the northern property boundary to 1,235 feet near the southern property boundary.
Topographic Gradient	USGS topographic map; visual observations	Relatively flat on-site, with a gentle downward slope to the south. Regional topography slopes gently downward to the south towards the Santa Ana River.

Table 1: Physical Setting and Utility Information

Conditions	Source	Description
Local Land Use	Visual observations	The facility is located in a mixed industrial, residential, and commercial land use area. North: Pacific Electric Trail bike trail, followed by a residential neighborhood. East: Tire Guy tire shop, Public Auto Auction, and Dan's Lawnmower Center store. South: Rialto Business Center (including tenants Inland Jeep auto repair shop, Rodriguezzz Tires & Wheels tire shop, JR Baja Towing, Duanes Complete Auto Repair, Colima Transmission, and DMV Registration Services) and San-Mar yard concrete contractor. West: Bob Murphy Community School high school. Ramboll did not observe any conditions on adjacent properties that represent a potential contamination concern to the site.
Nearest Residence	Visual observations	Approximately 76 feet north of the site.
Hydrology		
Storm Water Runoff	Visual observations	Percolates into the ground surface at unpaved areas.
Nearest Surface Water Body to the Site	USGS topographic map; Visual observations	The Santa Ana River, located approximately four miles to the southeast at its nearest point.
Flood Plain	FEMA*; Facility personnel	Facility personnel reported no known occurrences of flooding at the site. The site is not located within a 500-year flood zone.
Wetlands	NWI*; Visual observations	There are no federally-designated wetlands on-site. Ramboll did not identify any obvious suspected wetlands at the site during the site visit.
Geology and Hydrogeology		
Presumed Direction of Shallow Groundwater Flow	2008 Site Investigation Report at 137 Lilac Avenue	Information obtained during the 2008 Site Investigation Report at a site 0.4-miles southeast at 137 Lilac Avenue indicated that groundwater flows in a southeast direction.
Depth to Groundwater	2008 Site Investigation Report at 137 Lilac Avenue	Groundwater was reported at 303 to 404 feet below ground surface in a 2008 Site Investigation Report for a site 0.4-miles southeast at 137 Lilac Avenue.

Table 1: Physical Setting and Utility Information

Conditions	Source	Description
On-site Wells	Database report; California Water Boards Groundwater Information System; CalGEM	There is one municipal drinking water monitoring well and two USGS wells on-site. These wells are discussed further in Section 5.2.7. No production, injection, oil, or gas wells on-site.
Nearest Groundwater Supply Wells	Database report	Approximately 13 federal and state registered wells are present between one-quarter mile and one-half mile of the site.; none are registered as public supply wells.
Geologic Conditions	NCSS*	Regional soils are somewhat excessively drained gravelly loamy sands with high infiltration rates.
Site Utility Information		
Heating and Cooling Equipment	Facility personnel	The building is cooled with packaged air conditioning units.
Natural Gas Service	Facility personnel	The site is provided with natural gas service by Southern California Gas Company.
Use of Fuel Oil for Building Heat	Facility personnel	No known current or former use of fuel oil for building heat.
Foam-based Fire Suppression System	Facility personnel	According to facility personnel, the site is not equipped with a built-in foam-based fire suppression system.
Water Supply	Facility personnel	The facility receives drinking water from the City of Rialto water system.
Sanitary Sewer	Facility personnel	The facility discharges wastewater to the municipal sanitary sewer system.
Septic Systems	Facility personnel	No identified current or former septic systems.

Notes:

FEMA = Federal Emergency Management Agency; NCSS = National Cooperative Soil Survey; NWI = National Wetlands Inventory

* - Source was provided in the environmental database report.

During the site visit, Ramboll walked or drove by the borders of the properties that are adjacent to the site. Ramboll did not enter the neighboring properties.

3.2 Current Use of Property

3.2.1 Current Operations

The southern half of the site is currently used by M.R. Tudor for storage and repair operations of heavy machinery, which involves storage on site and minor machinery repairs of heavy machinery to be rented out. Ancillary operations at the facility include administrative activities, shipping and receiving of machinery, and a break room. The facility does not maintain any raw materials and does not conduct any manufacturing or fabrication at the site. The primary chemicals used at the site include motor oil, diesel oil, and hydraulic oil stored on the southeast corner of the site for use in the machinery. Maintenance-related chemicals and janitorial supplies, which are stored in the metal containers and include lubricants, paints, primers, enamels, and heavy-duty cleaner, are used in small quantities (containers of one gallon and smaller). Facility personnel knew of no use of chlorinated solvents by the Companies. According to facility personnel, M.R. Tudor operations have remained generally consistent during its period of occupancy at the facility.

The northern half of the site is occupied by Nelson Adams NACO, a manufacturer of markerboards, chalkboards, tackboards, and tables and benches for school districts. Nelson Adams NACO employs approximately 15 employees and conducts assembly operations, described in more detail below.

- *Receiving* – Wooden boards, tackboards, blackboards, rolls of plastic, metal hardware, and adhesives are delivered in bulk to the site by third-party distributors and are stored in warehouses prior to processing.
- *Cutting* – Machine cutters in the central warehouse are used to trim wooden boards and tack boards into appropriate sizing for products.
- *Assembly* – Adhesive glue is applied to boards, siding, and other raw materials for assembly in the central warehouse. Machinery is used to apply the glue and hold together the assembled products while drying.
- *Finishing* – Paint and polyurethane coating is applied to products as needed in the northern warehouse.
- *Ancillary Operations* – Nelson Adams NACO performs packaging, shipping and administrative operations, none of which involve the use of significant quantities of chemicals. In addition, Nelson Adams NACO conducts the following activities in support of the major operations:
  - Management of facility trash and scrap metals in one large, open-top dumpster positioned outside the southeast corner of the central warehouse and two smaller, lidded dumpsters south of the northern warehouse.
  - General building and machinery/equipment maintenance, including a maintenance room equipped with grinders, lathes, cutting machines, and a welding machine with acetylene and oxygen gases.
  - Minor metal-working operations in the tool room, which is equipped with grinders, lathes, cutting machines, and electrical discharge machining units.
  - Transfer of raw materials and finished products using three propane-powered forklifts; the units are serviced on-site by outside contractors.

The primary raw materials used by Nelson Adams NACO include non-hazardous adhesive glues, polyurethane coatings, petroleum oils, and paints. In addition, maintenance-related materials, such as fuels, oils, lubricants, welding gases, and sanitizers and detergents, are used at the site.

According to facility personnel, Nelson Adam NACO's operations have remained generally consistent during its period of occupancy at the facility. According to facility personnel, no chlorinated solvents are currently used at the facility. Facility personnel knew of no historical use of chlorinated solvents at the site; however, Nelson Adams NACO has only occupied the site since approximately 2015, and chemical use prior to that time is unknown.

3.2.2 Waste Management

Hazardous wastes generated at the site includes waste oil generated by M.R. Tudor. The facility is considered a Non-Generator (NONGEN) (generator number CAL000446951) under the Resource Conservation and Recovery Act (RCRA). The used oil is collected in 55-gallon drums and one 500-gallon AST that are stored on the southeast corner of the lot until off-site shipment to permitted waste management facilities.

Nonhazardous waste generated at the site consists of general trash and scrap metal. General facility trash is collected in on-site uncovered and covered dumpsters for removal by Burrtec Disposal. Scrap metal is collected in an uncovered dumpster until off-site shipment for recycling. These dumpsters are positioned on pavement outside the center of the northern warehouse and outside the southeast exterior of the central warehouse on Nelson Adam NACO's portion of the site, and on gravel on the western portion of M.R. Tudor's lot. Empty 275-gallon totes and 55-gallon drums are stored along the western property boundary of Nelson Adam NACO's area for storage until pick-up by third parties.

3.2.3 Wastewater and Storm Water

Sanitary wastewater, which includes wastewater from bathroom and kitchen areas, is discharged to the municipal sanitary sewer system.

The facility does not generate process wastewater. Glue rinse water from Nelson Adams NACO is discharged onto pavement and directed towards the stormwater system or discharged onto unpaved surfaces. Air compressor condensate is discharged onto the concrete floor within the warehouses.

Storm water at the site infiltrates into small, landscaped areas or enters storm drains in paved areas of the site. These storm drains discharge the storm water to the municipal storm sewer system located on North Cactus Avenue.

3.2.4 Air Emissions

Air emissions at the facility consist primarily of particulate matter (PM) and volatile organic compounds (VOCs) from the operation of heavy machinery, PM from cutting operations, welding emissions, and combustion products from the facility's propane-powered forklifts.

4. REVIEW OF PUBLIC RECORDS AND OTHER INFORMATION SOURCES

4.1 Environmental Regulatory Database Review

Ramboll contracted with EDR in March 2022 to prepare of summary of listings in federal and state agency databases for the site and facilities within applicable radii of the property, as specified by the ASTM standard.[1] A copy of the environmental database search report is presented in Appendix B.

4.1.1 Database Review for Site

Ramboll reviewed the results of the state and federal environmental database searches performed by the third-party database provider (see Appendix B) and also reviewed information available in the California GeoTracker and EnviroStor databases. The site is listed on several environmental databases, as discussed in Table 2.

Table 2: Summary of Environmental Database Listings for the Site

Summary of Information Contained in Database	Ramboll's Comments
Rialto Lumber Co is listed on the Statewide Environmental Evaluation and Planning System for USTs (SWEEPS UST) and the California Facility Inventory Database (CA FID UST) databases for a UST of unknown content and capacity that was installed in 1988. The CA FID UST database was last updated in 1998 and the SWEEPS UST database was last updated in 2005. Both databases are no longer updated or maintained. Rialto Lumber Company Inc is also listed on the Hazardous Waste Tracking System (HWTS) and Hazardous Waste Information System (HAZNET) databases for the generation of California-regulated hazardous wastes. The EPA ID for this listing, CAC000697624, was issued in 1992 and expired in 2000. No waste types are listed, and no violations are reported in association with this site.	Former UST and UST removal is further discussed in Section 4.4. Listings on databases related to the generation and/or off-site disposal of hazardous waste, by themselves and without indication of a release, are not indicative of a contamination concern and are not further discussed herein.
Mr Tudor-California Inc is listed on the HWTS and HAZNET databases for the generation of California-regulated hazardous wastes. The EPA ID for this listing, CAL000311401, was issued in 2006 and expired in 2013. The site is reported to have generated 0.3 tons of other organic solids waste in 2008. No violations were reported.	Listings on databases related to the generation and/or off-site disposal of hazardous waste, by themselves and without indication of a release, are not indicative of a contamination concern and are not further discussed herein.

[1] EDR uses the term "radii" to refer to the ASTM terminology "approximate minimum search distance" in the environmental database report.

Table 2: Summary of Environmental Database Listings for the Site

Summary of Information Contained in Database	Ramboll's Comments
Coast Machinery Movers/Warehouse is listed on the HWTS database and the Resource Conservation and Recovery Act (RCRA) database as a Small Quantity Generator (SQG) of hazardous for the generation of California-regulated hazardous wastes. Multiple EPA IDs are listed in association with this listing: • CAL000359474, issued in 2010 and expired in 2015. No waste types are reported in association with this ID. • CAR000184218, issued in 2007 and expired in 2008. Wastes generated with this ID are reported to be ignitable waste, benzene, tetrachloroethylene, and trichlorethylene. Quantities and dates of wastes generated are not reported. No violations were reported.	Listings on databases related to the generation and/or off-site disposal of hazardous waste, by themselves and without indication of a release, are not indicative of a contamination concern and are not further discussed herein.
SSI Express Inc is listed on the HWTS database for the generation of California-regulated hazardous wastes. The EPA ID for this listing, CAL000257954, was issued in 2002 and expired in 2008. No waste types are listed, and no violations are reported in association with this site.	Listings on databases related to the generation and/or off-site disposal of hazardous waste, by themselves and without indication of a release, are not indicative of a contamination concern and are not further discussed herein.

Notes:

* The site is also listed on the following databases related to regulatory compliance: California Integrated Water Quality System (CIWQS), Waste Discharge System (WDS), Enforcement & Compliance History Information (ECHO), and Facility Index System/Facility Registration System (FINDS). Listings on these databases, by themselves, are not necessarily indicative of contamination.

The database search report includes listings for past site occupants that may indicate past use or storage of chemicals or petroleum products.

4.1.2 Database Review for Adjoining Properties

Based on a review of the environmental database search report, Ramboll identified the adjoining sites listed in Table 3 on databases indicative of a potential contamination concern.

Table 3: Contamination-Related Database Listings for Adjoining Properties [1]

Listing Name or Address and Location Relative to the Site	Summary of Information Contained in Database	Ramboll's Comments
Tony the Greek Foreign Car Service 121 North Cactus Avenue (Adjoining to the east)	The property is listed on the RCRA-SQG and San Bernardino County Permit databases related to the generation and/or off-site disposal of hazardous waste. No violations were reported.	Listings on databases related to the generation and/or off-site disposal of hazardous waste, by themselves and without indication of a release, are not indicative of a contamination concern and are not further discussed herein.
Dan's Lawnmower Center 662 West Rialto Avenue (Adjoining to the east)	The property is listed on the CERS, CERS HAZ WASTE, and San Bernardino County Permit databases related to the generation and/or off-site disposal of hazardous waste. Violations included improper management of waste, improper training, and administrative violations. All violations have been corrected.	
Affordable Auto Service, LP Auto Electric & Repair, Pro Stop Auto Center, Guadalajara Auto Repair, Space 25 Auto Inc., JV Cortez General Auto Repair, and Inland Jeep 725 West Rialto Avenue (Adjoining to the south)	The property is listed on the HWTS, CERS HAZ WASTE, CERS and San Bernardino County Permit databases related to the generation and/or off-site disposal of hazardous waste. Violations included improper labeling, improper training, improper management of waste, and administrative violations. All violations have been corrected.	
Jalisco Auto Repair, Express Automotive & Towing, Express Auto Body Repair, Southwest Materials and Handling, and J&J Radiator & Muffler 735 West Rialto Avenue (Adjoining to the south)	The property is listed on the RCRA-SQG, HWTS, HAZNET, and San Bernardino County Permit databases related to the generation and/or off-site disposal of hazardous waste. Violations included improper labeling, improper training, improper management of waste, and administrative violations. All violations have been corrected.	

Table 3: Contamination-Related Database Listings for Adjoining Properties [1]

Listing Name or Address and Location Relative to the Site	Summary of Information Contained in Database	Ramboll's Comments
Cesar's Carburetors, Mr. Mechanic & Towing, and Chavez Mechanic & Electric 775 West Rialto Avenue (Adjoining to the south)	The property is listed on the HWTS, CERS HAZ WASTE, CERS and San Bernardino County Permit databases related to the generation and/or off-site disposal of hazardous waste. Violations included improper labeling, improper permitting, improper management of waste, and administrative violations. All violations have been corrected.	
City of Rialto Chino Well #1 780 West Rialto Avenue (Adjoining to the south)	The property is listed on the San Bernardino County Permit database for a Hazardous Material Handler 0-10 Employees permit and a California Accidental Release Prevention (CalARP) permit.	

Notes:

[1] Ramboll's analysis of adjoining properties was based on observations made during the site reconnaissance (as discussed in Table 2) and location information for off-site listings as presented in the database report. Also, for purposes of this analysis, Ramboll considers as "adjoining" properties that are adjacent, even if separated by a road or other physical barrier. Ramboll has not included a discussion of compliance-related databases in this table, as Ramboll considers it unlikely that off-site properties listed on compliance-related databases without indication of a release or chemical mishandling represent a potential risk for contamination to the site.

[2] The RGA databases are EDR proprietary databases that identify prior versions of the database in which a site was listed.

4.1.3 Database Review for Other Surrounding Properties

There are several listings in the environmental database report for non-adjoining off-site facilities within applicable ASTM search radii; however, Ramboll has not identified any properties that are likely to represent a potential contamination concern to the site.[2]

The database report indicates that poor or inadequate address information was available for several properties located in the vicinity of the site; therefore, these properties could not be readily mapped by the third-party provider. Because the location of these properties with respect to the site could not be evaluated, Ramboll is limited in its ability to express an opinion regarding the potential for impact to the site from these properties. It was beyond the scope of this review to accurately locate each of

[2] In its evaluation, Ramboll considered only non-adjoining properties listed on databases indicative of contamination, with open status, located potentially upgradient of the site to represent a potential risk for contamination to the site (as the issuance of regulatory closure suggests that impacts to the site from the noted off-site property are unlikely).

the unmapped properties identified by the third-party provider; however, Ramboll reviewed the list of unmapped properties and verified that none appeared to be adjacent to the site.

4.2 Historical Uses of the Site and Adjacent Sites

4.2.1 Past Uses of the Site

The site was undeveloped, vacant land until it was developed to be used as farmland in 1949 through 1968. The site was undeveloped, vacant land again from after 1968 until at least 1985. Around 1989, the site was redeveloped for industrial purposes with three of the existing buildings present. The current central warehouse was added around 2002. Notable previous site occupants include Rialto Lumber and Coast Machinery Movers/Warehouse. M.R. Tudor owned the site from 2006 to 2015. Miros Enterprises LLC purchased the site in 2015 and Nelson Adams NACO and M.R. Tudor have leased the site since that time.

A summary of Ramboll's key observations from the available historical sources is presented in Table 4.

Table 4: Summary of Key Observations from Historical Sources for the Site

Historical Source	Key Observations Regarding Site History
Aerial Photographs (1938, 1949, 1953, 1959, 1966, 1968, 1985, 1989, 1990, 1994, 2002, 2005, 2009, 2012, and 2016) Satellite Imagery [1] (1985 to 2021)	The site appears as undeveloped, vacant land until it begins to be used as farmland in 1949 through 1968. The site appears as vacant land again in 1985. The 1989 photograph shows the site developed for industrial purposes with three buildings on the northeast portion of the site and a smaller building in the center of the site. A large warehouse-like building is added on the northwest portion of the site in the 2002 photograph. The 2005 and subsequent photographs show the site in its present configuration. No concerns are noted.
Topographic Maps (1896 to 2018)	No development is depicted on the maps until 1953. The 1953 through 1980 maps depict the site as agricultural use. A water well is depicted on the southwest corner of the site in the 1967 map and continues to be mapped through 2018. Another water well is added in the 2012 map and two water wells are depicted in the southwest corner from 2012 to 2018. No concerns are noted.
City Directory Abstracts (1992, 2000, 2010, 2014, and 2017)	The occupants of the site are listed as: Rialto Lumber Co (1992), General Warehouse Products (2000), Able Crane & Rigging (2010), Coast Machinery Movers (2010 and 2014), and NA Management Group (2017).
Tax assessor website	Tax assessor records available online indicate that the parcels had undergone splitting and combining and had previous APN's ranging from 0128141550000 through 0128141690000. Records for old APN, 0128141600000, show that Miros Enterprises LLC acquired the site in 2015 from M.R. Tudor.

Notes:

[1] In addition to aerial photographs provided by the third-party provider, Ramboll viewed historical satellite imagery provided via Google Earth. Printed copies were not obtained, and imagery dates were not independently verified.

The third-party provider reported that Sanborn fire insurance map coverage is not available for the site.

4.2.2 Past Uses of Adjacent Sites

The properties in the vicinity of the site have primarily been used for agricultural purposes (south and west) and residential purposes (north and east) from at least 1939 to around 1968. Properties to the north continued to be used for residential purposes until the present. Properties to the east, south, and west were redeveloped for light industrial and commercial uses around 1985. The Bob Murphy Community School adjacent to the site on the west was built in 2009. Ramboll did not observe obvious indications of concern on the historical sources reviewed.

4.3 Review of Local and State Agency Information

Ramboll visited or otherwise contacted local governmental agencies and regulatory bodies for information relating to the site. An overview of the findings of this review is presented in Table 5.

Table 5: Local Agency Information for the Site

Agency Contacted / Document Reviewed	Information Obtained
San Bernardino County Tax Assessor	Information reviewed on the San Bernardino County Tax Assessor's portal indicated the parcels had previously been split and combined, with old, inactive parcel numbers from 0128141550000 to 0128141690000.
San Bernardino County Fire Department	Ramboll requested records from the San Bernardino County Fire Department for information regarding the utilization, manufacture, storage and/or discharge or hazardous materials and waste, and any information concerning previous or on-going site investigations or remediations pertaining to hazardous materials and waste. Records provided by the San Bernardino County Fire Department include: • Document stating that Rialto Lumber Co started operating at the site in August of 1986. • Application for permit to operate UST by Rialto Lumber Co for 3,000-gallon UST installed in 1986. • Hazardous Material Handler and Underground Storage Tanks permits for Rialto Lumber Co dated 1988 to 1990. Special Handler, Special Generator, and Underground Storage Tanks permits for Rialto Lumber Co from 1991 to 1992. • Hazardous Waste Generator Inspection Report for Rialto Lumber Co in 1990 stating that facility maintained 55-gallon drums of hydraulic fluid and oil and smaller quantities of oxygen and acetylene. • Tank Closure Report for the removal of one 3,000-gallon gasoline UST for former site occupant Rialto Lumber in 1993. Soil confirmation samples were collected and analyzed by USEPA Method 8015 Modified for gasoline and USEPA Method 8020 for BTEX. All tests resulted in non-detects. This matter is further discussed in Section 4.4. • Special Handler and Special Generator permits for Western American Forest Prod in 1997. • Facility name change update from Western American Forest Prod to Hutting Dist Products in 1998. • Hazardous Material Handler permit for Hutting Dist Products in 1999. • Hazardous Waste Generator and Hazardous Materials Handler Inspection Report from 1999 stating Hutting Distribution Products is out of business.

Table 5: Local Agency Information for the Site

Agency Contacted / Document Reviewed	Information Obtained
City of Rialto Fire Department	Ramboll requested information from the City of Rialto Fire Department, but personnel from the City of Rialto Fire Department reported having no information pertaining to the site and any records concerning the storage of hazardous materials and hazardous waste, hazardous spills and underground storage tanks would be maintained by the County Fire Department.
City of Rialto Building Department	Ramboll requesting information from the City of Rialto Building Department for information regarding building permits and certificates of occupancy for the site. Records provided by the City of Rialto Building Department included: • Building permit application by former owner Rialto Lumber Co to build a retail store, a storage shed, a second storage shed with garage, and a storage canopy in 1986. • Building permit application by former owner PHC Woodworks for electrical work dated 1993. • Building permit to add metal storage building (25,200 square feet) and a 4,800-square-foot canopy dated 1994. • Certificate of Occupancy Application for M.R. Tudor-California, Inc., a heavy construction equipment dealer, dated 2006. • Certificate of Occupancy Application for SSI Express, Inc., a trucking repair shop, dated 2006. • Certificate of Occupancy Application for Able Crane & Rigging Inc, a crane rental service, dated 2009. • An electrical permit for Miros Industrial LLC for electrical meters reset dated 2015. • Building permit application for added block wall property divider and columns dated 2015. • Certificate of Occupancy Application for new business tenant, Nelson Adams NACO, with description listed as "manufacture cafeteria tables & benches" dated 2015. • Tenant Improvement permit for Nelson Adams NACO for electrical improvements dated 2016. • Building permit application by Miros Enterprises LLC for additional walls dated 2017.
Preliminary Title Report	According to the preliminary title report dated February 24, 2022, the title is vested in Miros Enterprises, LLC. No liens were noted.

4.4 Previous Environmental Assessments and Activities

Based on a review of historical site documents, prior removal activities have been conducted at the site, as summarized below. Pertinent historical and site-related information contained in the prior report has been incorporated into other sections of this report.

- **1993 UST Closure.** One 3,000-gallon gasoline UST was excavated and removed in 1993. According to the 1993 UST Closure Report, the tanks was constructed of double-wall steel and no corrosion holes were observed in the tank. The tank was rinsed clean and rinsate disposed of under manifest. Two confirmatory soil samples were collected from beneath the tank, one at each end of the tank. Soil samples were analyzed by USEPA Method 8015 Modified for gasoline and USEPA Method 8020 for BTEX. All sample test results were reported as non-detect for gasoline and BTEX. The detection limits for each analyte were 0.3 mg/kg for gasoline, 3 mg/kg for benzene, 5 mg/kg for toluene, 5 mg/kg for total xylenes, and 5 mg/kg for ethyl benzene. Based on these results, the County of San Bernardino Environmental Health Services issued No Further Investigation approval on January 21, 1993[3].

4.5 User-Provided Information

Ramboll provided LPC West, Inc. with a User Questionnaire (consistent with Appendix X3 of the ASTM Standard) that requested information relating to environmental liens, activity use limitations (AULs), specialized knowledge of the property, property value diminution, chain-of-title, or any other commonly known or obvious indications of site contamination, that was not otherwise provided to Ramboll. The user did not provide any information that was not otherwise obtained and reviewed by Ramboll.

[3] The letter was dated 1992; however, based on other documentation dated 1993, the year was assumed to be a typo.

5. SITE RECONNAISSANCE

5.1 Methodology and Limiting Conditions

Ramboll conducted a visit to the site on March 23, 2022. During the site visit, observations of both the interior of the buildings and exterior portions of the site were made to evaluate if any RECs, as defined in Chapter 7, are present. Ramboll did not observe the roof of the buildings due to access constraints and safety concerns.

5.2 General Site Setting and Observations

Ramboll made observations concerning all of the interior and exterior issues specified in Sections 9.4.2 through 9.4.4 of the ASTM E1527-13 Standard. The presence or absence of each issue of environmental interest or concern is noted in Table 6. Additional information regarding observed and historical items is provided in the sections following the table.

Table 6: Summary of Site Reconnaissance Observations

ASTM Section	Issue	Observation
Interior and Exterior Issues		
9.4.2.1	Current use(s) of the property	See Section 3.2
9.4.2.2	Past use(s) of the property	See Section 4.2
9.4.2.3	Hazardous substances and petroleum products used, treated, stored, disposed of, or generated on the property in connection with identified present or past uses	**Present** (see Section 5.2.1)
9.4.2.4	Storage tanks: Underground storage tanks (fill ports, vent pipes, manholes) Aboveground storage tanks	(see Sections 5.2.2 and 5.2.3) **Formerly Present** **Present**
9.4.2.5	Odors (strong, pungent or noxious)	Absent
9.4.2.6	Pools of liquid, standing surface water or sumps	**Present** (see Section 5.2.4)
9.4.2.7	Drums of hazardous substances or petroleum products (five-gallon, 55-gallon or totes)	**Present** (see Section 5.2.1)
9.4.2.8	Hazardous substance and petroleum product containers (not necessarily in connection with identified uses)	**Present** (see Section 5.2.1)
9.4.2.9	Unidentified substance containers suspected of containing hazardous substances or petroleum products	**Present** (see Section 5.2.1)

Table 6: Summary of Site Reconnaissance Observations

ASTM Section	Issue	Observation
9.4.2.10	Polychlorinated biphenyls (PCBs) Electrical equipment on-site (e.g., transformers, capacitors) Electrical equipment known or likely to contain PCBs Hydraulic equipment on-site (e.g., elevators, truck dock lifts) Hydraulic equipment known or likely to contain PCBs	(see Section 5.2.5) Absent Absent **Present** Unlikely
Interior Issues		
9.4.3.1	Heating/cooling systems	**Present** (see Table 1)
9.4.3.2	Stains or corrosion on interior floors, walls or ceilings (except for staining from water)	**Present** (see Section 5.2.6)
9.4.3.3	Floor drains and interior sumps	Absent
Exterior Issues		
9.4.4.1	Pits, ponds or lagoons on property or adjacent sites	Absent
9.4.4.2	Stained soil or pavement	**Present** (see Section 5.2.6)
9.4.4.3	Stressed vegetation (from other than insufficient water)	Absent
9.4.4.4	On-site solid waste disposal; areas apparently filled or graded by non-natural causes; or mounds or depressions suggesting solid waste disposal	Absent
9.4.4.5	Wastewater or other liquid (including storm water) or any discharge into a drain, ditch, underground injection system or stream on or adjacent to the property	**Present** (see Section 3.2.3)
9.4.4.6	Wells (including dry wells, irrigation wells, injection wells, abandoned wells, or other wells)	**Present** (see Section 5.2.7)
9.4.4.7	Septic systems or cesspools	Absent
Non-Scope Considerations		
N/A	Asbestos Containing Materials	(see Section 5.2.8)
N/A	Lead-Based Paint	(see Section 5.2.9)
N/A	Water Intrusion	(see Section 5.2.10)

Table 6: Summary of Site Reconnaissance Observations

ASTM Section	Issue	Observation
N/A	Radon	(see Section 5.2.11)

Notes:

Observations noted in this table and discussed further below are based on information obtained during the site visit and from a review of the sources summarized in Section 4.

See the ASTM Standard for a detailed description of the issues included in each referenced ASTM section.

Per the ASTM Standard, fluorescent light ballasts likely to contain PCBs are not considered.

N/A – Not applicable.

5.2.1 Hazardous Substances and Petroleum Products

The primary chemicals used at the site include motor oil, diesel oil, and hydraulic oil used by M.R. Tudor and polyurethane coating used by Nelson Adams NACO. In addition, both M.R. Tudor and Nelson Adam NACO use maintenance-related materials, such as lubricants, paints, primers, enamels, sanitizers, and heavy-duty cleaner, in small quantities (containers of one gallon and smaller).

Chemical storage for site occupant, Nelson Adams NACO, is limited to polyurethane in 55-gallon and 30-gallon drums stored in the northern warehouse. The drums are stored on the concrete floors of the warehouse. Maintenance related chemicals, like lubricants and paints, are stored in retail-sized containers of 5-gallons or less throughout the warehouses. Several 275-gallon totes of non-hazardous adhesive glue are stored on the floor of the central warehouse. Empty 275-gallon glue totes are stored to the west of the central warehouse until they are picked up by a third-party company. General facility waste and scrap metal are collected in lidded and open-top dumpsters located south of the northern warehouse and to the southeast of the central warehouse. Facility personnel knew of no significant spills or releases of materials at drum and container storage areas. No evidence of release was observed in these areas. Chemicals are not stored in exterior areas of the facility.

Chemical storage for site occupant, M.R. Tudor, is primarily located near the center of the southern site boundary. Hazardous wastes, including used oil, used antifreeze, and used oil filters, are stored in seven 55-gallon drums stored on secondary containment. New oil and hydraulic oil are also stored in 10 55-gallon drums stored on gravel. Waste oil is stored in an approximately 500-gallon AST located in the hazardous waste storage area. Additional 55-gallon drums and retail-sized containers (5-gallons or less) of motor oil, hydraulic oil, and antifreeze are stored inside of a metal container on the eastern side of M.R. Tudor's area. Retail-sized containers of paint, primer, and enamel are stored in a metal container on the northwest portion of M.R. Tudor's lot. General facility wastes are collected in an open-top dumpster on the western portion of the lot. Facility personnel knew of no significant spills or releases of materials at drum and container storage areas. Staining on gravel underneath the hazardous waste drums are discussed in Section 5.2.6.

5.2.2 Underground Storage Tanks

One 3,000-gallon gasoline UST was formerly located at the site. The UST was installed in 1986 and was removed in 1993. The site is not listed on the Leaking Underground Storage Tank (LUST) database. Further information regarding the UST closure activities is included in Section 4.4.

5.2.3 Aboveground Storage Tanks

One approximately 500-gallon waste oil tank is located on the southeast corner of M.R. Tudor's area. No external secondary containment is provided for this tank. Facility personnel reported that there are no current or former underground transfer lines used to convey the materials from the tank. Facility personnel knew of no leaks or spills relating to the AST, and Ramboll did not observe evidence of staining or past releases at the time of the site visit.

Two approximately 15,000-gallon ASTs are present near the western site boundary, on the exterior of Nelson Adam NACO's central warehouse. No external secondary containment is provided for these ASTs. Ramboll did not observe evidence of staining or past releases at the time of the site visit. Facility personnel reported that the space was being rented by a third-party to store the ASTs on. Facility personnel indicated that the ASTs were not in use and were empty. The prior contents of the ASTs are unknown.

5.2.4 Pools of Liquid, Standing Surface Water, or Sumps

An approximately 21-square-foot area of shallow liquid, at least 3 inches deep, was present on bare soil on the southern exterior of Nelson Adam NACO's central warehouse. The pool was located around a hose and appeared to be composed of the facility's non-hazardous adhesive glue and water. Ramboll could not confirm the contents of the pool, but a visual evaluation of the surface did not indicate an oily sheen. Facility personnel reported that the pool is composed of water and the facility's non-hazardous glue from cleaning the facility's machines.

5.2.5 Polychlorinated Biphenyls (PCBs)

Facility personnel knew of no on-site equipment that is known to contain polychlorinated biphenyls (PCBs). Heavy machinery present at the site, like dump trucks and graders, are known to use hydraulic oils. Since the heavy machinery is maintained and serviced routinely by M.R. Tudor and the hydraulic oil is changed, it is unlikely that the machinery contains PCBs. Ramboll observed staining around the 55-gallon hydraulic oil drums on the southeast corner of M.R. Tudor's lot. Staining is further discussed in Section 5.2.6.

5.2.6 Stains on Soil, Pavement, and Interior Floors.

Ramboll observed minor floor staining in Nelson Adam NACO's central warehouse in the assembly area. No floor drains are present on the warehouse floor. This staining did not appear to be indicative of widespread releases or losses. Concrete floors in the warehouse and in the vicinity of the staining appeared to be in good condition, with no evidence of cracking.

Ramboll also observed evidence of staining on gravel underneath the hazardous waste drums of M.R. Tudor. The staining likely resulted from minor drips or spills when transferring hazardous waste into the drums. The staining does not indicate widespread release or loss.

5.2.7 Wells

According to the California Water Boards Groundwater Information System, one municipal groundwater well, 3610038-015, is located at the site. The well was sampled for general water parameters and more, including silver, boron, benzene, toluene, cyanide, PCE, TCE, and more, multiples times between 1987 and 2014. During the most recent sampling event conducted in 2014, none of the analytes sampled exceeded the USEPA maximum contaminant levels. According to the USGS National Water Information System, two inactive groundwater wells, 340600117230401 and 340559117230201, are located at the site. Well 340600117230401 was samples in 1992 for boron, bromide, calcium, chloride, fluoride, iron, iodide, potassium, magnesium, manganese, sodium, ammonia, nitrate, pH, specific conductivity, sulfate, strontium, total dissolved solids, and temperature.

No sampling data is available for well 340559117230201. Facility personnel were unaware of additional details pertaining to the wells. Prior to redevelopment activities, the well should be properly abandoned.

5.2.8 Asbestos Containing Materials (ACMs)

An asbestos inspection and sampling of suspect building materials in conformance with established protocols (as outlined in 40 CFR §763), applicable state or local regulations, or industry standards, were beyond our scope of work. OSHA's definition of PACM is limited to thermal system insulation (TSI) and surfacing materials present in buildings constructed before 1981. Vinyl floor tiles are not considered PACM, but OSHA nonetheless requires that asphalt and vinyl floor tiles present in buildings constructed before 1981 be treated similarly to PACM. The term suspect ACM is not defined by OSHA but can include numerous building materials manufactured using asbestos currently or in the past (e.g., ceiling tiles, roofing materials, joint compound), as well as TSI, surfacing materials, and flooring materials installed after 1981.

The buildings at the site were not constructed prior to 1981; thus, none of the building materials at the site are considered PACM. Asbestos has continued to be used in some building materials since that time, although it was phased out of use in many building materials during the 1980s. Facility personnel knew of no ACM within the buildings and a comprehensive asbestos survey has not been conducted. Given that the oldest building at the site, the eastern event building and the northern warehouses, were constructed between 1985 and 1989, the possibility that some asbestos is present in the building materials cannot be ruled out. Concurrent with this Phase I ESA, Ramboll contracted with Panacea to perform a visual survey for potential ACMs at the site, the results of which are pending as of the date of this report.

There are no regulatory requirements to remove ACMs or evaluate whether building materials contain asbestos, unless the materials are damaged and have the potential to release fibers or the materials have the potential to be disturbed during renovation or demolition activities.

5.2.9 Lead-Based Paint

Lead was a major ingredient in paint pigment prior to and through the 1940s. While other pigments were used in the 1950s, the use of lead in paint continued until the early 1970s. In 1978, the Consumer Products Safety Commission banned paint and other surfacing coating materials that are "lead-containing paint." Based on the construction date of the buildings between 1985 and 1989, it is possible that lead-based paint was used historically on facility structures. Facility personnel knew of no lead-based paint on structures at the facility. Ramboll observed the paint to be in good condition. In addition, concurrent with this Phase I ESA, Ramboll contracted with Panacea to perform a visual survey for potential lead-based paint at the site, the results of which are pending as of the date of this report.

5.2.10 Water Intrusion

Ramboll did not perform a water intrusion survey at the site; however, facility personnel provided information regarding past water intrusion events. According to facility personnel, the facility has not experienced problems with water intrusion.

5.2.11 Radon

Based on information included in the environmental database report, the site is located in an area categorized as Zone 2, which has average indoor basement radon levels between 2 and 4 picoCuries per liter (pCi/L). The United States Environmental Protection Agency's (USEPA's) continuous exposure limit, which is the limit at which further testing or remedial action is suggested, is 4.0 pCi/L. This

USEPA continuous exposure limit applies to residential, not commercial, properties. According to the California Radon database, out of 13 radon tests reported, none of the tests resulted in radon levels greater than 4 pCi/L and the highest radon level found was 1.9 pCi/L.

6. FINDINGS, OPINION, AND CONCLUSIONS

Ramboll performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of the site located at 160 North Cactus Avenue in Rialto, California in March 2022. The objective of the ESA was to identify RECs, as defined in the ASTM Standard. A list of key definitions presented in the ASTM Standard is provided in Chapter 7 at the end of this report. Any exceptions to, or deletions from, this practice are described in Section 6.2.

6.1 Findings, Opinions, and Conclusions

6.1.1 Recognized Environmental Conditions

Ramboll has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of the site located at 160 North Cactus Avenue in Rialto, California. Any exceptions to, or deletions from, this practice are described in Section 6.2 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the property.

6.1.2 Other Findings

In addition to RECs, CRECs, HRECs, and findings associated with significant data gaps discussed above, the following additional findings related to potential contamination concerns were identified:

- **Past Light Industrial Operations at the Site.** The site was first developed in 1986 and was used by Rialto Lumber Co from 1986 until 1993 for the production and storage of lumber. Records indicate that gasoline, hydraulic oil, and oil were used at the site by Rialto Lumber Co. From 1993 to 2015, site occupants included Western American Forest Prod, Hutting Dist Products, M.R. Tudor-California, Inc., a heavy construction equipment dealer, SSI Express, Inc., a trucking repair shop, and Able Crane & Rigging Inc, a crane rental service. There is no readily available information as to the specific use of chemicals during this time period, but there is no indication that these operations were chemically intensive or involved the use of significant amounts of petroleum products or other hazardous substances. The site is not listed on any environmental databases indicative of a release or of hazardous waste generation. Also, Ramboll notes that these operations were conducted during a time period when robust environmental regulations were in place regarding chemical handling and waste management. While Ramboll cannot rule out the possibility that inadvertent spills or releases of chemicals or petroleum products have occurred in the past, no specific contamination concerns were identified (e.g., obvious evidence of contamination, former underground storage tanks, listings indicating past chlorinated solvent use in significant quantities, known releases), and thus this matter is not considered a REC. However, former site occupant, Coast Machinery Movers/Warehouse, is known to have disposed of waste containing benzene, PCE, and TCE. Quantities of these wastes are unknown, and no spills or releases have been reported while Coast Machinery Movers/Warehouse was occupying the site. In addition, the Nelson Adams NACO and M.R. Tudor have leased the facility for a short period of time and its operations are not chemically intensive and are unlikely to have caused significant contamination, if any. As such, Ramboll does not consider this finding a REC.
- **Staining on Unpaved, Gravel Surface.** Ramboll observed staining on gravel ground underneath the hazardous waste drums of M.R. Tudor. The staining is located on the southeast corner of M.R. Tudor's lot. The staining likely resulted from minor drips or spills when transferring hazardous waste into the drums. The staining does not indicate widespread release or loss. Because of the localized nature of the staining and unlikeliness to result in significant contamination, Ramboll does not consider this finding a REC.

6.1.3 *De Minimis* Conditions

De minimis conditions are those that do not represent a material risk of harm to public health or the environment and that generally would not be the subject of enforcement action if brought to the attention of appropriate governmental agencies. Ramboll identified the following *de minimis* conditions related to the site:

- **Pool of Liquid and Non-Hazardous Glue.** Ramboll observed an approximately 21-square-foot area of shallow liquid, at least 3 inches deep, present on bare soil on the southern exterior of Nelson Adam NACO's central warehouse. The pool was located around a hose and appeared to be composed of the facility's non-hazardous adhesive glue and water. Ramboll could not confirm the contents of the pool, but a visual evaluation of the surface did not indicate an oily sheen. Facility personnel reported that the pool is composed of water and the facility's non-hazardous glue from cleaning the facility's machines. As such, Ramboll characterizes this finding as a *de minimis* condition.
- **Pavement and Floor Staining.** Ramboll observed multiple areas of interior flooring in Nelson Adam NACO's central warehouse where stains were apparent. Staining was located around assembly areas and were approximately 25 square feet in area. The stains were limited in areal extent, the underlying pavement/flooring appeared to be intact, and no stains appeared to reach floor drains or storm water drains. As such, Ramboll considers this matter to represent a *de minimis* condition.
- **Historical Agricultural Use of the Property.** Based on Ramboll's review of historical information sources, the property may historically have been used for agricultural purposes from 1949 to 1968. Ramboll was not provided with any specific information regarding historical agricultural chemical use, but pesticides or other agricultural chemicals may have been applied on the property. It is possible that residual concentrations of agricultural chemicals may be present in soil and potentially groundwater. If residual concentrations of these chemicals are present, it is unlikely that they would be the subject of regulatory scrutiny in the context of a non-residential land use scenario. As such, Ramboll characterizes this finding as a *de minimis* condition, provided the site use remains industrial and the property is not re-zoned for residential use.

6.1.4 Non-Scope Considerations

Ramboll identified the following findings that relate to non-scope considerations (as discussed in Section 2.2), as detailed below:

- **Asbestos-Containing Materials.** Given that the buildings were constructed between 1985 and 1985, the possibility that some asbestos is present in the building materials cannot be ruled out. Facility personnel knew of no ACMs within the buildings. Concurrent with this Phase I ESA, Ramboll contracted with Panacea, Inc. to perform a visual survey for potential ACMs at the site, the results of which are pending as of the date of this report.
- **Water Intrusion.** Ramboll did not perform a water intrusion or mold survey at the site; however, facility personnel provided information regarding past water intrusion events. According to facility personnel, the facility has not experienced problems with water intrusion.
- **Lead-Based Paint.** Lead was a major ingredient in paint pigment prior to and through the 1940s. While other pigments were used in the 1950s, the use of lead in paint continued until the early 1970s. In 1978, the Consumer Products Safety Commission banned paint and other surfacing coating materials that are "lead-containing paint." Based on the construction date of the buildings between 1985 and 1989, it is possible that lead-based paint was used historically on facility

structures. Facility personnel knew of no lead-based paint on structures at the facility. Ramboll observed the paint to be in good condition. In addition, concurrent with this Phase I ESA, Ramboll contracted with Panacea to perform a visual survey for potential lead-based paint at the site, the results of which are pending as of the date of this report.

- **Radon.** Based on information included in the environmental database report, the site is located in an area categorized as Zone 2, which has average indoor basement radon levels between 2 and 4 picoCuries per liter (pCi/L). The United States Environmental Protection Agency's (USEPA's) continuous exposure limit, which is the limit at which further testing or remedial action is suggested, is 4.0 pCi/L. This USEPA continuous exposure limit applies to residential, not commercial, properties. According to the California Radon database, out of 13 radon tests reported, none of the tests resulted in radon levels greater than 4 pCi/L and the highest radon level found was 1.9 pCi/L.

6.2 Analysis of Data Gaps

The ASTM Standard defines a data gap as "a lack of or inability to obtain information required by the practice despite good faith efforts by the environmental professional to gather such information." A data gap is only significant if other information obtained during the ESA, or professional experience, raises reasonable concerns and affects the ability of the environmental professional to identify whether a given issue is a REC. The ASTM Standard requires that the ESA report identify and comment on significant data gaps.

Limiting conditions and deviations to the ASTM Standard for the assessment are discussed below.

- Facility personnel did not have current contact information for representatives of former site owners/occupants. Ramboll made reasonable attempts to obtain such information, but it was not otherwise readily available. Thus, Ramboll was unable to interview former owners/occupants about historical operations and site conditions. However, Ramboll conducted interviews with representatives of Nelson Adams NACO and M.R. Tudor with tenure at the site dating back to 2015 and 2014, respectively, and reviewed other historical sources regarding former uses of the property.
- During the site visit, Ramboll did not observe the roof of the buildings due to access and safety constraints.

None of the exceptions, deletions, deviations, or site reconnaissance limitations noted above are considered to represent significant data gaps. The effect of this significant data gap on Ramboll's conclusions with respect to conditions at the property is discussed in Section 6.1.

7. ASTM DEFINITIONS

The following definitions are presented in the ASTM Standard:

REC - Recognized Environmental Condition:

The presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to release to the environment; 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment.

CREC - Controlled Recognized Environmental Condition:

A recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls.

HREC - Historical Recognized Environmental Condition:

A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls.

***De minimis* Condition:**

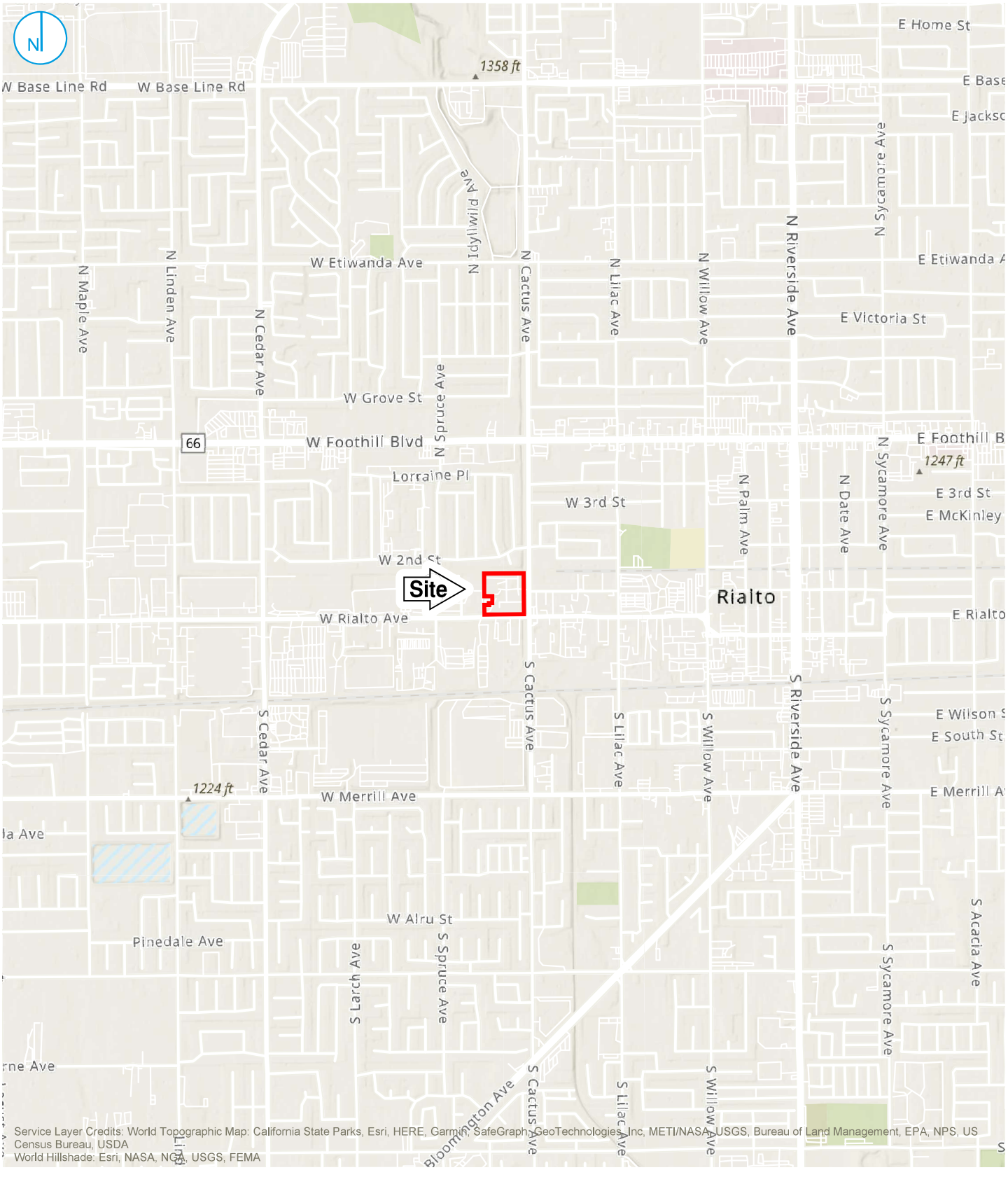
A condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Data Gap / Significant Data Gap:

A lack of or inability to obtain information required by the practice despite good faith efforts by the environmental professional to gather such information. A data gap is significant if other information and/or professional experience raises concerns involving the data gap.

Please note that the term "other finding" is not defined by ASTM; rather, Ramboll uses the term to connote areas of contingent risk that are not clearly defined by the ASTM Standard.

FIGURES



C:\Users\CWILLIAMSFREIER\Ramboll\Melody Kneale - Projects_Phase_II\Lincoln Properties\160NCactusAve\PhaseIFigures.aprx\Figure 01 - Site Location

Map Scale: 1:24,000 | Map Center: 117°23'5"W 34°6'3"N



KEY MAP (not to scale)

Site Boundary

0 1,000 2,000 Feet

SITE LOCATION

DRAFT

160 N Cactus Avenue
Rialto, California

FIGURE 01

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

RAMBOLL

C:\Users\CWILLIAMSFREIER\Ramboll\Melody Kneale - Projects_Phase_I\Lincoln Properties\160NCactusAve\PhaseIFigures.aprx\Figure 02 - Site Layout



Site Boundary

W General Waste

HS Hazardous Materials Storage Area

Abandoned ASTs

0 75 150 Feet

SITE LAYOUT

DRAFT

160 N Cactus Avenue
Rialto, California

FIGURE 02

RAMBOLL US CONSULTING, INC.
A RAMBOLL COMPANY

RAMBOLL

APPENDIX A
SITE PHOTOGRAPHS



Photo 1: View of Nelson Adams NACO's northern portion of the site, facing west with central warehouse to the left and northern warehouse to the right.



Photo 2: Nelson Adams NACO product storage in central warehouse.



Photo 3: Assembly area of Nelson Adams NACO's central warehouse where non-hazardous adhesive glue is applied with machinery.



Photo 4: Propane-powered forklift with staining on concrete of Nelson Adams NACO's central warehouse.



Photo 5: Storage area on west side of Nelson Adams NACO's area, where two approximately 15,000-gallon unused ASTs, empty 275-gallon glue totes, unused machines, and extra materials are stored.



Photo 6: Polyurethane coating area in Nelson Adams NACO's northern warehouse.

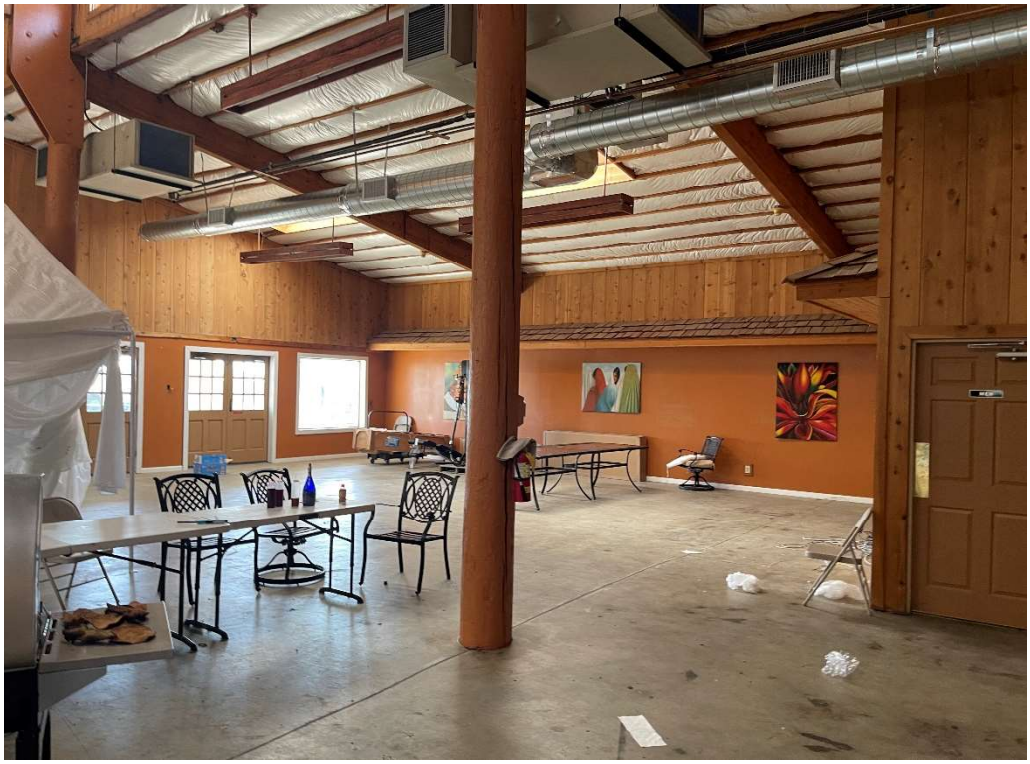


Photo 7: Interior of Nelson Adam NACO's eastern event space building.



Photo 8: View of southeastern portion of the site used as trailer and equipment storage lot.



Photo 9: M.R. Tudor's hazardous waste storage area located along the southern site boundary, with staining underneath the secondary containment on gravel.



Photo 10: Storage of new oil 55-gallon drums and empty 55-gallon drums on the southeast corner of M.R. Tudor's area.



Photo 11: An approximately 500-gallon waste oil AST located along the southern site boundary of M.R. Tudor's area.



Photo 12: Additional storage of 55-gallon drums of lubricants, hydraulic oil, and antifreeze in storage container located at the center of the southern site boundary of M.R. Tudor's area.



Photo 13: Storage of retail-sized containers of paint, primers, and enamel in a storage container on the northern portion of M.R. Tudor's area.



Photo 14: Storage of heavy machinery and equipment on M.R. Tudor's area.



Photo 15: Non-hazardous glue mixed with water discharged on bare soil on the southern edge of Nelson Adam NACO's central warehouse.



Photo 16: Non-hazardous glue mixed with water discharged on bare soil on the southern edge of Nelson Adam NACO's central warehouse.

APPENDIX B
ENVIRONMENTAL DATABASE REPORT

NOTES ON ENVIRONMENTAL DATABASE REPORT

The third-party provider conducted its searches for the standard environmental record sources and the minimum search distances, as specified by the ASTM Standard. The ASTM Standard uses the terminology "approximate minimum search distance" to refer to the radii searched in the environmental database report.

The third-party provider conducted the search of environmental databases in March 2022. Because the environmental databases themselves are sometimes not updated by the specific regulatory agencies for periods of up to one year or more (depending on the database and the state), the database search conducted herein will not necessarily list any facility or site for which an environmental investigation/listing has been initiated subsequent to the last update.

APPENDIX C
HISTORICAL RESEARCH DOCUMENTATION

APPENDIX C.1
TOPOGRAPHIC MAPS

APPENDIX C.2
AERIAL PHOTOGRAPHS

APPENDIX C.3
ABSTRACT OF CITY DIRECTORIES

APPENDIX D
QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

Appendix G

Water Quality Management Plan

Water Quality Management Plan

For:

160 N Cactus Avenue

APN: 0128-141-72-0000; 0128-141-70-0000; 0128-141-63-0000; 0128-141-49-0000

Prepared for:

Alan Lee, 160 N Cactus Holdings, LLC

915 Wilshire Blvd., Suite 2050

Los Angeles, CA, 90017

(213) 538-0900

Prepared by:

Kimley-Horn and Associates, Inc.

660 S Figueroa St., Suite 2050

Los Angeles, CA, 90017

(213) 261-4040

Submittal Date: 07/06/2022

Revision Date: 06/09/2023

Approval Date:_____

Project Owner's Certification

This Water Quality Management Plan (WQMP) has been prepared for 160 N Cactus Holdings, LLC by Kimley-Horn and Associates, Inc.. The WQMP is intended to comply with the requirements of the County of San Bernardino and the NPDES Areawide Stormwater Program requiring the preparation of a WQMP. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with San Bernardino County's Municipal Storm Water Management Program and the intent of the NPDES Permit for San Bernardino County and the incorporated cities of San Bernardino County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors in interest and the city/county shall be notified of the transfer. The new owner will be informed of its responsibility under this WQMP. A copy of the approved WQMP shall be available on the subject site in perpetuity.

"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the WQMP have been accepted and that the plan will be transferred to future successors."

.

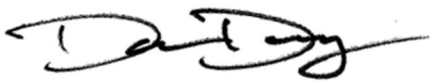
Project Data			
Permit/Application Number(s):	PPD 2022-0056	Grading Permit Number(s):	Preliminary Plans - None
Tract/Parcel Map Number(s):	Tract No.: 11886	Building Permit Number(s):	Preliminary Plans - None
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APN 0128-141-72-0000;0128-141-70-0000; 0128-141-63-0000; 0128-141-49-0000

Owner's Signature			
Owner Name: Alan Lee			
Title	Owner		
Company	160 N Cactus Holdings, LLC		
Address	915 Wilshire Blvd., Suite 2050, Los Angeles, CA 90017		
Email	Alee@lpc.com		
Telephone #	(213) 538-0900		
Signature		Date	06/15/2023

Preparer's Certification

Project Data			
Permit/Application Number(s):	PPD 2022-0056	Grading Permit Number(s):	Preliminary Plans - None
Tract/Parcel Map Number(s):	Tract No.: 11886	Building Permit Number(s):	Preliminary Plans - None
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APN 0128-141-72-0000;0128-141-70-0000; 0128-141-63-0000; 0128-141-49-0000

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan were prepared under my oversight and meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0036."

Engineer: Danh Duong		PE Stamp Below
Title	Civil Engineer, P.E., QSD	
Company	Kimley-Horn and Associates, Inc.	
Address	660 S Figueroa St., Suite 2050, Los Angeles, CA 90017	
Email	Danh.Duong@kimley-horn.com	
Telephone #	(213) 261-4043	
Signature		
Date	6/15/2023	

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Section 1 Discretionary Permit(s)

Form 1-1 Project Information

Project Name	160 N. Cactus Avenue				
Project Owner Contact Name:	Alan Lee				
Mailing Address:	915 Wilshire Blvd., Suite 2050, Los Angeles, CA 90017	E-mail Address:	Alee@LPC.com	Telephone:	(215) 538-0900
Permit/Application Number(s):			Tract/Parcel Map Number(s):		APN 0128-141-72-0000;0128-141-70-0000; 0128-141-63-0000; 0128-141-49-0000
Additional Information/ Comments:					
Description of Project:	Kimley-Horn and Associates has been retained to prepare a WQMP for 160 N. Cactus Ave. The 7.75-acre site is located northwest of the intersection of W Rialto Avenue and N Cactus Avenue in the City of Rialto, San Bernardino County. The APNs for the project site are 0128-141-72-0000;0128-141-70-0000; 0128-141-63-0000; and 0128-141-49-0000. The project area includes 0.25 acres of an existing development at the southwest corner of the site which discharges onto the proposed industrial property. The project site will consist of the construction of one new industrial facility. The proposed site will consist of an approximate 181,533 square foot warehouse with associated landscaping, concrete hardscape, and asphalt parking for both trailers and automobiles. The project will be phased. Phase 1 improvements consist of The San Bernardino Flood Control District undergrounding the existing channel, located on the northeast corner of the site, and modifying it to a culvert with underground pipes. The open channel area is undisturbed by the owner during Phase 1. The proposed landscaping at the completion of Phase 1 will be approximately 38,277 square feet (11% pervious). Phase 2 begins once the system is underground. In Phase 2, the owner will be allowed to pave over the Flood Control District improvements. The storm drain layout is designed to manage the onsite improvements for both Phase 1 and Phase 2. The proposed landscaping at the completion of Phase 2 will be approximately 41,776 square feet (12% pervious). Land use at the proposed site will include drop off and pick up of items at the industrial buildings, warehouse activities, office space, and improvements of surrounding streets and landscaping. The project site has one drainage area for water quality treatment. DA 1 will encompass the whole property. Drainage from DA 1 will drain into an underground stormwater retention/infiltration system identified as BMP-1, via a Hydrodynamic (Gravity) Separator unit, identified as BMP-2. In addition, all new stormwater catch basins installed in improved public street areas, adjacent to the project, shall be outfitted with 5mm Stainless Steel debris filters, to comply with the statewide Trash Mandate. Water quality volume provided is designed to manage the Phase 2 water quality volume.				

Provide summary of Conceptual WQMP conditions (if previously submitted and approved). Attach complete copy.	N/A

Section 2 Project Description

2.1 Project Information

This section of the WQMP should provide the information listed below. The information provided for WQMP should give sufficient detail to identify the major proposed site design and LID BMPs and other anticipated water quality features that impact site planning. Final Project WQMP must specifically identify all BMP incorporated into the final site design and provide other detailed information as described herein.

The purpose of this information is to help determine the applicable development category, pollutants of concern, watershed description, and long term maintenance responsibilities for the project, and any applicable water quality credits. This information will be used in conjunction with the information in Section 3, Site Description, to establish the performance criteria and to select the LID BMP or other BMP for the project or other alternative programs that the project will participate in, which are described in Section 4.

Form 2.1-1 Description of Proposed Project

[1] Development Category (Select all that apply):

☐ Significant re-development involving the addition or replacement of 5,000 ft² or more of impervious surface on an already developed site	☒ New development involving the creation of 10,000 ft² or more of impervious surface collectively over entire site	☐ Automotive repair shops with standard industrial classification (SIC) codes 5013, 5014, 5541, 7532- 7534, 7536-7539	☐ Restaurants (with SIC code 5812) where the land area of development is 5,000 ft² or more
☐ Hillside developments of 5,000 ft² or more which are located on areas with known erosive soil conditions or where the natural slope is 25 percent or more	☐ Developments of 2,500 ft² of impervious surface or more adjacent to (within 200 ft) or discharging directly into environmentally sensitive areas or waterbodies listed on the CWA Section 303(d) list of impaired waters.	☒ Parking lots of 5,000 ft² or more exposed to storm water	☐ Retail gasoline outlets that are either 5,000 ft² or more, or have a projected average daily traffic of 100 or more vehicles per day

☐ Non-Priority / Non-Category Project *May require source control LID BMPs and other LIP requirements. Please consult with local jurisdiction on specific requirements*.

[2] Project Area (ft2):	345,994	[3] Number of Dwelling Units:	0	[4] SIC Code:	4225

[5] Is Project going to be phased? Yes ☒ No ☐ *If yes, ensure that the WQMP evaluates each phase as a distinct DA, requiring LID BMPs to address runoff at time of completion.*

[6] Does Project include roads? Yes ☐ No ☒ *If yes, ensure that applicable requirements for transportation projects are addressed (see Appendix A of TGD for WQMP)*

2.2 Property Ownership/Management

Describe the ownership/management of all portions of the project and site. State whether any infrastructure will transfer to public agencies (City, County, Caltrans, etc.) after project completion. State if a homeowners or property owners association will be formed and be responsible for the long-term maintenance of project stormwater facilities. Describe any lot-level stormwater features that will be the responsibility of individual property owners.

Form 2.2-1 Property Ownership/Management

Describe property ownership/management responsible for long-term maintenance of WQMP stormwater facilities:

The maintenance of the proposed development is the responsibility of the owner until the property is sold to a new owner and they then assume responsibility of the BMP maintenance and management. There is no homeowners or property owner's association set up for this propose development. All the BMPs are the responsibility of the owner to maintain. BMPs include, but are not limited to, BMP maintenance; e.g. inspection, storm drain stenciling, efficient irrigation and landscape maintenance, and BMP maintenance of underground infiltration system and pretreatment gravity separator. No infrastructure will be transferred to a public agency after project
completion.

Alan Lee
160 N Cactus Holdings, LLC
915 Wilshire Blvd., Suite 2050
Los Angeles, CA 90017

2.3 Potential Stormwater Pollutants

Determine and describe expected stormwater pollutants of concern based on land uses and site activities (refer to Table 3-3 in the TGD for WQMP).

Form 2.3-1 Pollutants of Concern			
Pollutant	Please check: E=Expected, N=Not Expected		Additional Information and Comments
Pathogens (Bacterial / Virus)	E ☒	N ☐	Resulting from wild bird, pet waste, and garbage.
Nutrients - Phosphorous	E ☒	N ☐	Resulting from wild bird, pet waste, and garbage.
Nutrients - Nitrogen	E ☒	N ☐	Resulting from fertlizer and waste.
Noxious Aquatic Plants	E ☐	N ☒	There will be no source of this pollutant.
Sediment	E ☒	N ☐	Resulting from the driveways, rooftops, sidewalks, paved areas, and
Metals	E ☒	N ☐	Resulting from cars, trucks, and parking areas.
Oil and Grease	E ☒	N ☐	Resulting from leaking vehicles and parking areas.
Trash/Debris	E ☒	N ☐	Resulting from poorly managed trash containers and parking areas.
Pesticides / Herbicides	E ☒	N ☐	Resulting from proposed landscaping areas.
Organic Compounds	E ☒	N ☐	Resulting from vehicles.
Other: Petroleum/Hydrocarbons	E ☐	N ☐	Resulting from vehicles.

2.4 Water Quality Credits

A water quality credit program is applicable for certain types of development projects if it is not feasible to meet the requirements for on-site LID. Proponents for eligible projects, as described below, can apply for water quality credits that would reduce project obligations for selecting and sizing other treatment BMP or participating in other alternative compliance programs. Refer to Section 6.2 in the TGD for WQMP to determine if water quality credits are applicable for the project.

Form 2.4-1 Water Quality Credits

[1] Project Types that Qualify for Water Quality Credits: *Select all that apply*			
☐ Redevelopment projects that reduce the overall impervious footprint of the project site. [Credit = % impervious reduced]	Higher density development projects ☐ Vertical density [20%] ☐ 7 units/ acre [5%]	☐ Mixed use development, (combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that demonstrate environmental benefits not realized through single use projects) [20%]	☐ Brownfield redevelopment (redevelop real property complicated by presence or potential of hazardous contaminants) [25%]
☐ Redevelopment projects in established historic district, historic preservation area, or similar significant core city center areas [10%]	☐ Transit-oriented developments (mixed use residential or commercial area designed to maximize access to public transportation) [20%]	☐ In-fill projects (conversion of empty lots & other underused spaces < 5 acres, substantially surrounded by urban land uses, into more beneficially used spaces, such as residential or commercial areas) [10%]	☐ Live-Work developments (variety of developments designed to support residential and vocational needs) [20%]
[2] Total Credit % *(Total all credit percentages up to a maximum allowable credit of 50 percent)*			
Description of Water Quality Credit Eligibility (if applicable)	N/A		

Section 3 Site and Watershed Description

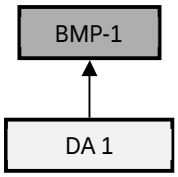
Describe the project site conditions that will facilitate the selection of BMP through an analysis of the physical conditions and limitations of the site and its receiving waters. Identify distinct drainage areas (DA) that collect flow from a portion of the site and describe how runoff from each DA (and sub-watershed DMAs) is conveyed to the site outlet(s). Refer to Section 3.2 in the TGD for WQMP. The form below is provided as an example. Then complete Forms 3.2 and 3.3 for each DA on the project site. *If the project has more than one drainage area for stormwater management, then complete additional versions of these forms for each DA / outlet.*

Form 3-1 Site Location and Hydrologic Features

Site coordinates *take GPS measurement at approximate center of site*	Latitude 34.10	Longitude -117.38	Thomas Bros Map page 605

[1] San Bernardino County climatic region: ☒ Valley ☐ Mountain

[2] Does the site have more than one drainage area (DA): Yes☐ No☒ *If no, proceed to Form 3-2. If yes, then use this form to show a conceptual schematic describing DMAs and hydrologic feature connecting DMAs to the site outlet(s). An example is provided below that can be modified for proposed project or a drawing clearly showing DMA and flow routing may be attached*



Example only – modify for project specific WQMP using additional form

DA1 to BMP-1	Storm water from DA-1 will sheet flow in the southeast direction through the site and will be intercepted by proposed inlets located at low points as shown in the WQMP exhibit. All drainage collected from the inlets will be routed to an underground CDS Hydrodynamic separator followed by an ADS Stormtech chamber system identified as BMP-1. BMP-1 will provide volume storage and infiltration at the bottom of the system. The ADS Stormtech chamber has been sized to treat and retain the full DCV for DA-1.

Form 3-2 Existing Hydrologic Characteristics for Drainage Areas				
For Drainage Area 1's sub-watershed DMAs, provide the following characteristics	DMA A	DMA B (Phase 2)	DMA C	N/A
1 DMA drainage area (ft^2)	331056	8276	6534	N/A
2 Existing site impervious area (ft^2)	164,054	0	2,296	N/A
3 Antecedent moisture condition *For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*	3	3	3	N/A
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	A	A	A	N/A
5 Longest flowpath length (ft)	872	142	60	N/A
6 Longest flowpath slope (ft/ft)	0.014	0.080	0.015	N/A
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Commercial	Commercial	Commercial	N/A
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Poor	Good	Fair	N/A

Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1 (use only as needed for additional DMA w/in DA 1)				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA E	DMA F	DMA G	DMA H
1 DMA drainage area (ft^2)	N/A	N/A	N/A	N/A
2 Existing site impervious area (ft^2)				
3 Antecedent moisture condition *For desert areas, use* *http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*				
4 Hydrologic soil group *Refer to Watershed Mapping Tool –* *http://permitrack.sbcounty.gov/wap/*				
5 Longest flowpath length (ft)				
6 Longest flowpath slope (ft/ft)				
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*				
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*				

Form 3-3 Watershed Description for Drainage Area DA-1 (applies for Phase 1 and 2)	
Receiving waters *Refer to Watershed Mapping Tool - http://permitrack.sbcounty.gov/wap/ See 'Drainage Facilities" link at this website*	Rialto Channel, Santa Ana River, Reach 4, & SAR Reach 3
Applicable TMDLs *Refer to Local Implementation Plan*	Santa Ana River, Reach 3 - Indicator Bacteria
303(d) listed impairments *Refer to Local Implementation Plan and Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/ and State Water Resources Control Board website – http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/index.shtml*	Santa Ana River, Reach 3 - Copper, Indicator Bacteria, and Lead Santa Ana River, Reach 4 – Indicator Bacteria
Environmentally Sensitive Areas (ESA) *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	None
Unlined Downstream Water Bodies *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	Santa Ana River Reaches 4 & 3
Hydrologic Conditions of Concern	☐ Yes *Complete Hydrologic Conditions of Concern (HCOC) Assessment. Include Forms 4.2-2 through Form 4.2-5 and Hydromodification BMP Form 4.3-10 in submittal* ☒ No
Watershed–based BMP included in a RWQCB approved WAP	☐ Yes *Attach verification of regional BMP evaluation criteria in WAP* • *More Effective than On-site LID* • *Remaining Capacity for Project DCV* • *Upstream of any Water of the US* • *Operational at Project Completion* • *Long-Term Maintenance Plan* ☒ No

Section 4 Best Management Practices (BMP)

4.1 Source Control BMP

4.1.1 Pollution Prevention

Non-structural and structural source control BMP are required to be incorporated into all new development and significant redevelopment projects. Form 4.1-1 and 4.1-2 are used to describe specific source control BMPs used in the WQMP or to explain why a certain BMP is not applicable. Table 7-3 of the TGD for WQMP provides a list of applicable source control BMP for projects with specific types of potential pollutant sources or activities. The source control BMP in this table must be implemented for projects with these specific types of potential pollutant sources or activities.

The preparers of this WQMP have reviewed the source control BMP requirements for new development and significant redevelopment projects. The preparers have also reviewed the specific BMP required for project as specified in Forms 4.1-1 and 4.1-2. All applicable non-structural and structural source control BMP shall be implemented in the project.

Form 4.1-1 Non-Structural Source Control BMPs				
Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	☒	☐	The Project Owner(s) shall familiarize themselves with the contents of this document, including the BMP Education Materials in Section 6.4 (Attachment F) and shall ensure that all Tenants and Contractors are made aware of the Stormwater BMPs included here.
N2	Activity Restrictions	☒	☐	Pursuant to the Education Material included in Attachment F of this document, the User of the facility will be notified upon occupancy of the property of all activities that are restricted and or limited and the education material shall be referenced in all lease documents.
N3	Landscape Management BMPs	☒	☐	Leasing documents will require use of property to adhere to landscape management BMPs listed in the Education Material in Attachment F of this document.
N4	BMP Maintenance	☒	☐	All Treatment Control and Source BMPS shall be maintained per the O&M procedures on Form 5-1. `
N5	Title 22 CCR Compliance (How development will comply)	☒	☐	If any reportable quantities of hazardous materials are stored at the site, the tenant shall comply with all Title 22 CCR regulations.
N6	Local Water Quality Ordinances	☒	☐	Owner shall ensure business activities at the site comply with the City's Stormwater Ordinance through BMP implementation.
N7	Spill Contingency Plan	☒	☐	If any reportable quantities of hazmats are stored on site, the tenant shall prepare a Spill Plan in compliance with the San Bernardino County CUPA Agency requirements.
N8	Underground Storage Tank Compliance	☐	☒	No Underground Storage Tanks.
N9	Hazardous Materials Disclosure Compliance	☒	☐	If any reportable quantities of hazmats are stored on site, the tenant shall provide full disclosure to the San Bernardino CUPA Agency.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	☐	☒	Owner shall comply with all Uniform Fire Codes relating to material storage.
N11	Litter/Debris Control Program	☒	☐	See Form 5-1 for BMP inspection, maintenance and frequency of litter and debris, control activities, and the designated Responsible Party.
N12	Employee Training	☒	☐	Owner shall establish an educational program, using the BMP materials in Attachment F, for site employees to inform and train
N13	Housekeeping of Loading Docks	☒	☐	Conduct regular cleaning of Loading Dock areas by dry sweeping with no hosing of these areas unless runoff is vacuumed up and disposed to the sanitary sewer.
N14	Catch Basin Inspection Program	☒	☐	Catch basins will be inspected and maintained per the Operation and Maintenance Plan and as described on Form 5-1.
N15	Vacuum Sweeping of Private Streets and Parking Lots	☒	☐	See Road and Maintenance (SC-70) and Parking/Storage Maintenance (SC-43) in Attachment F.
N16	Other Non-structural Measures for Public Agency Projects	☐	☒	No non-structural measures for public agency projects
N17	Comply with all other applicable NPDES permits	☒	☐	The Project Owner shall comply with all requirements of the Construction General Permit for stormwater discharges, during the entire period of construction and the tenant shall comply with all requirements of the Industrial General Permit, as necessary.

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stencilling and signage (CASQA New Development BMP Handbook SD-13)	☒	☐	Catch Basins are proposed. Stenciling and signage will be provided by Owner, per CASQA BMP #SD-13 instructions. A "No Dumping-Drains To River" message shall be applied to all on-site storm drain inlets.
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	☐	☒	No outdoor storage proposed.
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	☒	☐	All trash enclosures shall be roofed and constructed on a raised concrete pad. Inspection and maintenance outlined in Form 5-1.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	☒	☐	Proposed site follows irrigation requirements described in CASQA New Development BMP SD-12. See Attachment F in Section 6.4, and inspection/maintenace frequency, in Form 5-1.
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	☒	☐	Proposed site has finished grade of landscape area at a minimum of 1-2 inches below adjacent pavement surface or top of curb. This depressed grade shall be maintained by the Owner.
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	☐	☒	No landscaped slopes.
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	☐	☒	No covered dock areas. All loading/unloading shall be inside the building.
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	☐	☒	No maintenance bays. The owner shall prohibit this activity, on-site, through lease agreements.
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	No vehicle wash areas. The owner shall prohibit this activity, on-site, through lease agreements.

S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	☐	☒	No outdoor processing areas. The owner shall prohibit this activity, on-site, through lease agreements.

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S11	Equipment wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	No equipment wash areas. The owner shall prohibit this activity, on-site, through lease agreements.
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	☐	☒	No fueling areas. The owner shall prohibit this activity, on-site, through lease agreements.
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	☐	☒	No hillside.
S14	Wash water control for food preparation areas	☐	☒	No food preparation.
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	☐	☒	No car wash racks.

4.1.2 Preventative LID Site Design Practices

Site design practices associated with new LID requirements in the MS4 Permit should be considered in the earliest phases of a project. Preventative site design practices can result in smaller DCV for LID BMP and hydromodification control BMP by reducing runoff generation. Describe site design and drainage plan including:

- A narrative of site design practices utilized or rationale for not using practices
- A narrative of how site plan incorporates preventive site design practices
- Include an attached Site Plan layout which shows how preventative site design practices are included in WQMP

Refer to Section 5.2 of the TGD for WQMP for more details.

Form 4.1-3 Preventative LID Site Design Practices Checklist

Site Design Practices *If yes, explain how preventative site design practice is addressed in project site plan. If no, other LID BMPs must be selected to meet targets*
Minimize impervious areas: Yes ☒ No ☐ Explanation: Landscape areas will be maximized on site to the maximum extent possible in parking islands and where possible along sidewalks.
Maximize natural infiltration capacity: Yes ☒ No ☐ Explanation: An underground infiltration system is proposed to maximize onsite infiltration potential. Grading activities to protect infiltration capacity at BMP locations.
Preserve existing drainage patterns and time of concentration: Yes ☒ No ☐ Explanation: Natural drainage patterns will be maintained to the maximum extent possible. Runoff from site will continue to eventually discharge to the public storm drain system adjacent to the site similarly to existing conditions.
Disconnect impervious areas: Yes ☐ No ☒ Explanation: Landscape islands are generally found along the perimeter of the site at higher elevations. All impervious areas are disconnected by flowing into the underground infiltration system.
Protect existing vegetation and sensitive areas: Yes ☐ No ☒ Explanation: There are no sensitive areas onsite and no significant native vegetation to preserve. Existing vegetation will be replaced with landscaping.
Re-vegetate disturbed areas: Yes ☒ No ☐ Explanation: Landscaping is proposed throughout project area.
Minimize unnecessary compaction in stormwater retention/infiltration basin/trench areas: Yes ☒ No ☐ Explanation: Unnecessary compaction will be prevented within the limits of the underground ADS Stormtech chamber system. The underground chamber basin shall not be over-excavated, to prevent backfill and re-compacting of the basin bottom.
Utilize vegetated drainage swales in place of underground piping or imperviously lined swales: Yes ☐ No ☒ Explanation: Site drainage design does not allow for vegetated swales.
Stake off areas that will be used for landscaping to minimize compaction during construction : Yes ☒ No ☐ Explanation: Proposed landscape areas will be staked off during construction to minimize compaction.

4.2 Project Performance Criteria

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in the MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection of any downstream waterbody segments with a HCOC. *If the project has more than one outlet for stormwater runoff, then complete additional versions of these forms for each DA / outlet.*

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), the San Bernardino County Stormwater Program requires use of the P_6 method (MS4 Permit Section XI.D.6a.ii) – Form 4.2-1
- For HCOC pre- and post-development hydrologic calculation, the San Bernardino County Stormwater Program requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi^2), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for HCOC performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA 1 – Phase 1)

1 Project area DA 1 (ft^2): 337,443	2 Imperviousness after applying preventative site design practices (Imp%): 89%	3 Runoff Coefficient (Rc): _0.71 *$R_c = 0.858(Imp\%)^{\wedge 3} - 0.78(Imp\%)^{\wedge 2} + 0.774(Imp\%) + 0.04$*
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2yr\text{-}1hr}$ (in): 0.599 *http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html*		
5 Compute P_6, Mean 6-hr Precipitation (inches): 0.887 *P_6 = Item 4 * C_1, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)*		
6 Drawdown Rate *Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.*		24-hrs ☐ 48-hrs ☒
7 Compute design capture volume, DCV (ft^3): 34,763 *DCV = 1/12 * [Item 1* Item 3 *Item 5 * C_2], where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)* *Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2*		

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA 1 – Phase 2)

1 Project area DA 1 (ft^2): 345,994	2 Imperviousness after applying preventative site design practices (Imp%): 88%	3 Runoff Coefficient (Rc): _0.70 *$R_c = 0.858(Imp\%)^{\wedge 3} - 0.78(Imp\%)^{\wedge 2} + 0.774(Imp\%) + 0.04$*
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2yr\text{-}1hr}$ (in): 0.599 *http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html*		
5 Compute P_6, Mean 6-hr Precipitation (inches): 0.887 *P_6 = Item 4 * C_1, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)*		
6 Drawdown Rate *Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.*		24-hrs ☐ 48-hrs ☒
7 Compute design capture volume, DCV (ft^3): 35,142 *DCV = 1/12 * [Item 1* Item 3 *Item 5 * C_2], where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)* *Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2*		

Form 4.2-2 Summary of HCOC Assessment (DA 1)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes ☐ No ☒

Go to: http://permitrack.sbcounty.gov/wap/

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below *(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)*

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft^3)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	1 *Form 4.2-3 Item 12*	2 *Form 4.2-4 Item 13*	3 *Form 4.2-5 Item 10*
Post-developed	4 *Form 4.2-3 Item 13*	5 *Form 4.2-4 Item 14*	6 *Form 4.2-5 Item 14*
Difference	7 *Item 4 – Item 1*	8 *Item 2 – Item 5*	9 *Item 6 – Item 3*
Difference (as % of pre-developed)	10 % *Item 7 / Item 1*	11 % *Item 8 / Item 2*	12 % *Item 9 / Item 3*

Form 4.2-3 HCOC Assessment for Runoff Volume (DA 1)

Weighted Curve Number Determination for: Pre-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1a Land Cover type	N/A							
2a Hydrologic Soil Group (HSG)	N/A							
3a DMA Area, ft^2 *sum of areas of DMA should equal area of DA*								
4a Curve Number (CN) *use Items 1 and 2 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*								
Weighted Curve Number Determination for: Post-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1b Land Cover type								
2b Hydrologic Soil Group (HSG)								
3b DMA Area, ft^2 *sum of areas of DMA should equal area of DA*								
4b Curve Number (CN) *use Items 5 and 6 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*								

5 Pre-Developed area-weighted CN:	7 Pre-developed soil storage capacity, S (in): *S = (1000 / Item 5) - 10*	9 Initial abstraction, I_a (in): *I_a = 0.2 * Item 7*
6 Post-Developed area-weighted CN:	8 Post-developed soil storage capacity, S (in): *S = (1000 / Item 6) - 10*	10 Initial abstraction, I_a (in): *I_a = 0.2 * Item 8*

11 Precipitation for 2 yr, 24 hr storm (in):
Go to: http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html

12 Pre-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 9)^2 / ((Item 11 – Item 9 + Item 7)*

13 Post-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 10)^2 / ((Item 11 – Item 10 + Item 8)*

14 Volume Reduction needed to meet HCOC Requirement, (ft^3):
*V_{HCOC} = (Item 13 * 0.95) – Item 12*

Form 4.2-4 HCOC Assessment for Time of Concentration (DA 1)

Compute time of concentration for pre and post developed conditions for each DA *(For projects using the Hydrology Manual complete the form below)*

Variables	Pre-developed DA1 *Use additional forms if there are more than 4 DMA*				Post-developed DA1 *Use additional forms if there are more than 4 DMA*			
	DMA A	DMA B	DMA C	DMA D	DMA A	DMA B	DMA C	DMA D
1 Length of flowpath (ft) *Use Form 3-2 Item 5 for pre-developed condition*								
2 Change in elevation (ft)								
3 Slope (ft/ft), S_o = *Item 2 / Item 1*								
4 Land cover								
5 Initial DMA Time of Concentration (min) *Appendix C-1 of the TGD for WQMP*								
6 Length of conveyance from DMA outlet to project site outlet (ft) *May be zero if DMA outlet is at project site outlet*								
7 Cross-sectional area of channel (ft^2)								
8 Wetted perimeter of channel (ft)								
9 Manning's roughness of channel (n)								
10 Channel flow velocity (ft/sec) V_{fps} = *(1.49 / Item 9) * (Item 7/Item 8)^0.67 * (Item 3)^0.5*								
11 Travel time to outlet (min) T_t = *Item 6 / (Item 10 * 60)*								
12 Total time of concentration (min) T_c = *Item 5 + Item 11*								

13 Pre-developed time of concentration (min): *Minimum of Item 12 pre-developed DMA*

14 Post-developed time of concentration (min): *Minimum of Item 12 post-developed DMA*

15 Additional time of concentration needed to meet HCOC requirement (min): $T_{C\text{-}HCOC}$ = *(Item 13 * 0.95) – Item 14*

Form 4.2-5 HCOC Assessment for Peak Runoff (DA 1)

Compute peak runoff for pre- and post-developed conditions

Variables		Pre-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*			Post-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*		
		DMA A	DMA B	DMA C	DMA A	DMA B	DMA C
1 Rainfall Intensity for storm duration equal to time of concentration *I_{peak} = 10^(LOG Form 4.2-1 Item 4 - 0.6 LOG Form 4.2-4 Item 5 /60)*							
2 Drainage Area of each DMA (Acres) *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
3 Ratio of pervious area to total area *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
4 Pervious area infiltration rate (in/hr) *Use pervious area CN and antecedent moisture condition with Appendix C-3 of the TGD for WQMP*							
5 Maximum loss rate (in/hr) *F_m = Item 3 * Item 4* *Use area-weighted F_m from DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
6 Peak Flow from DMA (cfs) *Q_p =Item 2 * 0.9 * (Item 1 - Item 5)*							
7 Time of concentration adjustment factor for other DMA to site discharge point *Form 4.2-4 Item 12 DMA / Other DMA upstream of site discharge point (If ratio is greater than 1.0, then use maximum value of 1.0)*	DMA A	*n/a*			*n/a*		
	DMA B		*n/a*			*n/a*	
	DMA C			*n/a*			*n/a*

8 Pre-developed Q_p at T_c for DMA A: *Q_p = Item 6_{DMAA} + [Item 6_{DMAB} * (Item 1_{DMAA} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAA/2}$] + [Item 6_{DMAC} * (Item 1_{DMAA} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAA/3}$]*	9 Pre-developed Q_p at T_c for DMA B: *Q_p = Item 6_{DMAB} + [Item 6_{DMAA} * (Item 1_{DMAB} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAB/1}$] + [Item 6_{DMAC} * (Item 1_{DMAB} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAB/3}$]*	10 Pre-developed Q_p at T_c for DMA C: *Q_p = Item 6_{DMAC} + [Item 6_{DMAA} * (Item 1_{DMAC} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAC/1}$] + [Item 6_{DMAB} * (Item 1_{DMAC} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAC/2}$]*
10 Peak runoff from pre-developed condition confluence analysis (cfs): *Maximum of Item 8, 9, and 10 (including additional forms as needed)*		
11 Post-developed Q_p at T_c for DMA A: *Same as Item 8 for post-developed values*	12 Post-developed Q_p at T_c for DMA B: *Same as Item 9 for post-developed values*	13 Post-developed Q_p at T_c for DMA C: *Same as Item 10 for post-developed values*
14 Peak runoff from post-developed condition confluence analysis (cfs): *Maximum of Item 11, 12, and 13 (including additional forms as needed)*		
15 Peak runoff reduction needed to meet HCOC Requirement (cfs): *$Q_{p\text{-}HCOC}$ = (Item 14 * 0.95) – Item 10*		

4.3 Project Conformance Analysis

Complete the following forms for each project site DA to document that the proposed LID BMPs conform to the project DCV developed to meet performance criteria specified in the MS4 Permit (WQMP Template Section 4.2). For the LID DCV, the forms are ordered according to hierarchy of BMP selection as required by the MS4 Permit (see Section 5.3.1 in the TGD for WQMP). The forms compute the following for on-site LID BMP:

- Site Design and Hydrologic Source Controls (Form 4.3-2)
- Retention and Infiltration (Form 4.3-3)
- Harvested and Use (Form 4.3-4) or
- Biotreatment (Form 4.3-5).

At the end of each form, additional fields facilitate the determination of the extent of mitigation provided by the specific BMP category, allowing for use of the next category of BMP in the hierarchy, if necessary.

The first step in the analysis, using Section 5.3.2.1 of the TGD for WQMP, is to complete Forms 4.3-1 and 4.3-3) to determine if retention and infiltration BMPs are infeasible for the project. For each feasibility criterion in Form 4.3-1, if the answer is "Yes," provide all study findings that includes relevant calculations, maps, data sources, etc. used to make the determination of infeasibility.

Next, complete Forms 4.3-2 and 4.3-4 to determine the feasibility of applicable HSC and harvest and use BMPs, and, if their implementation is feasible, the extent of mitigation of the DCV.

If no site constraints exist that would limit the type of BMP to be implemented in a DA, evaluate the use of combinations of LID BMPs, including all applicable HSC BMPs to maximize on-site retention of the DCV. If no combination of BMP can mitigate the entire DCV, implement the single BMP type, or combination of BMP types, that maximizes on-site retention of the DCV within the minimum effective area.

If the combination of LID HSC, retention and infiltration, and harvest and use BMPs are unable to mitigate the entire DCV, then biotreatment BMPs may be implemented by the project proponent. If biotreatment BMPs are used, then they must be sized to provide sufficient capacity for effective treatment of the remainder of the volume-based performance criteria that cannot be achieved with LID BMPs (TGD for WQMP Section 5.4.4.2). Under no circumstances shall any portion of the DCV be released from the site without effective mitigation and/or treatment.

Form 4.3-1 Infiltration BMP Feasibility (DA 1)

Feasibility Criterion – Complete evaluation for each DA on the Project Site

[1] Would infiltration BMP pose significant risk for groundwater related concerns? Yes ☐ No ☒
Refer to Section 5.3.2.1 of the TGD for WQMP

If Yes, Provide basis: (attach)

[2] Would installation of infiltration BMP significantly increase the risk of geotechnical hazards? Yes ☐ No ☒
(Yes, if the answer to any of the following questions is yes, as established by a geotechnical expert):

- The location is less than 50 feet away from slopes steeper than 15 percent
- The location is less than eight feet from building foundations or an alternative setback.
- A study certified by a geotechnical professional or an available watershed study determines that stormwater infiltration would result in significantly increased risks of geotechnical hazards.

If Yes, Provide basis: (attach)

[3] Would infiltration of runoff on a Project site violate downstream water rights? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[4] Is proposed infiltration facility located on hydrologic soil group (HSG) D soils or does the site geotechnical investigation indicate presence of soil characteristics, which support categorization as D soils? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[5] Is the design infiltration rate, after accounting for safety factor of 2.0, below proposed facility less than 0.3 in/hr (accounting for soil amendments)? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[6] Would on-site infiltration or reduction of runoff over pre-developed conditions be partially or fully inconsistent with watershed management strategies as defined in the WAP, or impair beneficial uses? Yes ☐ No ☒
See Section 3.5 of the TGD for WQMP and WAP

If Yes, Provide basis: (attach)

[7] Any answer from Item 1 through Item 3 is "Yes": Yes ☐ No ☒
If yes, infiltration of any volume is not feasible onsite. Proceed to Form 4.3-4, Harvest and Use BMP. If no, then proceed to Item 8 below.

[8] Any answer from Item 4 through Item 6 is "Yes": Yes ☐ No ☒
If yes, infiltration is permissible but is not required to be considered. Proceed to Form 4.3-2, Hydrologic Source Control BMP.
If no, then proceed to Item 9, below.

[9] All answers to Item 1 through Item 6 are "No":
Infiltration of the full DCV is potentially feasible, LID infiltration BMP must be designed to infiltrate the full DCV to the MEP.
Proceed to Form 4.3-2, Hydrologic Source Control BMP.

4.3.1 Site Design Hydrologic Source Control BMP

Section XI.E. of the Permit emphasizes the use of LID preventative measures; and the use of LID HSC BMPs reduces the portion of the DCV that must be addressed in downstream BMPs. Therefore, all applicable HSC shall be provided except where they are mutually exclusive with each other, or with other BMPs. Mutual exclusivity may result from overlapping BMP footprints such that either would be potentially feasible by itself, but both could not be implemented. Please note that while there are no numeric standards regarding the use of HSC, if a project cannot feasibly meet BMP sizing requirements or cannot fully address HCOCs, feasibility of all applicable HSC must be part of demonstrating that the BMP system has been designed to retain the maximum feasible portion of the DCV. Complete Form 4.3-2 to identify and calculate estimated retention volume from implementing site design HSC BMP. Refer to Section 5.4.1 in the TGD for more detailed guidance.

Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1)

1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes ☐ No ☒ *If yes, complete Items 2-5; If no, proceed to Item 6*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Total impervious area draining to pervious area (ft^2)			
3 Ratio of pervious area receiving runoff to impervious area			
4 Retention volume achieved from impervious area dispersion (ft^3) *V = Item2 * Item 3 * (0.5/12), assuming retention of 0.5 inches of runoff*			
5 Sum of retention volume achieved from impervious area dispersion (ft^3):	$V_{retention}$ *=Sum of Item 4 for all BMPs*		
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes ☐ No ☒ *If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
7 Ponding surface area (ft^2)			
8 Ponding depth (ft)			
9 Surface area of amended soil/gravel (ft^2)			
10 Average depth of amended soil/gravel (ft)			
11 Average porosity of amended soil/gravel			
12 Retention volume achieved from on-lot infiltration (ft^3) $V_{retention}$ *= (Item 7 *Item 8) + (Item 9 * Item 10 * Item 11)*			
13 Runoff volume retention from on-lot infiltration (ft^3):	$V_{retention}$ *=Sum of Item 12 for all BMPs*		

Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1)

Form 4.3-2 cont. Site Design Hydrologic Source Control BMPs (DA 1)

14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes ☐ No ☒ *If yes, complete Items 15-20. If no, proceed to Item 21*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
15 Rooftop area planned for ET BMP (ft^2)			
16 Average wet season ET demand (in/day) *Use local values, typical ~ 0.1*			
17 Daily ET demand (ft^3/day) *Item 15 * (Item 16 / 12)*			
18 Drawdown time (hrs) *Copy Item 6 in Form 4.2-1*			
19 Retention Volume (ft^3) $V_{retention}$ *= Item 17 * (Item 18 / 24)*			
20 Runoff volume retention from evapotranspiration BMPs (ft^3):	$V_{retention}$ *=Sum of Item 19 for all BMPs*		
21 Implementation of Street Trees: Yes ☐ No ☒ *If yes, complete Items 22-25. If no, proceed to Item 26*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
22 Number of Street Trees			
23 Average canopy cover over impervious area (ft^2)			
24 Runoff volume retention from street trees (ft^3) $V_{retention}$ *= Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches*			
25 Runoff volume retention from street tree BMPs (ft^3):	$V_{retention}$ *= Sum of Item 24 for all BMPs*		
26 Implementation of residential rain barrel/cisterns: Yes☐ No ☒ *If yes, complete Items 27-29; If no, proceed to Item 30*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
27 Number of rain barrels/cisterns			
28 Runoff volume retention from rain barrels/cisterns (ft^3) $V_{retention}$ *= Item 27 * 3*			
29 Runoff volume retention from residential rain barrels/Cisterns (ft3):	$V_{retention}$ *=Sum of Item 28 for all BMPs*		
30 Total Retention Volume from Site Design Hydrologic Source Control BMPs:	*Sum of Items 5, 13, 20, 25 and 29*		

4.3.2 Infiltration BMPs

Use Form 4.3-3 to compute on-site retention of runoff from proposed retention and infiltration BMPs. Volume retention estimates are sensitive to the percolation rate used, which determines the amount of runoff that can be infiltrated within the specified drawdown time. The infiltration safety factor reduces field measured percolation to account for potential inaccuracy associated with field measurements, declining BMP performance over time, and compaction during construction. Appendix D of the TGD for WQMP provides guidance on estimating an appropriate safety factor to use in Form 4.3-3.

If site constraints limit the use of BMPs to a single type and implementation of retention and infiltration BMPs mitigate no more than 40% of the DCV, then they are considered infeasible and the Project Proponent may evaluate the effectiveness of BMPs lower in the LID hierarchy of use (Section 5.5.1 of the TGD for WQMP)

If implementation of infiltrations BMPs is feasible as determined using Form 4.3-1, then LID infiltration BMPs shall be implemented to the MEP (section 4.1 of the TGD for WQMP).

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Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): 35,142 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*			
BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA 1 BMP-1	N/A	N/A
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*	37		
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	3		
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	12.3		
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48		
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*	6.75		
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	6.75		
8 Infiltrating surface area, SA_{BMP} (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	9,524		
9 Amended soil depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*			
10 Amended soil porosity			
11 Gravel depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*			
12 Gravel porosity			
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*			
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*			
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	41,245		
16 Total Retention Volume from LID Infiltration BMPs: 41,245 *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*			
17 Fraction of DCV achieved with infiltration BMP: 117% *Retention% = Item 16 / Form 4.2-1 Item 7*			
18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☒ No ☐ *If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.*			

4.3.3 Harvest and Use BMP

Harvest and use BMP may be considered if the full LID DCV cannot be met by maximizing infiltration BMPs. Use Form 4.3-4 to compute on-site retention of runoff from proposed harvest and use BMPs.

Volume retention estimates for harvest and use BMPs are sensitive to the on-site demand for captured stormwater. Since irrigation water demand is low in the wet season, when most rainfall events occur in San Bernardino County, the volume of water that can be used within a specified drawdown period is relatively low. The bottom portion of Form 4.3-4 facilitates the necessary computations to show infeasibility if a minimum incremental benefit of 40 percent of the LID DCV would not be achievable with MEP implementation of on-site harvest and use of stormwater (Section 5.5.4 of the TGD for WQMP).

Form 4.3-4 Harvest and Use BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC or infiltration BMP (ft^3): 0
V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16

BMP Type(s) *Compute runoff volume retention from proposed harvest and use BMP (Select BMPs from Table 5-4 of the TGD for WQMP) - Use additional forms for more BMPs*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Describe cistern or runoff detention facility			
3 Storage volume for proposed detention type (ft^3) *Volume of cistern*			
4 Landscaped area planned for use of harvested stormwater (ft^2)			
5 Average wet season daily irrigation demand (in/day) Use local values, typical ~ 0.1 in/day			
6 Daily water demand (ft^3/day) *Item 4 * (Item 5 / 12)*			
7 Drawdown time (hrs) *Copy Item 6 from Form 4.2-1*			
8 Retention Volume (ft^3) *$V_{retention}$ = Minimum of (Item 3) or (Item 6 * (Item 7 / 24))*			

9 Total Retention Volume (ft^3) from Harvest and Use BMP *Sum of Item 8 for all harvest and use BMP included in plan*

10 Is the full DCV retained with a combination of LID HSC, retention and infiltration, and harvest & use BMPs? Yes ☒ No ☐

If yes, demonstrate conformance using Form 4.3-10. If no, then re-evaluate combinations of all LID BMP and optimize their implementation such that the maximum portion of the DCV is retained on-site (using a single BMP type or combination of BMP types). If the full DCV cannot be mitigated after this optimization process, proceed to Section 4.3.4.

4.3.4 Biotreatment BMP

Biotreatment BMPs may be considered if the full LID DCV cannot be met by maximizing retention and infiltration, and harvest and use BMPs. A key consideration when using biotreatment BMP is the effectiveness of the proposed BMP in addressing the pollutants of concern for the project (see Table 5-5 of the TGD for WQMP).

Use Form 4.3-5 to summarize the potential for volume based and/or flow based biotreatment options to biotreat the remaining unmet LID DCV w. Biotreatment computations are included as follows:

- Use Form 4.3-6 to compute biotreatment in small volume based biotreatment BMP (e.g. bioretention w/underdrains);
- Use Form 4.3-7 to compute biotreatment in large volume based biotreatment BMP (e.g. constructed wetlands);
- Use Form 4.3-8 to compute sizing criteria for flow-based biotreatment BMP (e.g. bioswales)

Form 4.3-5 Selection and Evaluation of Biotreatment BMP (DA 1)

1 Remaining LID DCV not met by site design HSC, infiltration, or harvest and use BMP for potential biotreatment (ft^3): *Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16- Form 4.3-4 Item 9*	List pollutants of concern *Copy from Form 2.3-1.* N/A	
2 Biotreatment BMP Selected *(Select biotreatment BMP(s) necessary to ensure all pollutants of concern are addressed through Unit Operations and Processes, described in Table 5-5 of the TGD for WQMP)*	Volume-based biotreatment *Use Forms 4.3-6 and 4.3-7 to compute treated volume*	Flow-based biotreatment *Use Form 4.3-8 to compute treated volume*
	☐ Bioretention with underdrain ☐ Planter box with underdrain ☐ Constructed wetlands ☐ Wet extended detention ☐ Dry extended detention	☐ Vegetated swale ☐ Vegetated filter strip ☐ Proprietary biotreatment
3 Volume biotreated in volume based biotreatment BMP (ft^3): *Form 4.3-6 Item 15 + Form 4.3-7 Item 13*	4 Compute remaining LID DCV with implementation of volume based biotreatment BMP (ft^3): *Item 1 – Item 3*	5 Remaining fraction of LID DCV for sizing flow based biotreatment BMP: % *Item 4 / Item 1*
6 Flow-based biotreatment BMP capacity provided (cfs): *Use Figure 5-2 of the TGD for WQMP to determine flow capacity required to provide biotreatment of remaining percentage of unmet LID DCV (Item 5), for the project's precipitation zone (Form 3-1 Item 1)*		
7 Metrics for MEP determination: • Provided a WQMP with the portion of site area used for suite of LID BMP equal to minimum thresholds in Table 5-7 of the TGD for WQMP for the proposed category of development: ☐ *If maximized on-site retention BMPs is feasible for partial capture, then LID BMP implementation must be optimized to retain and infiltrate the maximum portion of the DCV possible within the prescribed minimum effective area. The remaining portion of the DCV shall then be mitigated using biotreatment BMP.*		

Form 4.3-6 Volume Based Biotreatment (DA 1) – Bioretention and Planter Boxes with Underdrains

Biotreatment BMP Type *(Bioretention w/underdrain, planter box w/underdrain, other comparable BMP)*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*			
2 Amended soil infiltration rate *Typical ~ 5.0*			
3 Amended soil infiltration safety factor *Typical ~ 2.0*			
4 Amended soil design percolation rate (in/hr) P_{design} *= Item 2 / Item 3*			
5 Ponded water drawdown time (hr) *Copy Item 6 from Form 4.2-1*			
6 Maximum ponding depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 4 * Item 5) or Item 6*			
8 Amended soil surface area (ft^2)			
9 Amended soil depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Amended soil porosity, *n*			
11 Gravel depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
12 Gravel porosity, *n*			
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*			
14 Biotreated Volume (ft^3) $V_{biotreated}$ *= Item 8 * [(Item 7/2) + (Item 9 * Item 10) +(Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*			
15 Total biotreated volume from bioretention and/or planter box with underdrains BMP: *Sum of Item 14 for all volume-based BMPs included in this form*			

Form 4.3-7 Volume Based Biotreatment (DA 1) – Constructed Wetlands and Extended Detention

Biotreatment BMP Type *Constructed wetlands, extended wet detention, extended dry detention, or other comparable proprietary BMP. If BMP includes multiple modules (e.g. forebay and main basin), provide separate estimates for storage and pollutants treated in each module.*	DA DMA BMP Type		DA DMA BMP Type *(Use additional forms for more BMPs)*	
	Forebay	Basin	Forebay	Basin
1 Pollutants addressed with BMP forebay and basin *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*				
2 Bottom width (ft)				
3 Bottom length (ft)				
4 Bottom area (ft^2) A_{bottom} = *Item 2 * Item 3*				
5 Side slope (ft/ft)				
6 Depth of storage (ft)				
7 Water surface area (ft^2) $A_{surface}$ =*(Item 2 + (2 * Item 5 * Item 6)) * (Item 3 + (2 * Item 5 * Item 6))*				
8 Storage volume (ft^3) *For BMP with a forebay, ensure fraction of total storage is within ranges specified in BMP specific fact sheets, see Table 5-6 of the TGD for WQMP for reference to BMP design details* V =*Item 6 / 3 * [Item 4 + Item 7 + (Item 4 * Item 7)^0.5]*				
9 Drawdown Time (hrs) *Copy Item 6 from Form 2.1*				
10 Outflow rate (cfs) Q_{BMP} = *(Item* $8_{forebay}$ + *Item* 8_{basin}*) / (Item 9 * 3600)*				
11 Duration of design storm event (hrs)				
12 Biotreated Volume (ft^3) $V_{biotreated}$ = *(Item* $8_{forebay}$ + *Item* 8_{basin}*) +(Item 10 * Item 11 * 3600)*				
13 Total biotreated volume from constructed wetlands, extended dry detention, or extended wet detention : *(Sum of Item 12 for all BMP included in plan)*				

Form 4.3-8 Flow Based Biotreatment (DA 1)			
Biotreatment BMP Type *Vegetated swale, vegetated filter strip, or other comparable proprietary BMP*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in TGD Table 5-5*			
2 Flow depth for water quality treatment (ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
3 Bed slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
4 Manning's roughness coefficient			
5 Bottom width (ft) b_w = *(Form 4.3-5 Item 6 * Item 4) / (1.49 * Item 2^1.67 * Item 3^0.5)*			
6 Side Slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Cross sectional area (ft^2) *A = (Item 5 * Item 2) + (Item 6 * Item 2^2)*			
8 Water quality flow velocity (ft/sec) *V = Form 4.3-5 Item 6 / Item 7*			
9 Hydraulic residence time (min) *Pollutant specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Length of flow based BMP (ft) *L = Item 8 * Item 9 * 60*			
11 Water surface area at water quality flow depth (ft^2) SA_{top} = *(Item 5 + (2 * Item 2 * Item 6)) * Item 10*			

4.3.5 Conformance Summary

Complete Form 4.3-9 to demonstrate how on-site LID DCV is met with proposed site design hydrologic source control, infiltration, harvest and use, and/or biotreatment BMP. The bottom line of the form is used to describe the basis for infeasibility determination for on-site LID BMP to achieve full LID DCV, and provides methods for computing remaining volume to be addressed in an alternative compliance plan. If the project has more than one outlet, then complete additional versions of this form for each outlet.

Form 4.3-9 Conformance Summary and Alternative Compliance Volume Estimate (DA 1)

1 Total LID DCV for the Project DA-1 (ft^3): 35,142 *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft^3): 0 *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft^3): 41,245 *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft^3): 0 *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft^3): 0 *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): 0 *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes ☒ No ☐
  If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes ☐ No ☒
  If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3--5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes ☐ No ☒
  If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture: ☐
  Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, V_{alt} *= (Item 1 – Item 2 – Item 3 – Item 4 – Item 5) * (100 - Form 2.4-1 Item 2)%*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility: ☐
  Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

4.3.6 Hydromodification Control BMP

Use Form 4.3-10 to compute the remaining runoff volume retention, after LID BMP are implemented, needed to address HCOC, and the increase in time of concentration and decrease in peak runoff necessary to meet targets for protection of waterbodies with a potential HCOC. Describe hydromodification control BMP that address HCOC, which may include off-site BMP and/or in-stream controls. Section 5.6 of the TGD for WQMP provides additional details on selection and evaluation of hydromodification control BMP.

Form 4.3-10 Hydromodification Control BMPs (DA 1)

1 Volume reduction needed for HCOC performance criteria (ft^3): N/A *(Form 4.2-2 Item 4 * 0.95) – Form 4.2-2 Item 1*	2 On-site retention with site design hydrologic source control, infiltration, and harvest and use LID BMP (ft^3): *Sum of Form 4.3-9 Items 2, 3, and 4 Evaluate option to increase implementation of on-site retention in Forms 4.3-2, 4.3-3, and 4.3-4 in excess of LID DCV toward achieving HCOC volume reduction*
3 Remaining volume for HCOC volume capture (ft^3): *Item 1 – Item 2*	4 Volume capture provided by incorporating additional on-site or off-site retention BMPs (ft^3): *Existing downstream BMP may be used to demonstrate additional volume capture (if so, attach to this WQMP a hydrologic analysis showing how the additional volume would be retained during a 2-yr storm event for the regional watershed)*

5 If Item 4 is less than Item 3, incorporate in-stream controls on downstream waterbody segment to prevent impacts due to hydromodification ☐ *Attach in-stream control BMP selection and evaluation to this WQMP*

6 Is Form 4.2-2 Item 11 less than or equal to 5%: Yes ☐ No ☐

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate increase in time of concentration achieved by proposed LID site design, LID BMP, and additional on-site or off-site retention BMP ☐
  BMP upstream of a waterbody segment with a potential HCOC may be used to demonstrate increased time of concentration through hydrograph attenuation (if so, show that the hydraulic residence time provided in BMP for a 2-year storm event is equal or greater than the addition time of concentration requirement in Form 4.2-4 Item 15)
- Increase time of concentration by preserving pre-developed flow path and/or increase travel time by reducing slope and increasing cross-sectional area and roughness for proposed on-site conveyance facilities ☐
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

7 Form 4.2-2 Item 12 less than or equal to 5%: Yes ☐ No ☐

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate reduction in peak runoff achieved by proposed LID site design, LID BMPs, and additional on-site or off-site retention BMPs ☐
  BMPs upstream of a waterbody segment with a potential HCOC may be used to demonstrate additional peak runoff reduction through hydrograph attenuation (if so, attach to this WQMP, a hydrograph analysis showing how the peak runoff would be reduced during a 2-yr storm event)
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

4.4 Alternative Compliance Plan (if applicable)

Describe an alternative compliance plan (if applicable) for projects not fully able to infiltrate, harvest and use, or biotreat the DCV via on-site LID practices. A project proponent must develop an alternative compliance plan to address the remainder of the LID DCV. Depending on project type some projects may qualify for water quality credits that can be applied to reduce the DCV that must be treated prior to development of an alternative compliance plan (see Form 2.4-1, Water Quality Credits). Form 4.3-9 Item 8 includes instructions on how to apply water quality credits when computing the DCV that must be met through alternative compliance. Alternative compliance plans may include one or more of the following elements:

- On-site structural treatment control BMP - All treatment control BMP should be located as close to possible to the pollutant sources and should not be located within receiving waters;
- Off-site structural treatment control BMP - Pollutant removal should occur prior to discharge of runoff to receiving waters;
- Urban runoff fund or In-lieu program, if available

Depending upon the proposed alternative compliance plan, approval by the executive officer may or may not be required (see Section 6 of the TGD for WQMP).

Section 5 Inspection and Maintenance Responsibility for Post Construction BMP

All BMP included as part of the project WQMP are required to be maintained through regular scheduled inspection and maintenance (refer to Section 8, Post Construction BMP Requirements, in the TGD for WQMP). Fully complete Form 5-1 summarizing all BMP included in the WQMP. Attach additional forms as needed. The WQMP shall also include a detailed Operation and Maintenance Plan for all BMP and may require a Maintenance Agreement (consult the jurisdiction's LIP). If a Maintenance Agreement is required, it must also be attached to the WQMP.

Form 5-1 BMP Inspection and Maintenance (use additional forms as necessary)

BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
Litter/Debris Control Program SD-32, N11, N15, S3	Owner	Litter shall be picked up, trash enclosure areas shall be swept and cleaned, dumpsters shall be emptied per CASQA BMP SC-34.	Weekly
Housekeeping of Loading Docks N13	Owner	Loading docks shall be inspected to ensure proper maintenance is completed.	Weekly
Catch Basin Inspection Program SD-11, N14, S1	Owner	Catch basins shall be inspected to ensure proper operation, debris accumulation levels and "No Dumping" message legibility, and to look for evidence of illegal/illicit dumping of pollutants into drains. All observed incidents shall be reported to owner for investigation and determination of source – to prevent future occurrences.	Monthly and before and after each storm event
Parking Lot Sweeping CASQA BMPs SC-43, SC-71	Owner	Parking lots, loading dock areas, and drive aisles shall be vacuum swept by a contractor or staff member, using a commercial sweeper.	Monthly (Minimum), Weekly during rainy season (Oct-May)
Landscape Management	Owner	Gardening and landscape maintenance to prevent landscape waste to exit project site per CASQA BMPs SC-41 and SC-73.	Weekly

SC-73, SD-10, SD-12, N3, S4, S5			
ADS Stormtech CHamber N4	Owner	See manufacturer information in O&M information. See Appendix D	See manufacturer information in O&M information. See Appendix D
N1, N2, N6, N12, N17	Owner	Educational material distributed to maintain compliance of activity restrictions, local water quality ordinances, and employee training	As Needed
Hydrodynamic (Gravity) Separator	Owner	See manufacturer information in O&M information. See Appendix D	See manufacturer information in O&M information. See Appendix D.

Section 6 WQMP Attachments

6.1. Site Plan and Drainage Plan

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural Source Control BMP locations
- Site Design Hydrologic Source Control BMP locations
- LID BMP details
- Drainage delineations and flow information
- Drainage connection

6.2 Electronic Data Submittal

Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their local Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

Digital copies of the Approved Final WQMP will be provided to the project owner and the City of Rialto through email.

6.3 Post Construction

Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

6.4 Other Supporting Documentation

- BMP Educational Materials
- Activity Restriction – C, C&R's & Lease Agreements

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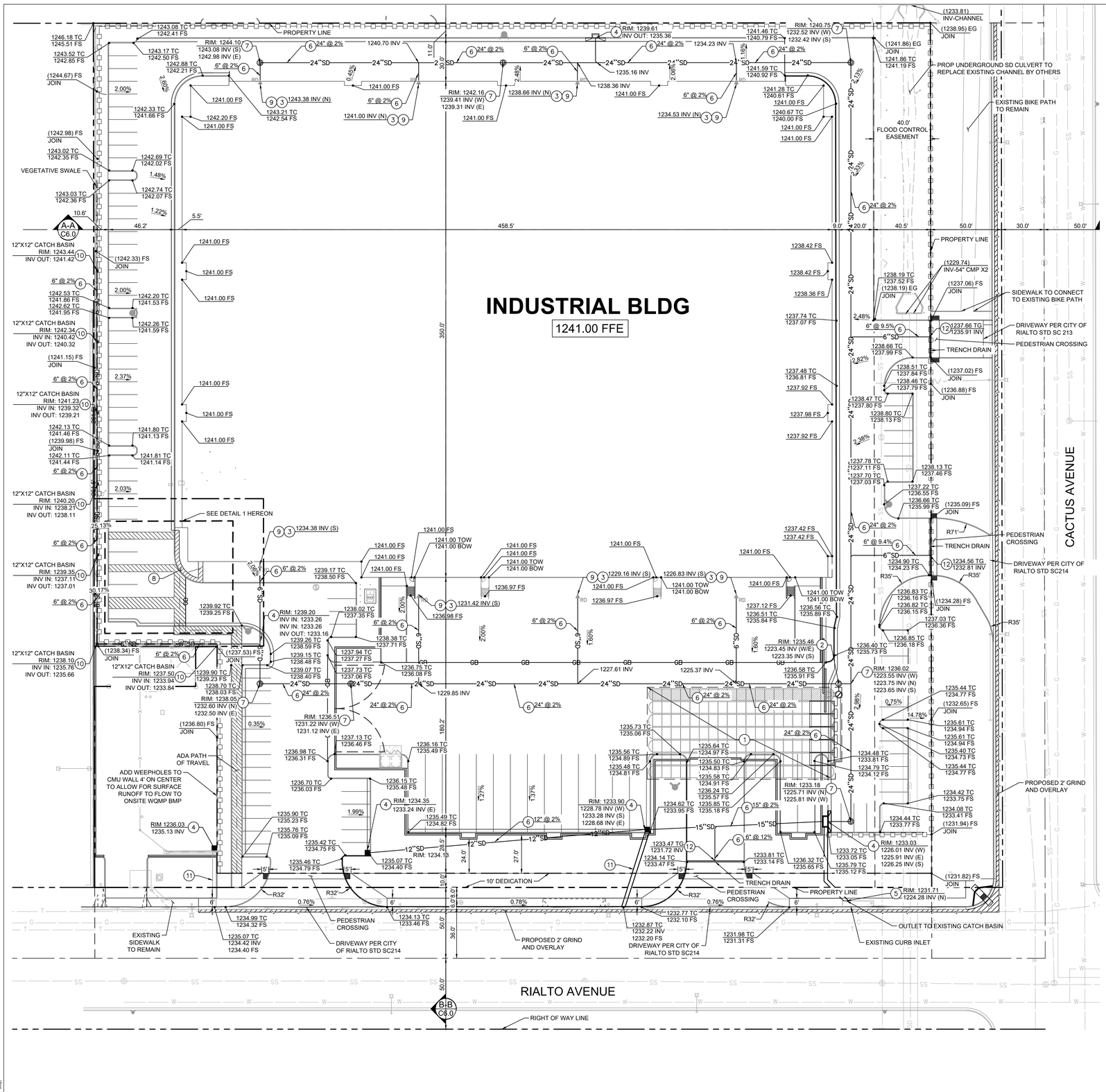
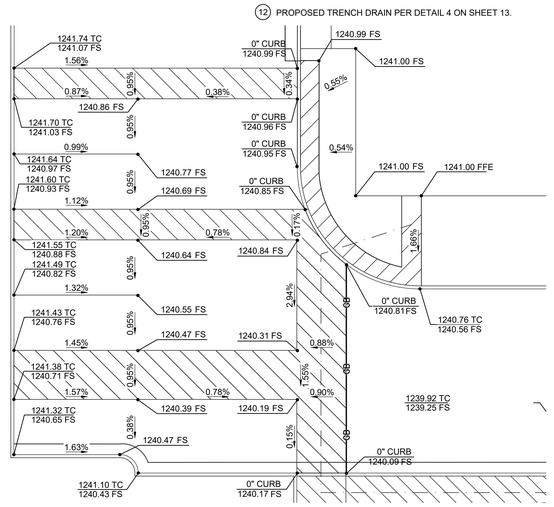
- Drainage connection

Attachment A – Site Plan





GRAPHIC SCALE IN FEET
0 15 30 60

EARTHWORK QUANTITIES			
Project 160 N CACTUS AVE			
DATE: 9/20/2022			
EARTHWORK			
LOT SIZE (ACRES)			7.69
STREET IMPROVEMENTS (ACRES)			0.17
TOTAL SIZE (ACRES)			**7.86**
RAW CAD EARTHWORK			
CUT (CU. YD.)			4,281
FILL (CU. YD.)			12,852
Cut Factor			1
Fill Factor			1
NET FILL (CU. YD.)			**8,571**
ADDITIONAL EARTHWORK			
	QUANTITY	UNITS	CuYd
Building Slab (6"PCC over 6" Base)	161,713	SF	5,989
Building Slab Depth	12	IN	
Light Duty Concrete Pavement (3"AC over 4" Base)	19,128	SF	413
Section	7	IN	
Heavy Duty Concrete Pavement (4"AC over 4" Base)	91,880	SF	2,269
Section	8	IN	
Truck Loading Dock (6"PCC over 6" Base)	18,630	SF	690
Section	12	IN	
Sidewalk	4,050	SF	62
Section	5	IN	
Underground Basin	38,236	CF	1,416
ADDITIONAL CUT SUM (CU. YD.)			**10,840**
CUT FACTOR (Shrinkage)			**1.00**
NET CUT			**10,839.95**
ESTIMATED EARTHWORK			
LOT SIZE			7.69
CUT (CU. YD.)			15,121
FILL (CU. YD.)			12,852
NET CUT (C Yd.)			**-2,269**

LEGEND

PROPERTY BOUNDARY
PROPERTY LINE / RIGHT-OF-WAY
CENTERLINE
EASEMENT
SETBACK
PROPOSED CONTOUR 1390
EXISTING CONTOUR 1390
RIDGE LINE R R
GRADING LIMITS
GRADE BREAK GB GB
RETAINING WALL
VALLEY GUTTER
FENCE TUBULAR STEEL
STORM LINE
RIBBON GUTTER
EX. BLOCK WALL
STORM DRAIN MANHOLE
POINT OF CONNECTION
BACKFLOW PREVENTOR
FIRE HYDRANT
FIRE DEPARTMENT CONNECTION
POST INDICATOR VALUE
WATER METER
CURB INLET
GRATE INLET
LANDSCAPE
HEAVY DUTY CONCRETE PAVEMENT (6.5") PER GEOTECH REPORT
LIGHT DUTY CONCRETE PAVEMENT (5")
CONCRETE SIDEWALK
ADA PATH OF TRAVEL

ABBREVIATIONS

AC	ACRES	GB	GRADE BREAK
APN	ASSESSOR'S PARCEL NUMBER	IE	INVERT ELEVATION
BLDG	BUILDING	LP	LOW POINT
BW	BOTTOM OF WALL	MH	MANHOLE
C&G	CURB AND GUTTER	PIV	POST INDICATOR VALVE
CON	CONCRETE	PL	PROPERTY LINE
CU. YD	CUBIC YARD	POC	POINT OF CONNECTION
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY	PROP	PROPOSED
E'LY	EASTERLY	PVMT	PAVEMENT
EG	EXISTING GRADE	R/W	RIGHT-OF-WAY
ESMT	EASEMENT	RET	RETAINING
EX	EXISTING	S/W	SIDEWALK
FDC	FIRE DEPARTMENT CONNECTION	SD	STORM DRAIN
FF	FINISHED FLOOR ELEVATION	SF	SQUARE FEET
FG	FINISHED GRADE	TC	TOP OF CURB
FH	FIRE HYDRANT	TW	TOP OF WALL
FL	FLOW LINE	TYP	TYPICAL
FS	FINISHED SURFACE	W'LY	WESTERLY
FW	FIRE WATER		

EARTHWORK NOTES

1. VALUES FOR PAVEMENT, SIDEWALK & BUILDING SLABS ARE ASSUMPTIONS AND WILL NEED TO BE VERIFIED WITH A GEOTECH ENGINEER.
2. SOIL EXPANSION WAS NOT CONSIDERED IN THE FINAL CALCS.
3. UTILITY TRENCHING NOT CONSIDERED IN THE FINAL CALCS.

GRADING KEYNOTES

		QTY.
1	PROPOSED STORMTECH MC-7200 INFILTRATION CHAMBER PER DETAIL 1 ON SHEET 14.	1 EA
2	PROPOSED PRE-TREATMENT SYSTEM (CONTECH CDS-UNIT) PER DETAIL 2 ON SHEET 14.	1 EA
3	PROPOSED BUILDING POINT OF CONNECTION. REFER TO PLUMBING PLANS FOR CONTINUATION.	8 EA
4	PROPOSED 4' CURB OPENING CATCH BASIN PER SPPWC 300-4.	5 EA
5	CONNECT TO EXISTING CATCH BASIN. INVERT PER PLAN.	1 EA
6	PROPOSED STORM DRAIN PIPE. SLOPE AND SIZE PER PLAN.	2,623 LF
7	PROPOSED 4' Ø STORM DRAIN MANHOLE.	7 EA
8	PROPOSED CURB RAMP PER SPPWC 111-5 CASE B TYPE 1.	1 EA
9	PROPOSED ROOF DRAINS.	8 EA
10	PROPOSED 12"X12" CATCH BASIN PER SPPWC 300-4.	7 EA
11	PROPOSED EMERGENCY OVERFLOW 2.5'W X 4"H PARKWAY DRAIN PER DETAIL 8 ON SHEET 13. OUTLET TO LOCATION PER PLAN.	2 EA
12	PROPOSED TRENCH DRAIN PER DETAIL 4 ON SHEET 13.	3 EA

UNDERGROUND SERVICE ALERT
CALL BEFORE YOU DIG
CALL:TOLL FREE
1-800 642-2444
TWO WORKING DAYS BEFORE YOU DIG

MARK	REVISIONS	APPR.	DATE

DESIGNED BY: MS DRAWN BY: AV CHECKED BY: DD

SEAL-DESIGN ENGINEER
REGISTERED PROFESSIONAL ENGINEER DANH DUONG No. C84238 CIVIL STATE OF CALIFORNIA
DATE: 5/4/2023

PREPARED UNDER THE SUPERVISION OF:
DANH DUONG, RCE 84238 DATE
RECOMMENDED FOR APPROVAL BY ENGINEERING RESOURCES OF SOUTHER CALIFORNIA:
JOHN M. BRUDIN, RCE 41836 DATE
APPROVED BY:
ALBERTO BENTO PAIVA JR, RCE C53534 DATE

Kimley»Horn
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660 S. FIGUEROA STREET, SUITE 2050, LOS ANGELES, CA 90017
PHONE: (213) 261-4040
WWW.KIMLEY-HORN.COM

BENCH MARK: CITY OF RIALTO BENCHMARK NO. "030-88" ELEVATION= 1230.373 FEET
DESCRIPTION: CITY OF RIALTO BRASS DISC SET IN N/W CORNER PCC CATCH BASIN 4FT WEST OF CURB 39FT WEST OF CENTERLINE CACTUS AVENUE 60FT NORTH OF CENTERLINE RIALTO AVENUE.

CITY OF RIALTO
160 N CACTUS AVE
ON-SITE IMPROVEMENT PLANS
GRADING AND DRAINAGE PLAN

8 OF 14 SHEETS

FOR: 160 N CACTUS AVENUE
PLAN No. _____

Plotted By:Rodriguez, Rafael Sheet Set:Kha Layout:GRADING AND DRAINAGE PLAN May 09, 2023 01:17:55pm K:\LDT_LDEV\09976603-160 N Cactus Ave\CAD\PlanSheets\C6.0 GRADING AND DRAINAGE PLAN.dwg
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LEGEND

- PROPOSED CONTOUR
- PROPERTY LINE
- DA BOUNDARY
- FLOW ARROW
- DA XX / XX AC — DRAINAGE AREA NAME / AREA (IN ACRES)
- RIGHT-OF-WAY
- SD — PROPOSED STORM DRAIN
- ROOF DRAIN DISCHARGE TO SURFACE
- NEW OR REPLACED HARDSCAPE AREA
- LANDSCAPE/PLANTER AREA
- INFILTRATION CHAMBERS

STRUCTURAL BMP NOTES

1. BMP #1: STORMTECH MC-7200 INFILTRATION CHAMBER PER DETAILS ON SHEET 2
2. CURB INLET
3. STORM DRAIN PIPE
4. ISOLATOR ROW INSPECTION/MAINTENANCE STRUCTURE
5. BMP #2 – CONTECH CDS HYDRODYNAMIC SEPARATOR, MODEL #CDS5640-10-C PER DETAIL ON SHEET 3.
6. EMERGENCY OVERFLOW CURB DRAINS
7. FULL TRASH CAPTURE 5MM SCREEN FILTERS.

STRUCTURAL SOURCE CONTROL BMP NOTES

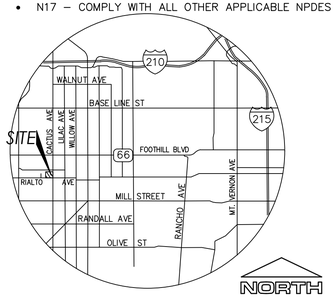
- S1: STORM DRAIN INLET – MARK ALL INLETS WITH WORDS "ONLY RAIN DOWN THE STORM DRAIN" OR SIMILAR. ALL CATCH BASINS WILL BE INSTALLED WITH ALMETEK 4" DIAMETER METAL PLACARDS WITH A "NO DUMPING" MESSAGE ON THE SILVER/BLUE FISH DESIGN.
- S3: BUILDING DESIGN FEATURES TO DISCOURAGE ENTRY OF PESTS.
- S4: LANDSCAPE DESIGN TO MINIMIZE THE USE OF FERTILIZERS AND PESTICIDES: LANDSCAPE PALATE TO CONSIST OF PLANTS APPROPRIATE FOR SITE SOILS, SLOPES, CLIMATE, SUN, WING, RAIN, AND LAND USE.
- S5: ROOFED TRASH ENCLOSURE WITH DUMPSTERS; KEEP LIDS CLOSED AND AREA CLEAN.
- S10: PLAZAS SIDEWALKS AND PARKING LOTS TO BE SWEPT CLEAN REGULARLY TO PREVENT THE ACCUMULATION OF LITTER AND DEBRIS.

NON-STRUCTURAL SOURCE CONTROL BMP NOTES

- N1: N3 – LANDSCAPE MANAGEMENT BMPS
- N2: N4 – BMP MAINTENANCE
- N3: N13 – HOUSEKEEPING OF LOADING DOCKS
- N4: N14 – CATCH BASIN INSPECTION PROGRAM
- N5: N15 – VACUUM SWEEPING OF PRIVATE STREETS AND PARKING LOTS

THE FOLLOWING BMPS MAY BE APPLICABLE THROUGHOUT THE SITE AS NEEDED PER FORM 4.1-1 IN PROJECT WQMP FOR DETAILS.

- N1 – EDUCATION OF PROPERTY OWNERS, TENANTS, AND OCCUPANTS ON STORMWATER BMPS
- N2 – ACTIVITY RESTRICTIONS
- N6 – LOCAL WATER QUALITY ORDINANCES
- N11 – LITTER/DEBRIS CONTROL PROGRAM
- N12 – EMPLOYEE TRAINING
- N17 – COMPLY WITH ALL OTHER APPLICABLE NPDES PERMITS



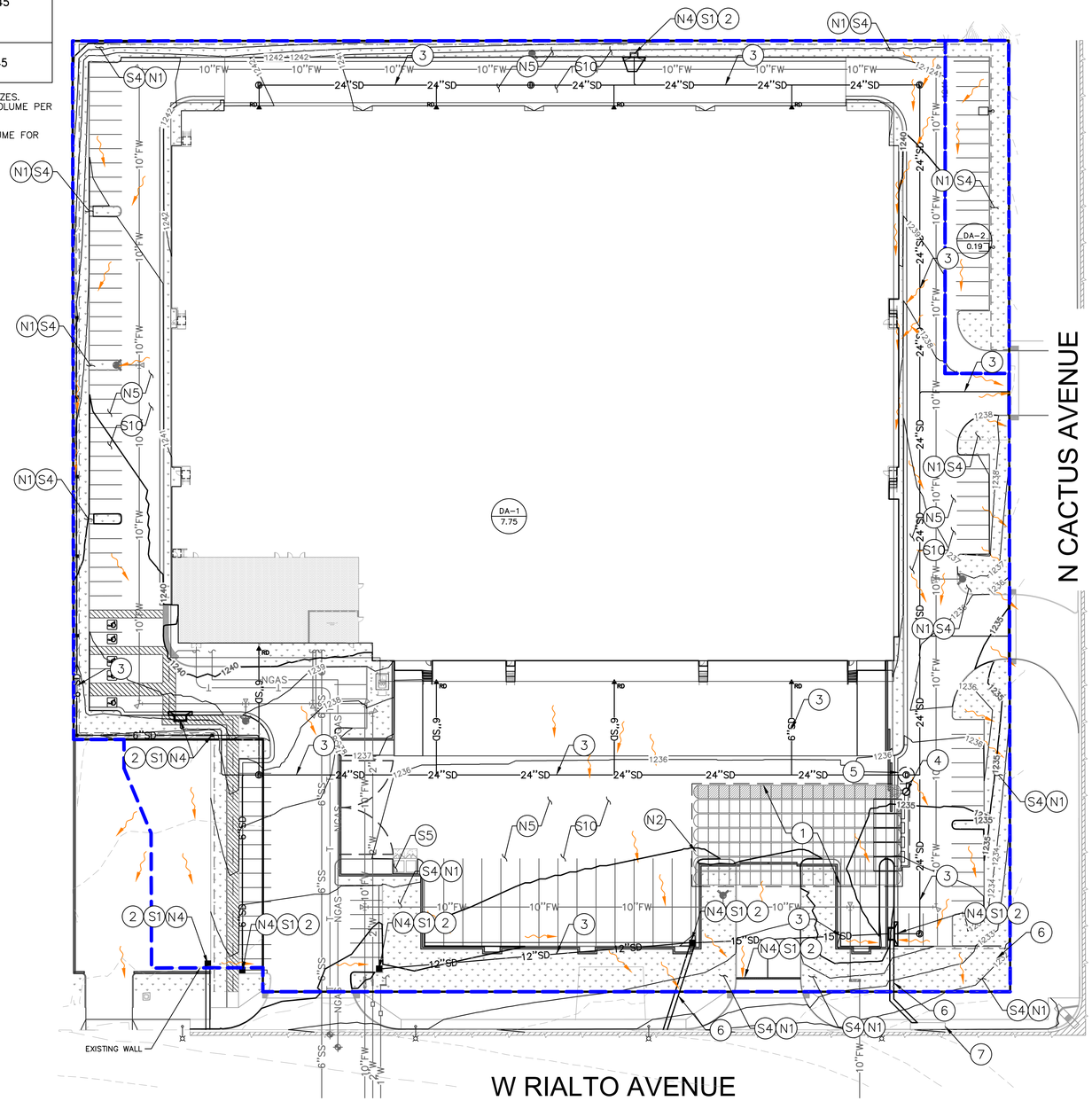
VICINITY MAP

THOMAS GUIDE PAGE, 605, F1
NOT TO SCALE

DRAINAGE AREA SUMMARY:				
DRAINAGE AREA	AREA (AC)	BMP ID	WATER QUALITY VOLUME (CF)	VOLUME PROVIDED (CF)
1	7.75	1	35,142	41,245
2	0.19			
TOTAL	7.94		35142	41245

REFER TO PROJECT CONSTRUCTION DOCUMENTS FOR PROPOSED STORM DRAIN AND INVERT SIZES. INFILTRATION CHAMBERS HAVE BEEN DESIGNED TO ALSO RETAIN THE REQUIRED DETENTION VOLUME PER THE PROJECT'S HYDROLOGY STUDY.

BMP CONSTRUCTED DURING PHASE 1 OF THE PROJECT WILL TREAT THE WATER QUALITY VOLUME FOR BOTH PHASES.



BMP NOTE: S1

PROPOSED LAYOUT

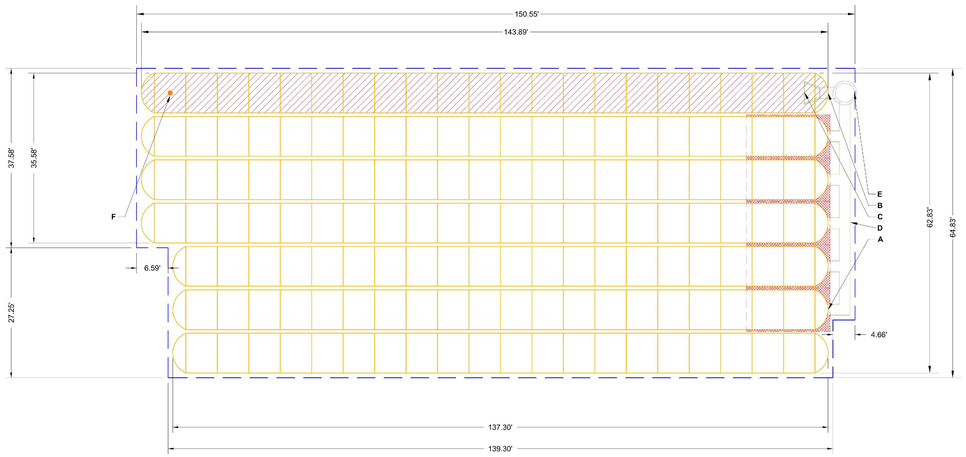
144	STORMTECH MC-7200 CHAMBERS
14	STORMTECH MC-7200 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
41,245	**INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)**
9,524	SYSTEM AREA (ft²)
431	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS

1235.73	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
1231.23	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
1230.73	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
1230.73	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
1230.73	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
1229.73	TOP OF STONE
1228.73	TOP OF MC-7200 CHAMBER
1225.65	24" TOP MANIFOLD INVERT
1223.92	24" ISOLATOR ROW PLUS CONNECTION INVERT
1223.73	BOTTOM OF MC-7200 CHAMBER
1222.98	BOTTOM OF STONE

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	24" TOP PARTIAL CUT END CAP, PART#: MC7200IEPP24T / TYP OF ALL 24" TOP CONNECTIONS	23.05"	
PREFABRICATED END CAP	B	24" BOTTOM PARTIAL CUT END CAP, PART#: MC7200IEPP24B / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.26"	
FLAMP	C	INSTALL FLAMP ON 24" ACCESS PIPE / PART#: MC720024RAMP		
MANIFOLD	D	24" x 24" TOP MANIFOLD, ADS N-12	23.05"	
CONCRETE STRUCTURE	E	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		33.2 CFS IN
INSPECTION PORT	F	4" SEE DETAIL		



ISOLATOR ROW PLUS (SEE DETAIL)

PLACE MINIMUM 17.53' OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.

160 N CACTUS
RIALTO, CA, USA
DATE: 01/31/23 | DRAWN: AMC
PROJECT #: S335291 | CHECKED: JPR

DATE	BY	CHK	REVISE - UPDATED VOLUME DESCRIPTION
02/21/23	PME	RWD	

StormTech® Chamber System
888-892-2694 | WWW.STORMTECH.COM

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

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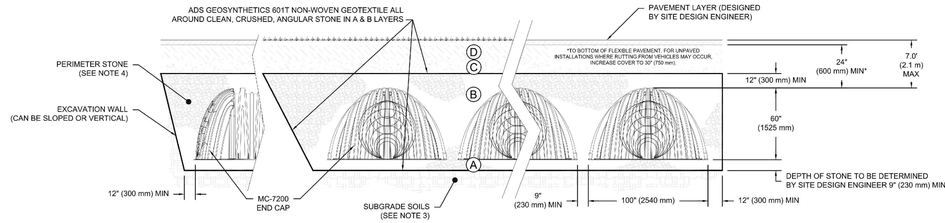
SHEET
2 OF 5

ACCEPTABLE FILL MATERIALS: STORMTECH MC-7200 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-7200 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%, THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

160 N CACTUS
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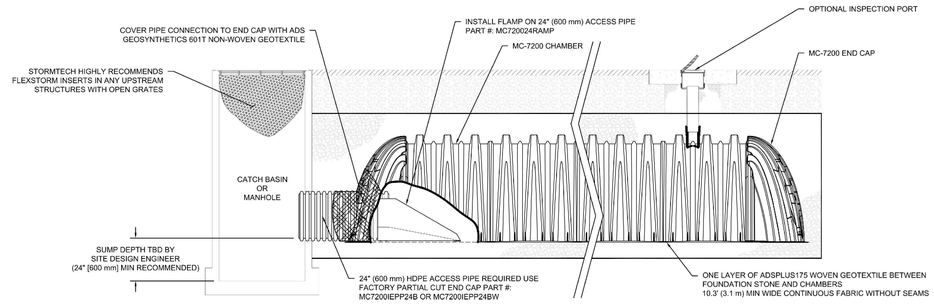
SHEET
3 OF 5



MC-7200 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

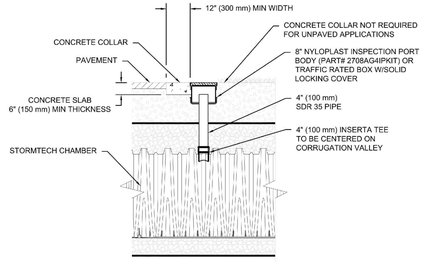
STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)
NTS

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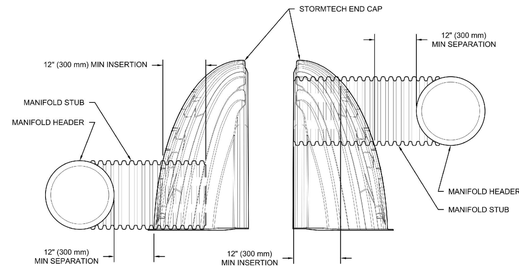
SHEET
4 OF 5

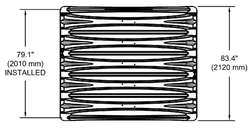
MC-SERIES END CAP INSERTION DETAIL
NTS

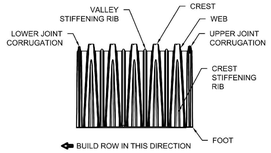


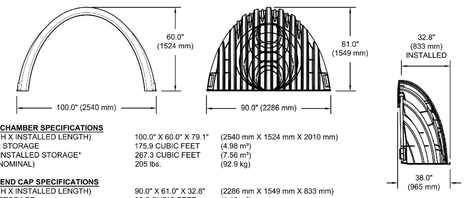
NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

MC-7200 TECHNICAL SPECIFICATION

NTS







NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 79.1"	(2540 mm X 1524 mm X 2010 mm)
CHAMBER STORAGE	175.9 CUBIC FEET	(4.98 m³)
MINIMUM INSTALLED STORAGE*	267.3 CUBIC FEET	(7.56 m³)
WEIGHT (NOMINAL)	205 lbs.	(92.9 kg)

NOMINAL END CAP SPECIFICATIONS

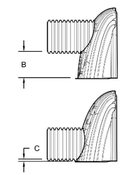
SIZE (W X H X INSTALLED LENGTH)	90.0" X 61.0" X 32.8"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC7200IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC7200IEPP06B		---	0.86" (22 mm)
MC7200IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC7200IEPP08B		---	1.01" (26 mm)
MC7200IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC7200IEPP10B		---	1.33" (34 mm)
MC7200IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC7200IEPP12B		---	1.55" (39 mm)
MC7200IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC7200IEPP15B		---	1.70" (43 mm)
MC7200IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC7200IEPP18TW			
MC7200IEPP18B		---	1.97" (50 mm)
MC7200IEPP18BW			
MC7200IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC7200IEPP24TW			
MC7200IEPP24B		---	2.26" (57 mm)
MC7200IEPP24BW			
MC7200IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC7200IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC7200IEPP42BW	42" (1050 mm)	---	3.55" (80 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PREFABRICATED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-7200 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

160 N CACTUS
RIALTO, CA, USA
DATE: 01/31/23 | DRAWN: AMC
PROJECT #: S335291 | CHECKED: JPR

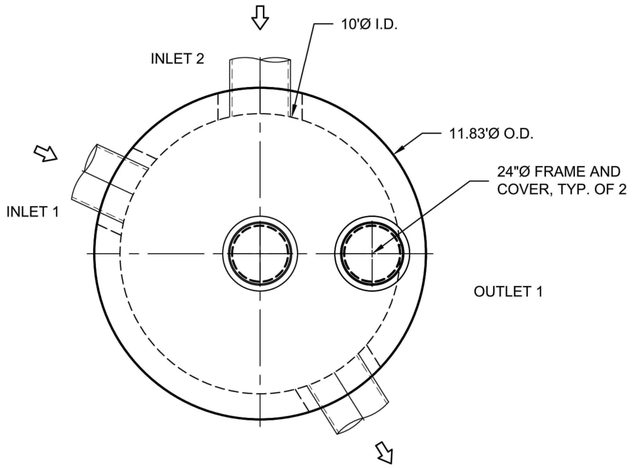
DATE	BY	CHK	REVISE - UPDATED VOLUME DESCRIPTION
02/21/23	PME	RWD	

StormTech® Chamber System
888-892-2694 | WWW.STORMTECH.COM

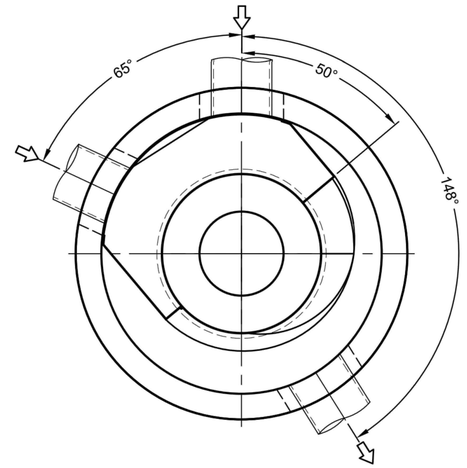
ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCTS DEPICTED AND ALL ASSOCIATED BMPS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS

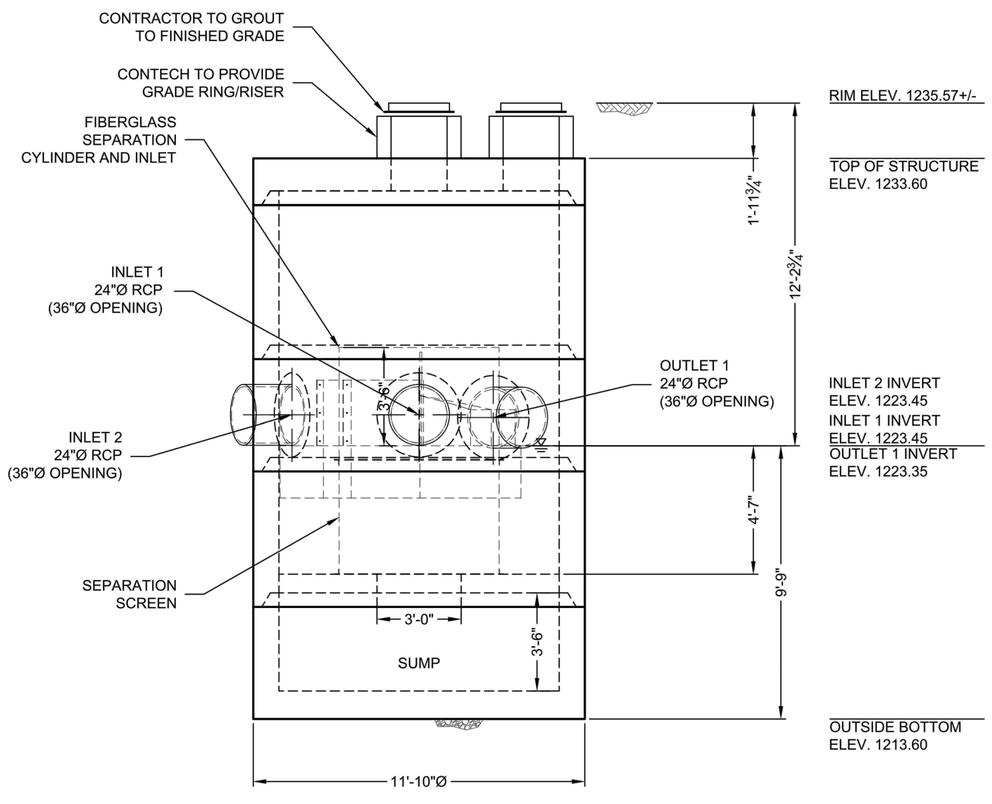
SHEET
5 OF 5



PLAN VIEW
INTERNALS NOT SHOWN



PLAN VIEW FOR PIPE ORIENTATION
TOP SLAB NOT SHOWN



ELEVATION VIEW

MATERIAL LIST (PROVIDED BY CONTECH)

COUNT	DESCRIPTION	INSTALLED BY
1	5640-10 LEFT CONCENTRIC FIBERGLASS INSERT	CONTRACTOR
1	5640, 4700 micron, 5.71' O.D. x 4.08' SCREEN, GREEN FLANGE UP	CONTRACTOR
1	56 SERIES HARDWARE KIT	CONTRACTOR
1	SEALANT FOR JOINTS	CONTRACTOR
2 PLC	GRADE RINGS/RISERS	CONTRACTOR
2	24"Ø X 4" FRAME AND COVER, EJ #416003009A01, NV	CONTRACTOR

SITE DESIGN DATA

WATER QUALITY FLOW RATE	3.50 CFS

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = 33000 LBS.
STRUCTURE IS DELIVERED IN 5 PIECES

MAX FOOTPRINT = 11.83'Ø

CONTECH
PROPOSAL
DRAWING

PRECS
LAYOUT 1A

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If discrepancies between the supplied information upon which this drawing is based and actual field conditions are encountered as site work progresses, these discrepancies must be reported to CONTECH immediately. In no event shall CONTECH be liable or accepts no liability for designs based on missing, incomplete or inaccurate information supplied by others.

MARK	DATE	REVISION DESCRIPTION	BY

CDS5640-10-C - 743584-010
160 N CACTUS AVE
RIALTO, CA
SITE DESIGNATION: CDS

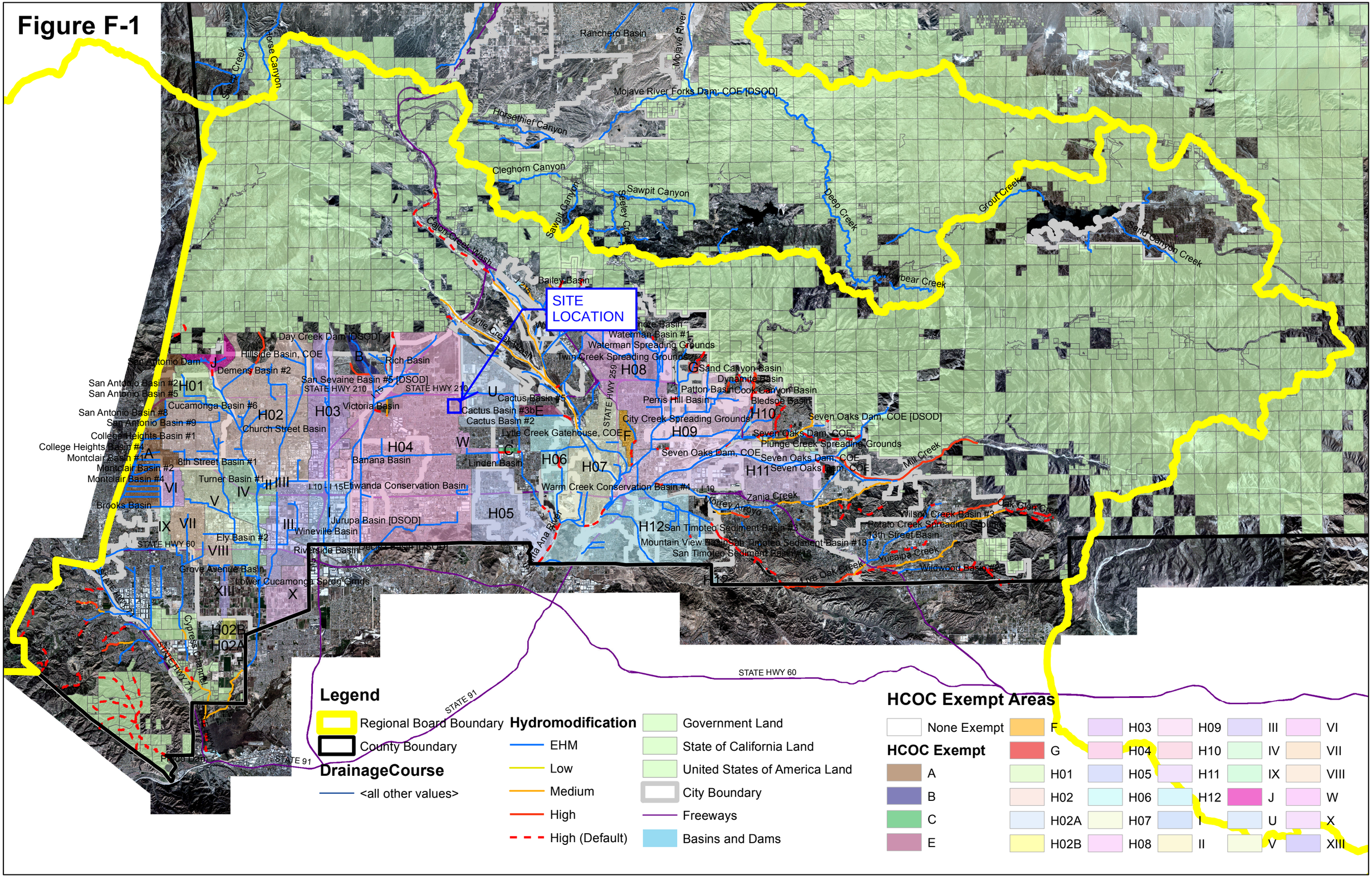
CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
11815 NE Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3383 800-561-1271 FAX
CDS®
FOR PATENT INFORMATION, GO TO www.ContechES.com/IP

DATE:	06/15/2023
DESIGNED: RLH	DRAWN: RLH
CHECKED: RLH	APPROVED: RLH
PROJECT No.: 743584	SEQUENCE No.: 010
SHEET: 1 OF 1	

\\QUIKRETE.NET\CONTECH\MERLIN\PROJECTACTIVE\743500\743584\743584-10-CDS\DRAWINGS\743584-10-CDS5640-10-C-CONFAB.DWG 6/15/2023 8:57 AM

Attachment B – HCOC Map

Figure F-1


SITE LOCATION
Ranchero Basin
Mojave River
Mojave River Forks Dam: COE [DSOD]
Horsethief Canyon
Cleghorn Canyon
Sawpit Canyon
Deep Creek
Grout Creek
Sand Canyon Creek
Bear Creek
Cajon Creek Wash
Lytle Creek Wash
Bailey Basin
Day Creek Dam [DSOD]
Hillside Basin, COE
Rich Basin
Demens Basin #2
San Antonio Dam
San Antonio Basin #2
San Antonio Basin #5
San Antonio Basin #8
San Antonio Basin #9
College Heights Basin #1
College Heights Basin #4
Montclair Basin #1
Montclair Basin #2
Montclair Basin #4
Cucamonga Basin #6
Church Street Basin
8th Street Basin #1
Turner Basin #1
Brooks Basin
Ely Basin #2
Grove Avenue Basin
Lower Cucamonga Spdg Grnds
San Sevaine Basin #5 [DSOD]
Victoria Basin
Banana Basin
Etiwanda Conservation Basin
Jurupa Basin [DSOD]
Wineville Basin
Riverside Basin
Prado Dam
Cactus Basin #5
Cactus Basin #3b
Cactus Basin #2
Lytle Creek Gatehouse, COE
Linden Basin
Warm Creek Conservation Basin #4
Waterman Basin #1
Waterman Spreading Grounds
Twin Creek Spreading Grounds
Sand Canyon Basin
Dynamite Basin
Patton Basin
Cook Canyon Basin
Perris Hill Basin
Bledsoe Basin
City Creek Spreading Grounds
Plunge Creek Spreading Grounds
Seven Oaks Dam, COE [DSOD]
Seven Oaks Dam, COE
Seven Oaks Dam, COE
Seven Oaks Dam, COE
Seven Oaks Dam, COE
Mill Creek
Zanja Creek
Morey Arroyo
Wilson Creek Basin #3
Potato Creek Spreading Grounds
13th Street Basin
Yucaipa Creek
Wildwood Basin #2
Oak Glen C
San Timoteo Sediment Basin #3
San Timoteo Sediment Basin #13
San Timoteo Sediment Basin #14
Mountain View Basin
Santa Ana River
Devil Canyon Basin [DSOD]
Vineyard Basin
Grove Avenue Basin
Lower Cucamonga Spdg Grnds
Cypress Channel
STATE HWY 60
STATE HWY 71
STATE HWY 91
STATE HWY 210
STATE HWY 259
I 10
I 15
I 215
H01
H02
H03
H04
H05
H06
H07
H08
H09
H10
H11
H12
H02B
H02A
A
B
C
E
F
G
I
II
III
IV
V
VI
VII
VIII
IX
J
U
W
X
XIII
Legend
Regional Board Boundary
County Boundary
DrainageCourse
<all other values>
Hydromodification
EHM
Low
Medium
High
High (Default)
Government Land
State of California Land
United States of America Land
City Boundary
Freeways
Basins and Dams
HCOC Exempt Areas
None Exempt
HCOC Exempt
A
B
C
E
F
G
H01
H02
H02A
H02B
H03
H04
H05
H06
H07
H08
H09
H10
H11
H12
I
II
III
IV
V
VI
VII
VIII
IX
J
U
W
X
XIII

Hydromodification

A.1 Hydrologic Conditions of Concern (HCOC) Analysis

HCOC Exemption:

1. **Sump Condition:** All downstream conveyance channel to an adequate sump (for example, Prado Dam, Santa Ana River, or other Lake, Reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

2. **Pre = Post**: The runoff flow rate, volume and velocity for the post-development condition of the Priority Development Project do not exceed the pre-development (i.e, naturally occurring condition for the 2-year, 24-hour rainfall event utilizing latest San Bernardino County Hydrology Manual.

    a. Submit a substantiated hydrologic analysis to justify your request.

3. **Diversion to Storage Area**: The drainage areas that divert to water storage areas which are considered as control/release point and utilized for water conservation.

    a. See Appendix F for the HCOC Exemption Map and the on-line Watershed Geodatabase (http://sbcounty.permitrack.com/wap) for reference.

4. **Less than One Acre**: The Priority Development Project disturbs less than one acre. The Co-permittee has the discretion to require a Project Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The project disturbs less than one acre and is not part of a common plan of development.

5. **Built Out Area**: The contributing watershed area to which the project discharges has a developed area percentage greater than 90 percent.

    a. See Appendix F for the HCOC Exemption Map and the on-line Watershed Geodatabase (http://sbcounty.permitrack.com/wap) for reference.

Summary of HCOC Exempted Area

	HCOC Exemption reasoning				
	1	2	3	4	5
Area					
A			X		X
B			X		
C					X
E			X		
F					X
G			X		X
H01	X		X		
H02	X		X		
H02A	X		X		
H02B			X		
H03			X		
H04	X		X		
H05	X				
H06			X		
H07	X				
H08	X		X		
H09	X				
H10	X		X		
H11	X		X		
H12	X				
J			X		
U			X		
W			X		
I			X		
II			X		
III					X
IV			X		X
V			X*		
VI					X
VII					X
VIII			X		
IX					X
X			X		
XIII			X		

*Detention/Conservation Basin

Attachment C – Calculations

DCV Calculations-- 160 N Cactus
Kimley-Horn
15-Jun-23

	DA 1	DA 2	DA 1+2
Area (s.f.)	337,443	8,501	345944
Pervious Area (s.f.)	38277	3493	41770
Impervious Area (s.f.)	299167	5008	311350
Imperviousness Ratio	89%	59%	90%
Runoff Coefficient (Rc)	0.71	0.40	0.73
2-year, 1-hour Rainfall Depth (in)	0.599	0.599	0.599
C1	1.4807	1.4807	1.4807
Mean 6-hr Precipitation (in)	0.887	0.887	0.887
Drawdown Rate (hr)	48	48	48
C2	1.963	1.963	1.963
Design Capture Volume (c.f.)	*34,763*	*494*	*35,142*
Volume provided	41,245		41,245

Note:
For Valley use 1.4807, Mountain use 1.909, Desert use 1.2371
For 24-hr use 1.582, 48-hr use 1.963

Factor of Safety Calculation-- 160 N Cactus

Kimley-Horn

7-Jul-22

		Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v	
Suitability Assessment	Soil Assessment Methods	0.25	1	0.25	Table V11.3
	Predominant Soil Texture	0.25	1	0.25	
	Site Soil Variability	0.25	1	0.25	
	Depth to Groundwater	0.25	1	0.25	
	Suitability Assessment Factor $S_A = \sum p$			1	
Design	Tributary Area Size	0.25	2	0.5	Table VII.4
	Level of Pretreatment	0.25	3	0.75	
	Redundancy	0.25	3	0.75	
	Compaction During Construction	0.25	1	0.25	
	Design Safety Factor $S_B = \sum p$			2.25	
Combined Safety Factor $S_{TOT} = S_A \, x \, S_B$				2.25	
Minimum Safety Factor				2	

Table VII.3: Suitability Assessment Related Considerations for Infiltration Facility Safety Factors

Consideration	High Concern	Medium Concern	Low Concern
Assessment methods (see explanation below)	Use of soil survey maps or simple texture analysis to estimate short-term infiltration rates	Direct measurement of ≥ 20 percent of infiltration area with localized infiltration measurement methods (e.g., infiltrometer)	Direct measurement of ≥ 50 percent of infiltration area with localized infiltration measurement methods or Use of extensive test pit infiltration measurement methods
Texture Class	Silty and clayey soils with significant fines	Loamy soils	Granular to slightly loamy soils
Site soil variability	Highly variable soils indicated from site assessment or limited soil borings collected during site assessment	Soil borings/test pits indicate moderately homogeneous soils	Multiple soil borings/test pits indicate relatively homogeneous soils
Depth to groundwater/ impervious layer	<5 ft below facility bottom	5-10 ft below facility bottom	>10 below facility bottom

Table VII.4: Design Related Considerations for Infiltration Facility Safety Factors

Consideration	High Concern	Medium Concern	Low Concern
Tributary area size	Greater than 10 acres.	Greater than 2 acres but less than 10 acres.	2 acres or less.
Level of pretreatment/ expected influent sediment loads	Pretreatment from gross solids removal devices only, such as hydrodynamic separators, racks and screens AND tributary area includes landscaped areas, steep slopes, high traffic areas, or any other areas expected to produce high sediment, trash, or debris loads.	Good pretreatment with BMPs that mitigate coarse sediments such as vegetated swales AND influent sediment loads from the tributary area are expected to be relatively low (e.g., low traffic, mild slopes, disconnected impervious areas, etc.).	Excellent pretreatment with BMPs that mitigate fine sediments such as bioretention or media filtration OR sedimentation or facility only treats runoff from relatively clean surfaces, such as rooftops.
Redundancy of treatment	No redundancy in BMP treatment train.	Medium redundancy, other BMPs available in treatment train to maintain at least 50% of function of facility in event of failure.	High redundancy, multiple components capable of operating independently and in parallel, maintaining at least 90% of facility functionality in event of failure.
Compaction during construction	Construction of facility on a compacted site or elevated probability of unintended/ indirect compaction.	Medium probability of unintended/ indirect compaction.	Heavy equipment actively prohibited from infiltration areas during construction and low probability of unintended/ indirect compaction.

Drawdown Calculations

BMP#	1
Infiltration Rate (in/hr)	12.30
Ponding Depth (ft)	6.75
Drawdown Time (hrs)	6.59

2 yr 1 hr Intensity Peak Flow Rate Calculations

Project Name: 160 N Cactus Avenue
Date: 1/30/2023
Company: Kimley-Horn
Designed by: Brandon Rivera
Checked by: Ana Gonzalez

PEAK FLOW RATE CALCULATION		
C	0.73	
I	0.049917	ft/hr
A	345,994	sf
Q	3.5	cfs

Q=CIA

Where
C = Runoff Coefficient
I= Rainfall Intensity
A= Project Site Area
Q= Peak Flow

NOAA Atlas 14, Volume 6, Version 2
Location name: Rialto, California, USA*
Latitude: 34.1009°, Longitude: -117.3847°
Elevation: 1244.77 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.122 (0.102-0.148)	0.159 (0.132-0.193)	0.209 (0.173-0.254)	0.250 (0.205-0.307)	0.307 (0.244-0.390)	0.352 (0.273-0.457)	0.399 (0.302-0.531)	0.448 (0.330-0.615)	0.518 (0.365-0.741)	0.574 (0.391-0.851)
10-min	0.175 (0.146-0.213)	0.228 (0.190-0.277)	0.299 (0.248-0.364)	0.358 (0.294-0.440)	0.440 (0.349-0.559)	0.504 (0.392-0.655)	0.571 (0.433-0.761)	0.642 (0.473-0.881)	0.742 (0.524-1.06)	0.823 (0.560-1.22)
15-min	0.212 (0.177-0.257)	0.276 (0.230-0.335)	0.361 (0.300-0.440)	0.433 (0.356-0.532)	0.532 (0.422-0.676)	0.610 (0.474-0.792)	0.691 (0.524-0.920)	0.777 (0.572-1.07)	0.897 (0.633-1.29)	0.995 (0.678-1.48)
30-min	0.315 (0.262-0.382)	0.410 (0.341-0.498)	0.537 (0.445-0.654)	0.643 (0.529-0.790)	0.790 (0.628-1.00)	0.906 (0.704-1.18)	1.03 (0.778-1.37)	1.16 (0.850-1.58)	1.33 (0.941-1.91)	1.48 (1.01-2.19)
60-min	0.460 (0.383-0.558)	0.599 (0.498-0.728)	0.784 (0.650-0.955)	0.939 (0.772-1.15)	1.15 (0.916-1.47)	1.32 (1.03-1.72)	1.50 (1.14-2.00)	1.69 (1.24-2.31)	1.95 (1.37-2.79)	2.16 (1.47-3.20)
2-hr	0.678 (0.565-0.823)	0.873 (0.726-1.06)	1.13 (0.937-1.38)	1.34 (1.10-1.65)	1.64 (1.30-2.08)	1.86 (1.45-2.42)	2.10 (1.59-2.80)	2.35 (1.73-3.22)	2.69 (1.90-3.85)	2.96 (2.02-4.39)
3-hr	0.850 (0.708-1.03)	1.09 (0.906-1.32)	1.41 (1.17-1.71)	1.67 (1.37-2.05)	2.02 (1.61-2.57)	2.30 (1.78-2.98)	2.58 (1.96-3.44)	2.87 (2.12-3.94)	3.28 (2.32-4.70)	3.61 (2.46-5.35)
6-hr	1.22 (1.01-1.48)	1.56 (1.29-1.89)	2.00 (1.66-2.44)	2.36 (1.94-2.90)	2.85 (2.27-3.63)	3.23 (2.51-4.20)	3.62 (2.74-4.82)	4.01 (2.96-5.50)	4.56 (3.22-6.52)	4.98 (3.39-7.39)
12-hr	1.64 (1.36-1.98)	2.10 (1.75-2.55)	2.70 (2.24-3.29)	3.18 (2.62-3.91)	3.83 (3.04-4.87)	4.33 (3.36-5.62)	4.82 (3.66-6.43)	5.34 (3.93-7.32)	6.03 (4.25-8.62)	6.56 (4.47-9.73)
24-hr	2.20 (1.95-2.53)	2.85 (2.52-3.29)	3.68 (3.25-4.26)	4.35 (3.81-5.07)	5.24 (4.44-6.31)	5.91 (4.91-7.27)	6.59 (5.34-8.30)	7.28 (5.73-9.42)	8.20 (6.20-11.1)	8.90 (6.51-12.4)
2-day	2.68 (2.37-3.09)	3.54 (3.13-4.08)	4.65 (4.10-5.38)	5.54 (4.85-6.47)	6.76 (5.72-8.14)	7.68 (6.37-9.45)	8.61 (6.98-10.9)	9.57 (7.55-12.4)	10.9 (8.23-14.7)	11.9 (8.69-16.6)
3-day	2.86 (2.53-3.29)	3.84 (3.39-4.43)	5.12 (4.52-5.93)	6.18 (5.41-7.21)	7.63 (6.46-9.19)	8.75 (7.26-10.8)	9.91 (8.03-12.5)	11.1 (8.75-14.4)	12.7 (9.65-17.2)	14.0 (10.3-19.6)
4-day	3.05 (2.70-3.52)	4.14 (3.66-4.78)	5.59 (4.93-6.46)	6.78 (5.94-7.91)	8.44 (7.15-10.2)	9.74 (8.08-12.0)	11.1 (8.97-14.0)	12.5 (9.83-16.2)	14.4 (10.9-19.4)	16.0 (11.7-22.3)
7-day	3.47 (3.08-4.00)	4.76 (4.21-5.49)	6.47 (5.71-7.49)	7.89 (6.90-9.20)	9.87 (8.35-11.9)	11.4 (9.47-14.0)	13.0 (10.6-16.4)	14.7 (11.6-19.1)	17.1 (12.9-23.1)	19.0 (13.9-26.5)
10-day	3.77 (3.34-4.35)	5.20 (4.60-6.00)	7.10 (6.26-8.21)	8.68 (7.60-10.1)	10.9 (9.22-13.1)	12.6 (10.5-15.5)	14.5 (11.7-18.2)	16.4 (12.9-21.2)	19.1 (14.4-25.7)	21.2 (15.5-29.6)
20-day	4.57 (4.05-5.27)	6.36 (5.62-7.33)	8.75 (7.72-10.1)	10.8 (9.42-12.6)	13.6 (11.5-16.4)	15.8 (13.1-19.5)	18.2 (14.7-22.9)	20.7 (16.3-26.8)	24.2 (18.3-32.7)	27.1 (19.8-37.8)
30-day	5.39 (4.78-6.22)	7.52 (6.65-8.67)	10.4 (9.15-12.0)	12.8 (11.2-14.9)	16.2 (13.7-19.5)	18.9 (15.7-23.2)	21.8 (17.6-27.4)	24.8 (19.6-32.1)	29.2 (22.1-39.4)	32.7 (23.9-45.7)
45-day	6.44 (5.70-7.42)	8.93 (7.90-10.3)	12.3 (10.9-14.2)	15.2 (13.3-17.7)	19.2 (16.3-23.1)	22.4 (18.6-27.6)	25.9 (21.0-32.6)	29.6 (23.3-38.3)	34.9 (26.4-47.0)	39.2 (28.7-54.7)
60-day	7.51 (6.65-8.66)	10.3 (9.15-11.9)	14.2 (12.5-16.4)	17.5 (15.3-20.4)	22.1 (18.7-26.6)	25.8 (21.4-31.7)	29.7 (24.1-37.5)	34.0 (26.8-44.0)	40.1 (30.4-54.1)	45.2 (33.1-63.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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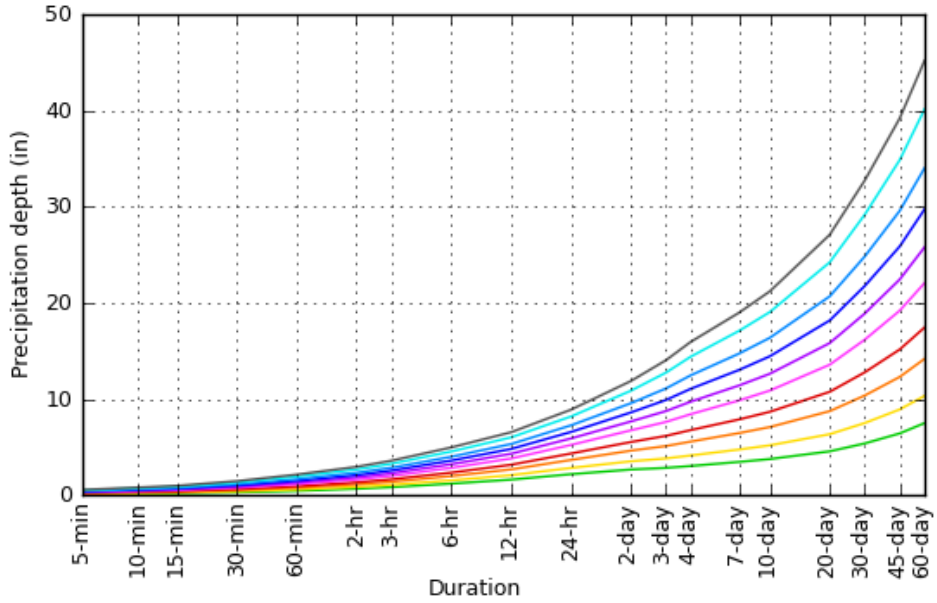
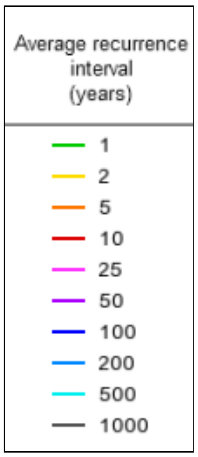
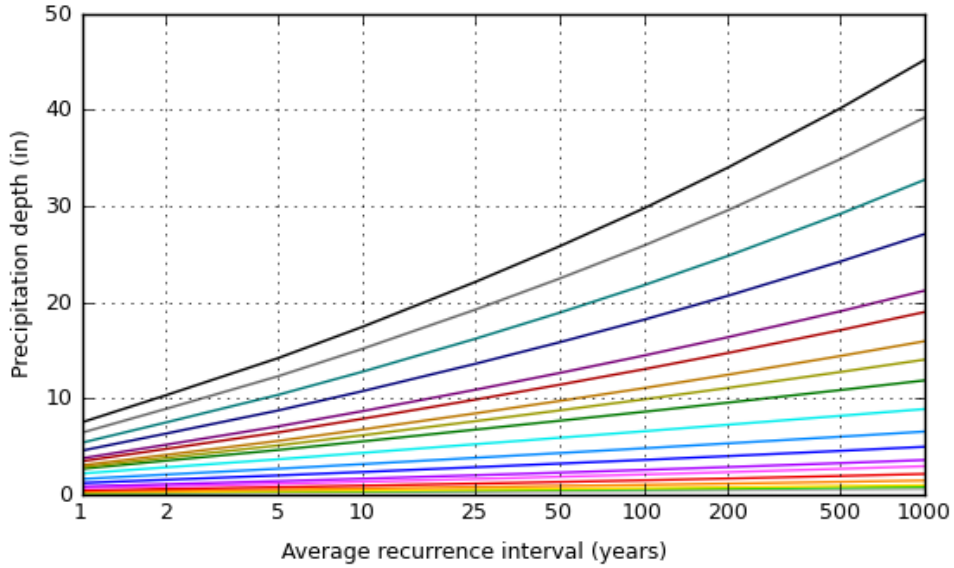
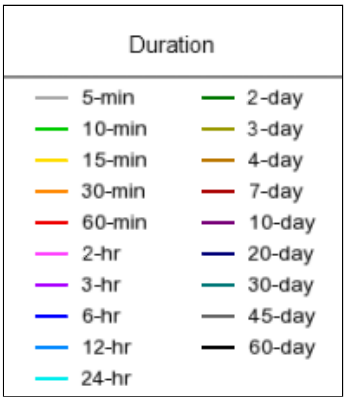
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 34.1009°, Longitude: -117.3847°









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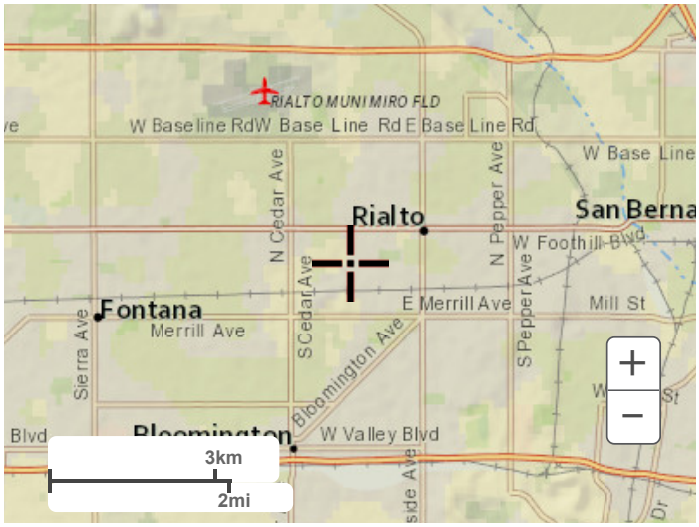
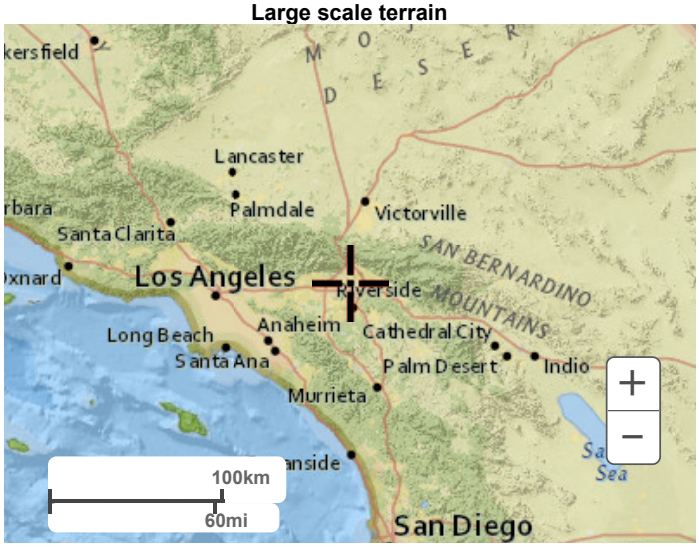
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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Disclaimer

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ADS SALES REP	ARNE ERIKSEN 951-796-2048 ARNE.ERIKSEN@ADS-PIPE.COM
PROJECT NO.	S335291

Advanced Drainage Systems, Inc.

ADS SiteAssist™
FOR STORMTECH
INSTALLATION INSTRUCTIONS
VISIT OUR APP

160 N CACTUS

RIALTO, CA, USA

MC-7200 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-7200.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-7200 CHAMBER SYSTEM

1. STORMTECH MC-7200 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-7200 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-7200 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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PROPOSED LAYOUT

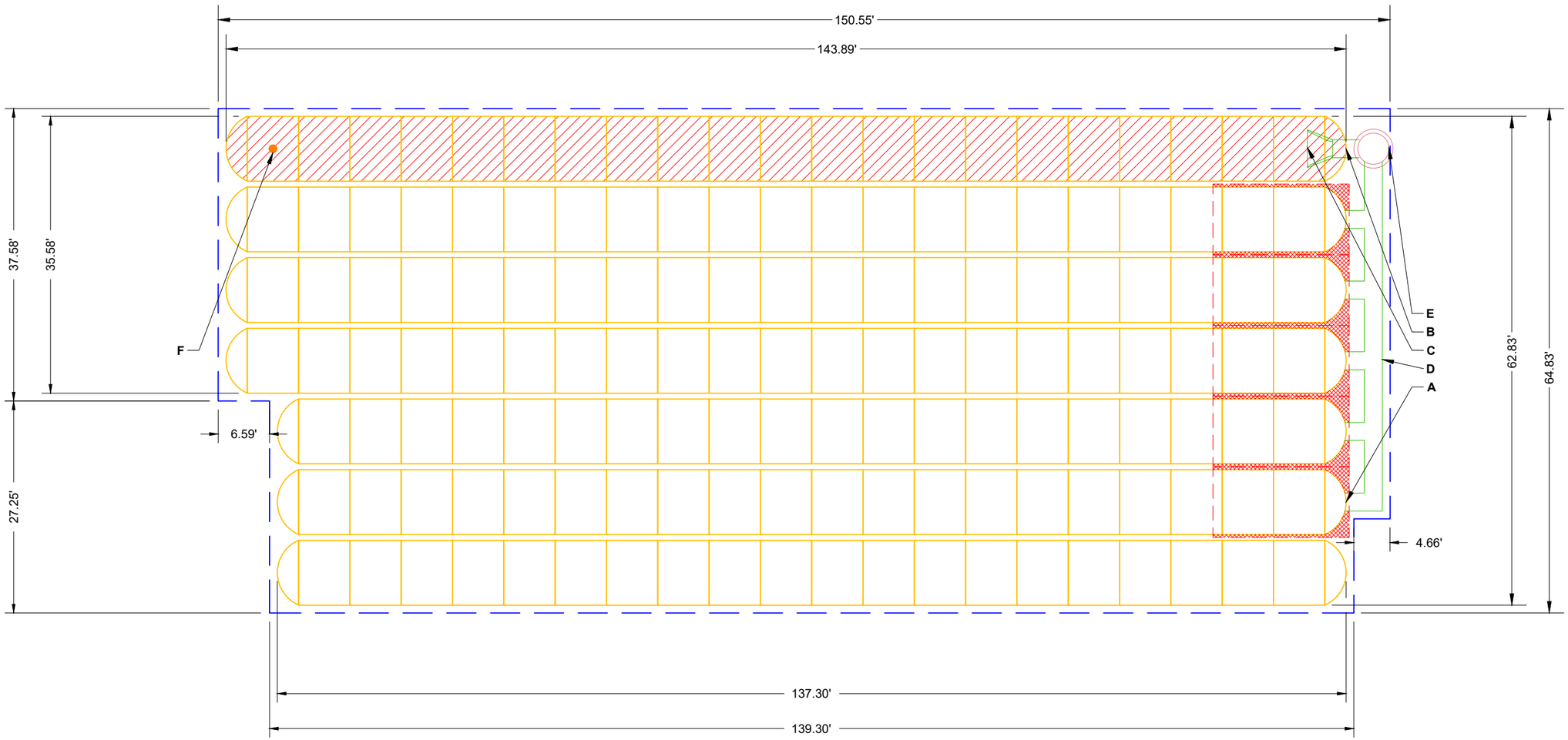
144	STORMTECH MC-7200 CHAMBERS
14	STORMTECH MC-7200 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
41,245	**INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)**
9,524	SYSTEM AREA (ft²)
431	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS

1235.73	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
1231.23	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
1230.73	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
1230.73	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
1230.73	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
1229.73	TOP OF STONE
1228.73	TOP OF MC-7200 CHAMBER
1225.65	24" TOP MANIFOLD INVERT
1223.92	24" ISOLATOR ROW PLUS CONNECTION INVERT
1223.73	BOTTOM OF MC-7200 CHAMBER
1222.98	BOTTOM OF STONE

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	24" TOP PARTIAL CUT END CAP, PART#: MC7200IEPP24T / TYP OF ALL 24" TOP CONNECTIONS	23.05"	
PREFABRICATED END CAP	B	24" BOTTOM PARTIAL CUT END CAP, PART#: MC7200IEPP24B / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.26"	
FLAMP	C	INSTALL FLAMP ON 24" ACCESS PIPE / PART#: MC720024RAMP		
MANIFOLD	D	24" x 24" TOP MANIFOLD, ADS N-12	23.05"	
CONCRETE STRUCTURE	E	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		33.2 CFS IN
INSPECTION PORT	F	4" SEE DETAIL		



ISOLATOR ROW PLUS
(SEE DETAIL)

PLACE MINIMUM 17.50' OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.

160 N CACTUS
RIALTO, CA, USA

DATE: 01/31/23 | DRAWN: AMC | CHECKED: JPR
PROJECT #: S335291

DATE	DRW	CHK	DESCRIPTION
02/21/23	PME	RWD	REVISE - UPDATED VOLUME

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ADS

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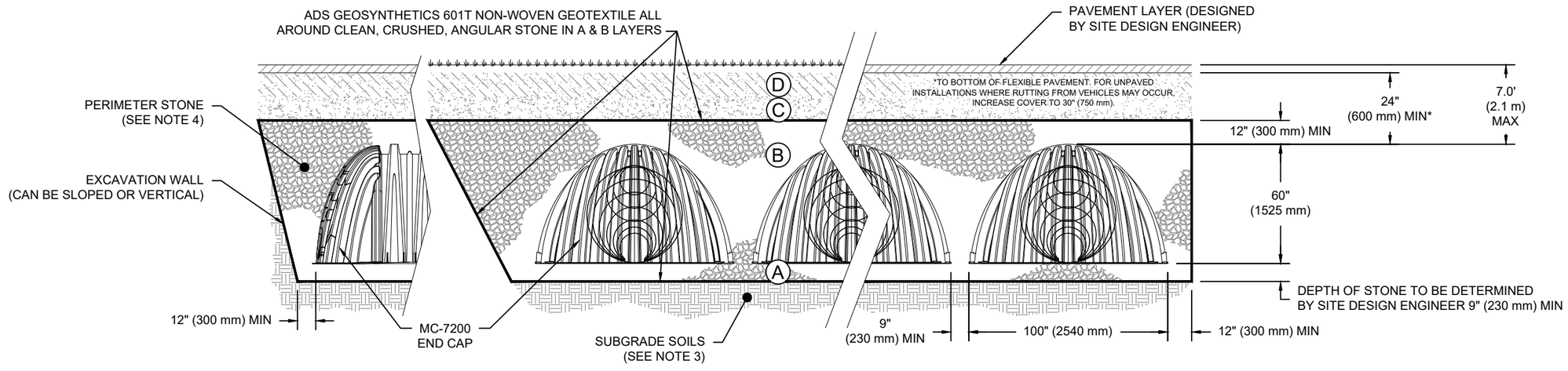
ACCEPTABLE FILL MATERIALS: STORMTECH MC-7200 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

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2. MC-7200 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

160 N CACTUS
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DATE	DRW	PME	CHK	RWD	DESCRIPTION	REVISE - UPDATED VOLUME
02/21/23						

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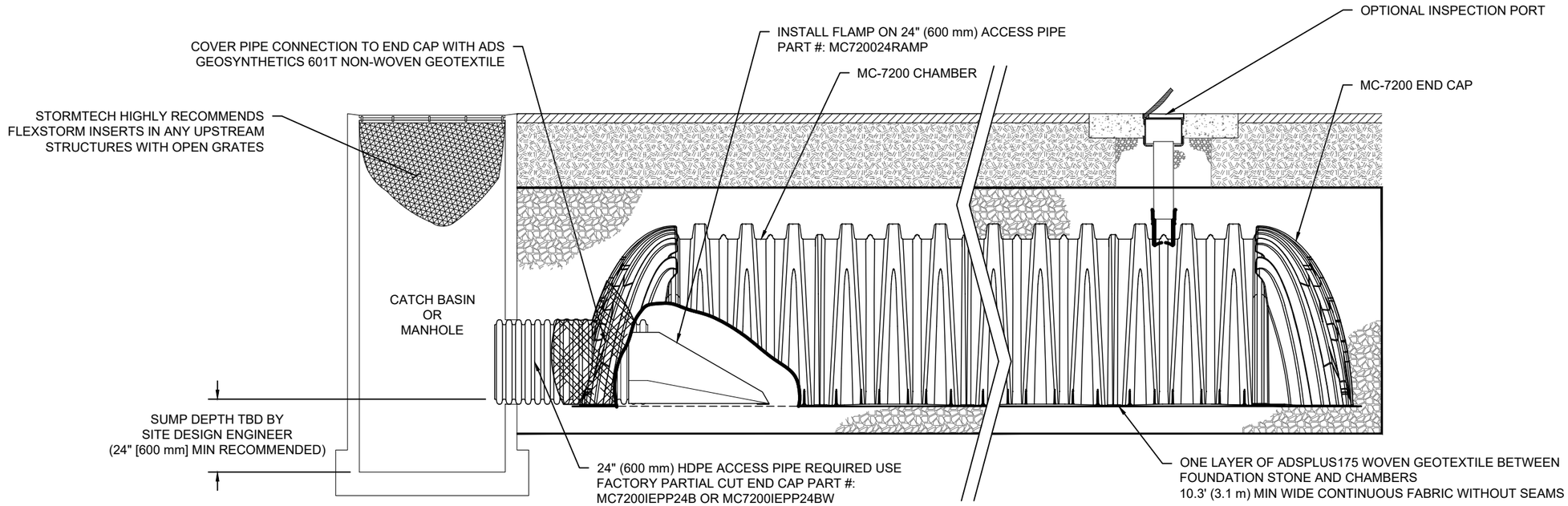


MC-7200 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

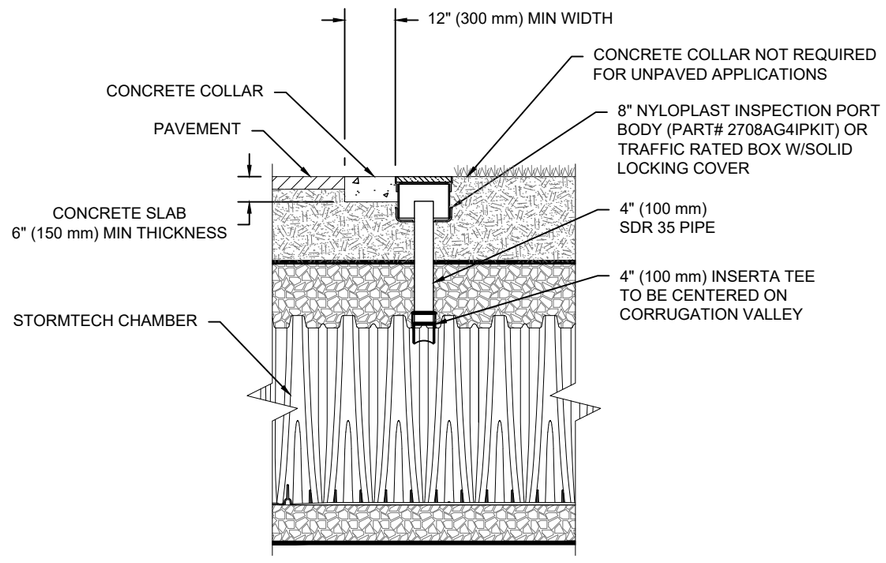
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4" PVC INSPECTION PORT DETAIL
(MC SERIES CHAMBER)
NTS

160 N CACTUS
RIALTO, CA, USA

DATE: 01/31/23 | DRAWN: AMC
PROJECT #: S335291 | CHECKED: JPR

DATE	DRW	CHK	DESCRIPTION
02/21/23	PME	RWD	REVISE - UPDATED VOLUME

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

StormTech® Chamber System
888-892-2694 | WWW.STORMTECH.COM

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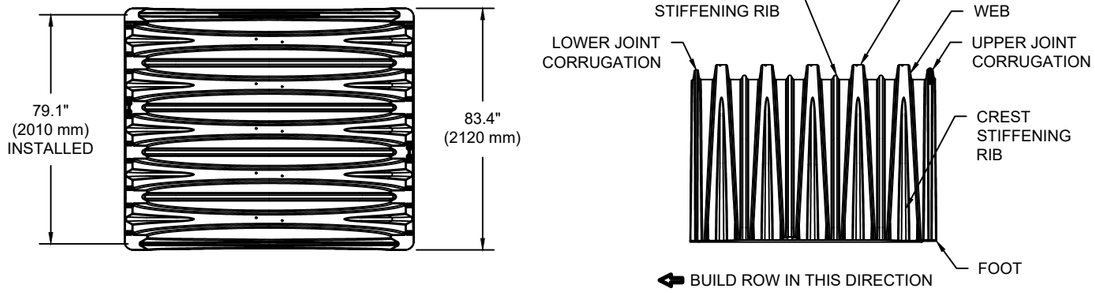
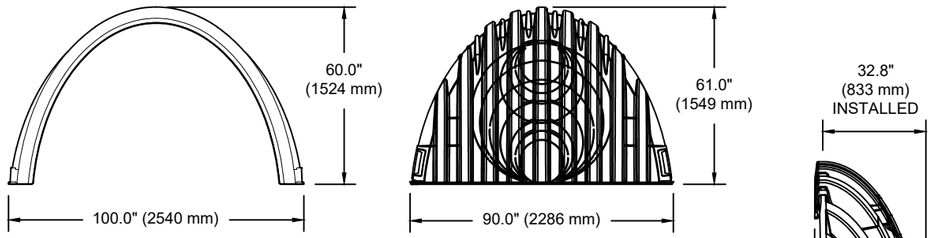
MC-7200 TECHNICAL SPECIFICATION

NTS





NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 79.1"	(2540 mm X 1524 mm X 2010 mm)
CHAMBER STORAGE	175.9 CUBIC FEET	(4.98 m³)
MINIMUM INSTALLED STORAGE*	267.3 CUBIC FEET	(7.56 m³)
WEIGHT (NOMINAL)	205 lbs.	(92.9 kg)

NOMINAL END CAP SPECIFICATIONS

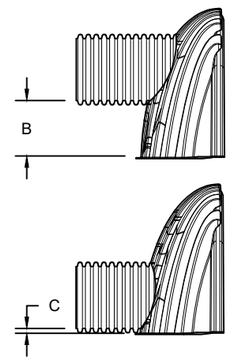
SIZE (W X H X INSTALLED LENGTH)	90.0" X 61.0" X 32.8"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC7200IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC7200IEPP06B		---	0.86" (22 mm)
MC7200IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC7200IEPP08B		---	1.01" (26 mm)
MC7200IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC7200IEPP10B		---	1.33" (34 mm)
MC7200IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC7200IEPP12B		---	1.55" (39 mm)
MC7200IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC7200IEPP15B		---	1.70" (43 mm)
MC7200IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC7200IEPP18TW			
MC7200IEPP18B		---	1.97" (50 mm)
MC7200IEPP18BW			
MC7200IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC7200IEPP24TW			
MC7200IEPP24B		---	2.26" (57 mm)
MC7200IEPP24BW			
MC7200IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC7200IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC7200IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

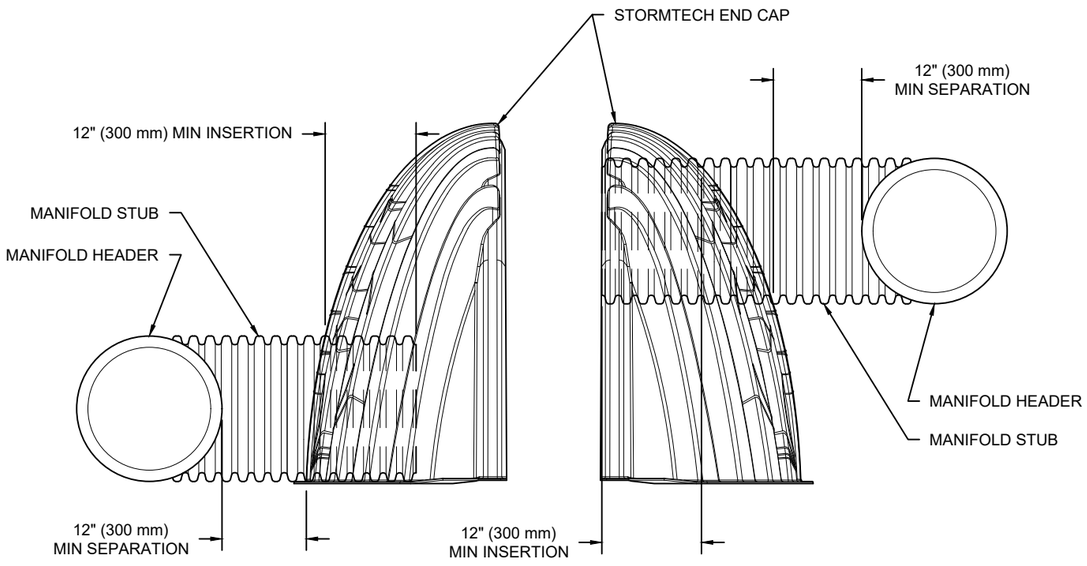
NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PREFABRICATED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-7200 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL

NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

160 N CACTUS
RIALTO, CA, USA

DATE: 01/31/23 | DRAWN: AMC | CHECKED: JPR
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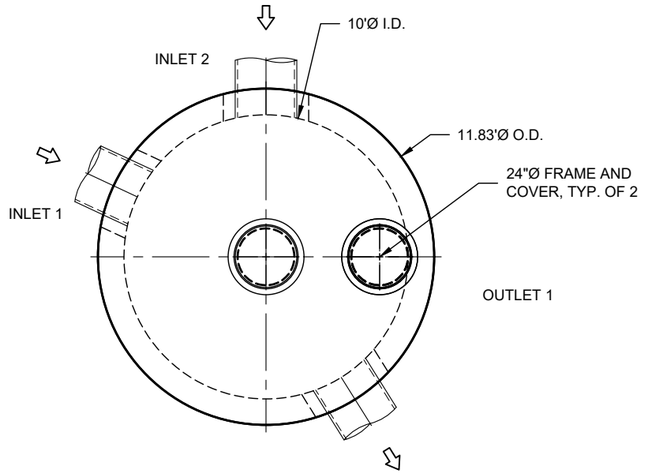
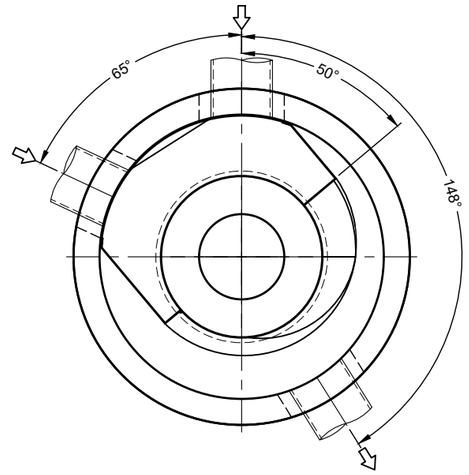
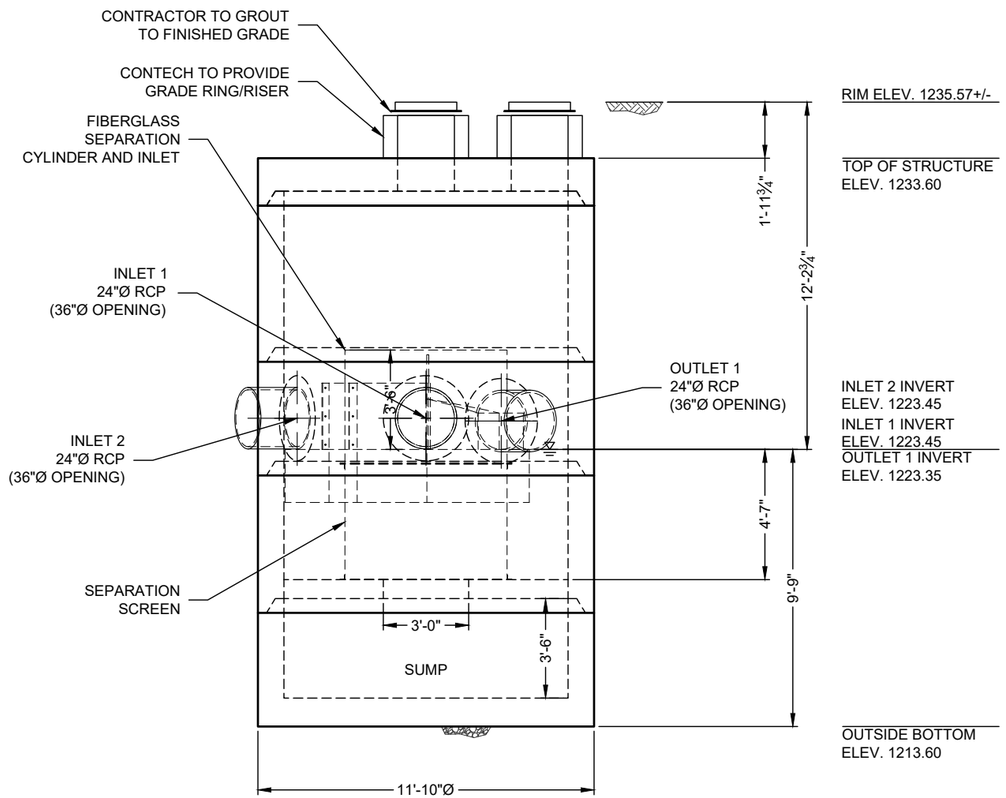


PLAN VIEW
INTERNALS NOT SHOWN



PLAN VIEW FOR PIPE ORIENTATION
TOP SLAB NOT SHOWN



ELEVATION VIEW

MATERIAL LIST (PROVIDED BY CONTECH)

COUNT	DESCRIPTION	INSTALLED BY
1	5640-10 LEFT CONCENTRIC FIBERGLASS INSERT	CONTRACTOR
1	5640, 4700 micron, 5.71' O.D. x 4.08' SCREEN, GREEN FLANGE UP	CONTRACTOR
1	56 SERIES HARDWARE KIT	CONTRACTOR
1	SEALANT FOR JOINTS	CONTRACTOR
2 PLC	GRADE RINGS/RISERS	CONTRACTOR
2	24"Ø X 4" FRAME AND COVER, EJ #416003009A01, NV	CONTRACTOR

SITE DESIGN DATA

WATER QUALITY FLOW RATE	3.50 CFS

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = 33000 LBS.
STRUCTURE IS DELIVERED IN 5 PIECES

MAX FOOTPRINT = 11.83'Ø

CONTECH
PROPOSAL
DRAWING

PRECS
LAYOUT 1A

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If discrepancies between the supplied information upon which this drawing is based and actual field conditions are encountered as site work progresses, these discrepancies must be reported to CONTECH immediately for re-evaluation of the design. CONTECH declines responsibility for errors, omissions or inaccurate or incomplete information supplied by others.

MARK	DATE	REVISION DESCRIPTION	BY

CDS5640-10-C - 743584-010
160 N CACTUS AVE
RIALTO, CA
SITE DESIGNATION: CDS

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
11815 NE Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3393 800-561-1271 FAX
FOR PATENT INFORMATION, GO TO www.ContechES.com/IP

DATE:	06/15/2023
DESIGNED: RLH	DRAWN: RLH
CHECKED: RLH	APPROVED: RLH
PROJECT No.: 743584	SEQUENCE No.: 010
SHEET:	1 OF 1

\\QUIKRETE.NET\CONTECH\MERLIN\PROJECTVAC\TVE\743500\743584\743584-10-CDS\DRAWINGS\743584-10-CDS5640-10-C-CONFAB.DWG 6/15/2023 8:57 AM

Attachment D – BMP Fact Sheet

StormTech® Installation Guide

MC-7200 Chamber

StormTech
Installation Video

Required Materials and Equipment List

- Acceptable fill materials per Table 1
- ADS PLUS and non-woven geotextile fabrics
- StormTech solid end caps, pre-cored and pre-fabricated end caps
- StormTech chambers, manifolds and fittings

Note: MC-7200 chamber pallets are 100" x 84" (2.5 m x 2.1 m) and weigh about 1435 lbs. (651 kg). Unloading chambers requires 72" (1.8 m) (min.) forks and/or tie downs (straps, chains, etc).

Important Notes:

A. This installation guide provides the minimum requirements for proper installation of chambers. Non-adherence to this guide may result in damage to chambers during installation. Replacement of damaged chambers during or after backfilling is costly and very time consuming. It is recommended that all installers are familiar with this guide, and that the contractor inspects the chambers for distortion, damage and joint integrity as work progresses.

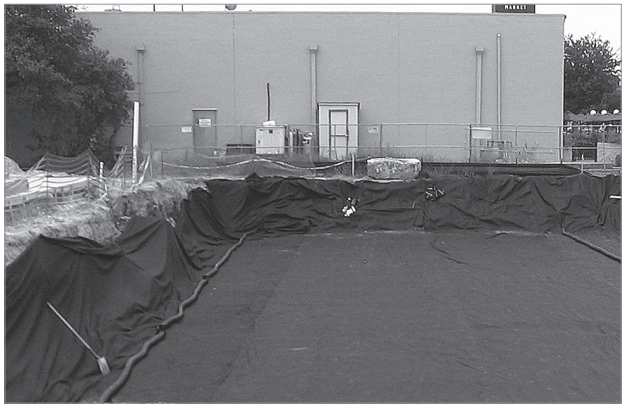
B. Use of a dozer to push embedment stone between the rows of chambers may cause damage to chambers and is not an acceptable backfill method. Any chambers damaged by using the "dump and push" method are not covered under the StormTech standard warranty.

C. Care should be taken in the handling of chambers and end caps. End caps must be stored standing upright. Avoid dropping, prying or excessive force on chambers during removal from pallet and initial placement.

Requirements for System Installation



Excavate bed and prepare subgrade per engineer's plans. Plans and specifications should include Best Management Practices (BMPs) to deter contamination of open pits during construction.



Place non-woven geotextile over prepared soils and up excavation walls.



Place clean, crushed, angular stone foundation 9" (230 mm) min. Install underdrains if required. Compact to achieve a flat surface.

Manifold, Scour Fabric and Chamber Assembly



Install manifolds and lay out ADS Plus fabric at inlet rows [min. 17.5 ft (5.33 m)] at each inlet end cap. Place a continuous piece (no seams) along entire length of Isolator® Plus Row(s). Align the first chamber and end cap of each row with inlet pipes. Contractor may choose to postpone stone placement around end chambers and leave ends of rows open for easy inspection of chambers during the backfill process.



The MC-7200 contains built in ropes at the feet on both sides of the chambers to be used to lift and place the chambers using an excavator. No more than two chambers should be lifted at a time using the ropes. A 14' x 3/8" (10 mm) chain is recommended along with a 5/8" (16 mm) Jaw and Eye Swivel. Using this method, chambers can be placed directly on an existing row. Using too long of a chain may cause the chambers to be less stable during picking.

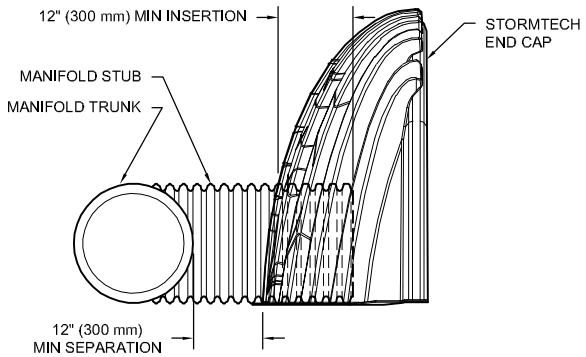


Continue installing chambers by overlapping chamber end corrugations. Chamber joints are labeled "Lower Joint – Overlap Here" and "Build this direction – Upper Joint" Be sure that the chamber placement does not exceed the reach of the construction equipment used to place the stone. Maintain minimum 9" (230 mm) spacing between MC-7200 rows.



Place a continuous layer of ADS Plus fabric between the foundation stone and the Isolator Row Plus chambers, making sure the fabric lays flat and extends the entire width of the chamber feet. When used on an Isolator Row Plus, a 24" FLAMP (flared end ramp) is attached to the inside of the inlet pipe with a provided threaded rod and bolt. The FLAMP then lays on top of the ADS Plus fabric.

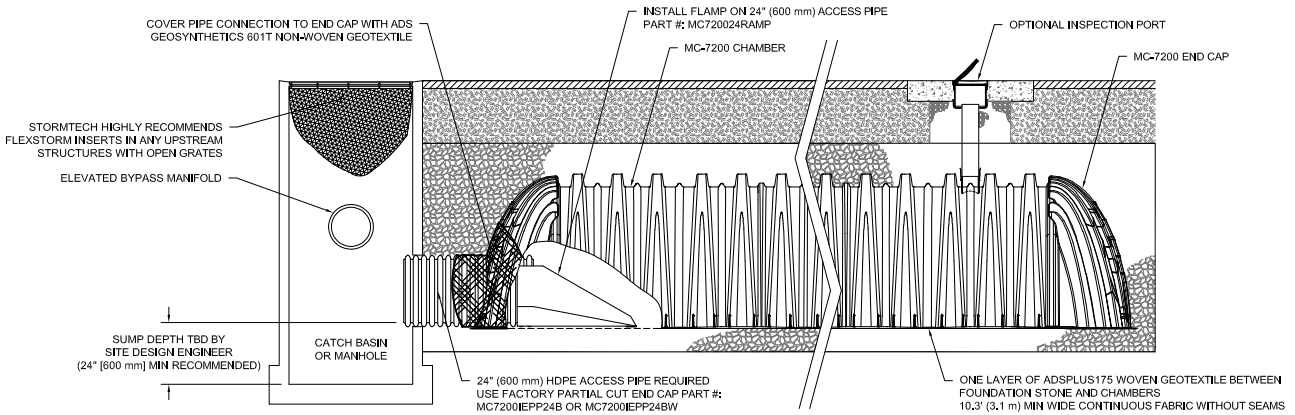
Manifold Insertion



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

Insert inlet and outlet manifolds a minimum 12" (300 mm) into chamber end caps. Manifold header should be a minimum 12" (300 mm) from base of end cap.

StormTech Isolator Row Plus Detail



Initial Anchoring of Chambers – Embedment Stone





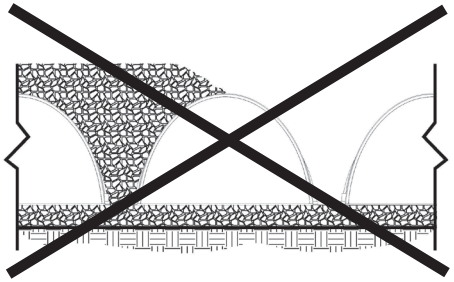
Initial embedment shall be spotted along the centerline of the chamber evenly anchoring the lower portion of the chamber. This is best accomplished with a stone conveyor or excavator reaching along the row.



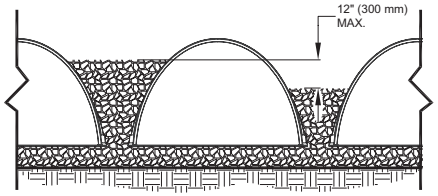


No equipment shall be operated on the bed at this stage of the installation. Excavators must be located off the bed. Dump trucks shall not dump stone directly on to the bed. Dozers or loaders are not allowed on the bed at this time.

Backfill of Chambers – Embedment Stone

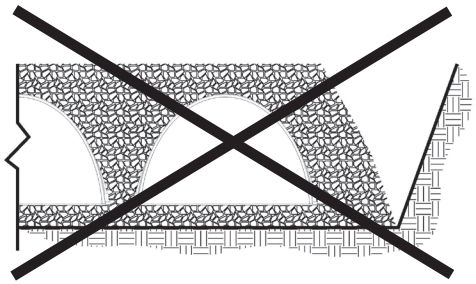


Uneven Backfill

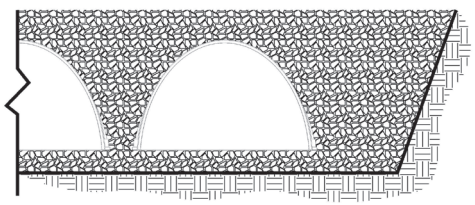


Even Backfill

Backfill chambers evenly. Stone column height should never differ by more than 12” (300 mm) between adjacent chamber rows or between chamber rows and perimeter.



Perimeter Not Backfilled



Perimeter Fully Backfilled

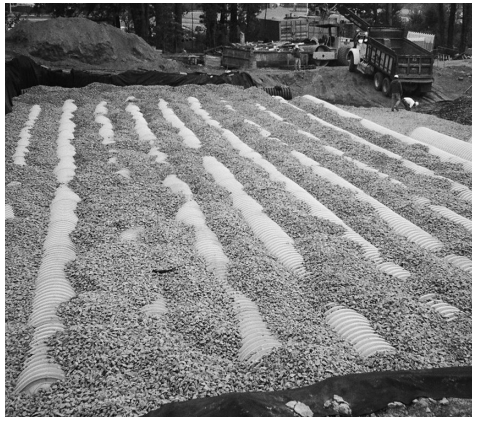
Perimeter stone must be brought up evenly with chamber rows. Perimeter must be fully backfilled, with stone extended horizontally to the excavation wall.

Backfill of Chambers – Embedment Stone and Cover Stone





Continue evenly backfilling between rows and around perimeter until embedment stone reaches tops of chambers and a minimum 12” (300 mm) of cover stone is in place. Perimeter stone must extend horizontally to the excavation wall for both straight or sloped sidewalls. The recommended backfill methods are with a stone conveyor outside of the bed or build as you go with an excavator inside the bed reaching along the rows. Backfilling while assembling chambers rows as shown in the picture will help to ensure that equipment reach is not exceeded.





Only after chambers have been backfilled to top of chamber and with a minimum 12” (300 mm) of cover stone on top of chambers can skid loaders and small LGP dozers be used to final grade cover stone and backfill material in accordance with ground pressure limits in Table 2. Equipment must push material parallel to rows only. Never push perpendicular to rows. StormTech recommends the contractor inspect chamber rows before placing final backfill. Any chambers damaged by construction equipment shall be removed and replaced.

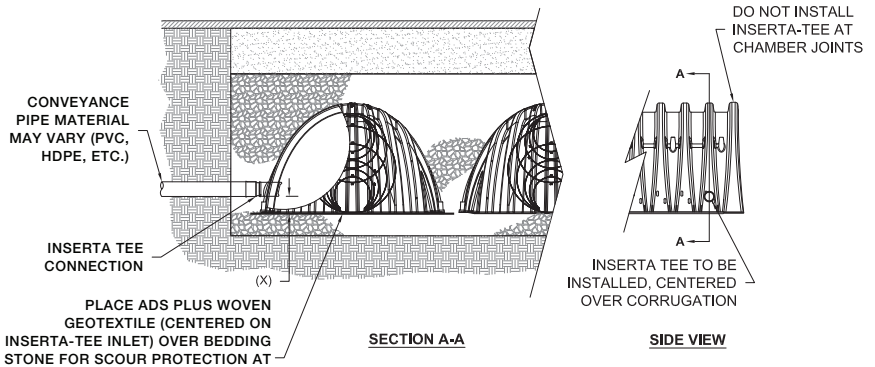
Final Backfill of Chambers – Fill Material





Install non-woven geotextile over stone. Geotextile must overlap 24” (600 mm) where edges meet. Compact at 24” (600 mm) of fill. Roller travel parallel with rows.

Inserta Tee Detail



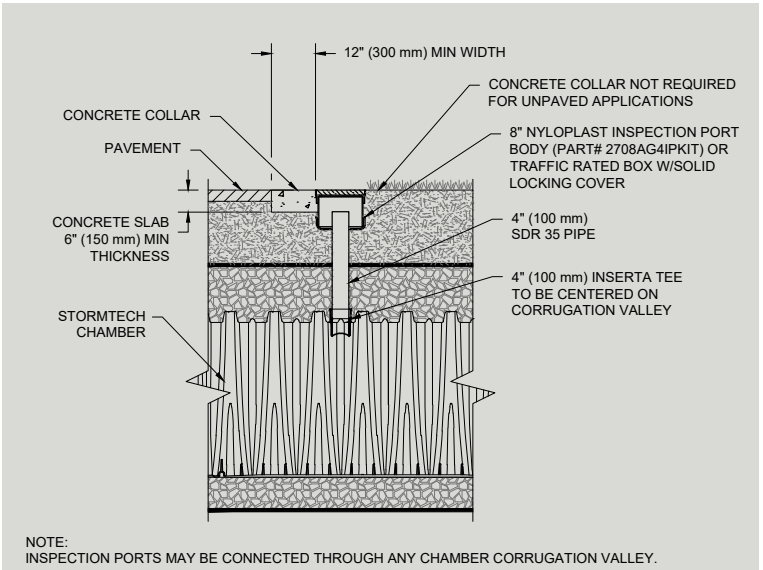
NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
MC-7200	12" (250 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

Table 1- Acceptable Fill Materials

Material Location	Description	AASHTO M43 Designation[1]	Compaction/Density Requirement
(D) **Final Fill:** Fill Material for layer 'D' starts from the top of the 'C' layer to the bottom of flexible pavement or unpaved finished grade above. Note that the pavement subbase may be part of the 'D' layer.	Any soil/rock materials, native soils or per engineer's plans. Check plans for pavement subgrade requirements.	N/A	Prepare per site design engineer's plans. Paved installations may have stringent material and preparation requirements.
(C) **Initial Fill:** Fill Material for layer 'C' starts from the top of the embedment stone ('B' layer) to 24" (600 mm) above the top of the chamber. Note that pavement subbase may be part of the 'C' layer.	Granular well-graded soil/aggregate mixtures, <35% fines or processed aggregate. Most pavement subbase materials can be used in lieu of this layer.	AASHTO M145[1] A-1, A-2-4, A-3 or AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	Begin compaction after min. 24" (600 mm) of material over the chambers is reached. Compact additional layers in 12" (300 mm) max. lifts to a min. 95% Proctor density for well-graded material and 95% relative density for processed aggregate materials.
(B) **Embedment Stone:** Fill the surrounding chambers from the foundation stone ('A' layer) to the 'C' layer above.	Clean, crushed, angular stone	AASHTO M43[1] 3, 4	No compaction required.
(A) **Foundation Stone:** Fill below chambers from the subgrade up to the foot (bottom) of the chamber.	Clean, crushed, angular stone,	AASHTO M43[1] 3, 4	Place and compact in 9" (230 mm) max lifts using two full coverages with a vibratory compactor.[2, 3]

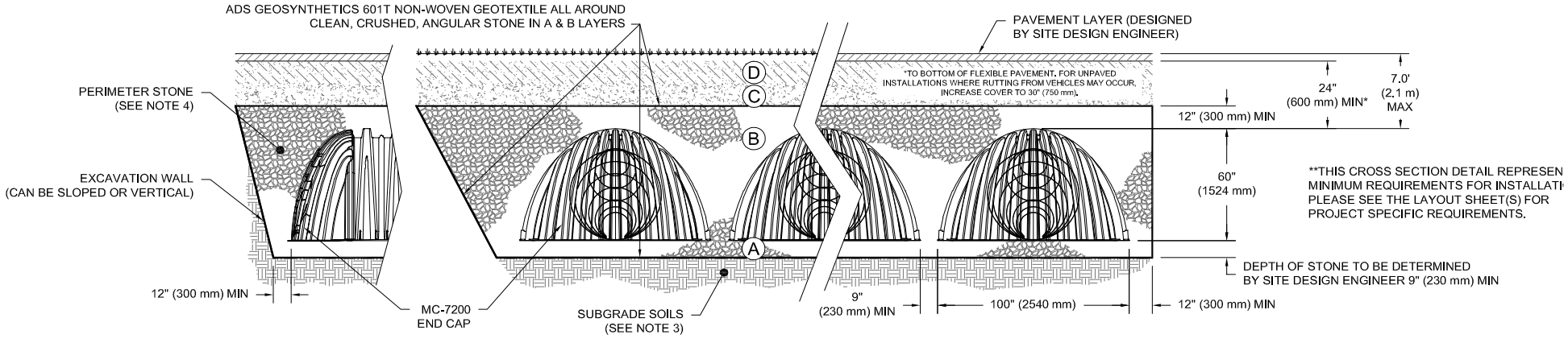
Figure 1- Inspection Port Detail



Please Note:

1. The listed AASHTO designations are for gradations only. The stone must also be clean, crushed, angular. For example, a specification for #4 stone would state: "clean, crushed, angular no. 4 (AASHTO M43) stone".
2. StormTech compaction requirements are met for 'A' location materials when placed and compacted in 9" (230 mm) (max) lifts using two full coverages with a vibratory compactor.
3. Where infiltration surfaces may be comprised by compaction, for standard installations and standard design load conditions, a flat surface may be achieved by raking or dragging without compaction equipment. For special load designs, contact StormTech for compaction requirements.

Figure 2 - Fill Material Locations



Notes:

1. 36" (900 mm) of stabilized cover materials over the chambers is recommended during the construction phase if general construction activities, such as full dump truck travel and dumping, are to occur over the bed.
2. During paving operations, dump truck axle loads on 18" (450 mm) of cover for MC-7200s may be necessary. Precautions should be taken to avoid rutting of the road base layer, to ensure that compaction requirements have been met, and that a minimum of 18" (450 mm) of cover for MC-7200s exists over the chambers. Contact StormTech for additional guidance on allowable axle loads during paving.
3. Ground pressure for track dozers is the vehicle operating weight divided by total ground contact area for both tracks. Excavators will exert higher ground pressures based on loaded bucket weight and boom extension.
4. Mini-excavators (<8,000 lbs/3,628 kg) can be used with at least 12" (300 mm) of stone over the chambers and are limited by the maximum ground pressures in Table 2 based on a full bucket at maximum boom extension.
5. StormTech does not require compaction of initial fill at 18" (450 mm) of cover. However, requirements by others for 6" (150 mm) lifts may necessitate the use of small compactors at 18" (450 mm) of cover.
6. Storage of materials such as construction materials, equipment, spoils, etc. should not be located over the StormTech system. The use of equipment over the StormTech system not covered in Table 2 (ex. soil mixing equipment, cranes, etc) is limited. Please contact StormTech for more information.
7. Allowable track loads based on vehicle travel only. Excavators shall not operate on chamber beds until the total backfill reaches 3 feet (900 mm) over the entire bed.

Call StormTech at **888.892.2694** for technical and product information or visit www.stormtech.com

Table 2 - Maximum Allowable Construction Vehicle Loads[6]

Material Location	Fill Depth over Chambers in. (mm)	Maximum Allowable Wheel Loads		Maximum Allowable Track Loads[6]		Maximum Allowable Roller Loads
		Max Axle Load for Trucks lbs (kN)	Max Wheel Load for Loaders lbs (kN)	Track Width in. (mm)	Max Ground Pressure psf (kPa)	Max Drum Weight or Dynamic Force lbs (kN)
Ⓓ Final Fill Material	36" (900) Compacted	32,000 (142)	16,000 (71)	12" (305) 18" (457) 24" (610) 30" (762) 36" (914)	4050 (194) 2760 (132) 2130 (102) 1770 (84) 1530 (73)	38,000 (169)
Ⓒ Initial Fill Material	24" (600) Compacted	32,000 (142)	16,000 (71)	12" (305) 18" (457) 24" (610) 30" (762) 36" (914)	2750 (131) 1920 (92) 1520 (73) 1310 (63) 1180 (56)	20,000 (89)
	24" (600) Loose/Dumped	24,000 (107)	12,000 (53)	12" (305) 18" (457) 24" (610) 30" (762) 36" (914)	2430 (116) 1730 (82) 1390 (66) 1210 (58) 1100 (52)	16,000 (71)
	18" (450)	24,000 (107)	12,000 (53)	12" (305) 18" (457) 24" (610) 30" (762) 36" (914)	2140 (102) 1530 (73) 1260 (60) 1120 (53) 1030 (49)	5,000 (22) (static loads only)[5]
Ⓑ Embedment Stone	12" (300)	Not Allowed	Not Allowed	12" (305) 18" (457) 24" (610) 30" (762)	1100 (53) 710 (34) 660 (32) 580 (28)	Not Allowed
	6" (150)	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not Allowed

Table 3 - Placement Methods and Descriptions

Material Location	Placement Methods/ Restrictions	Wheel Load Restrictions	Track Load Restrictions	Roller Load Restrictions
		See Table 2 for Maximum Construction Loads		
Ⓓ Final Fill Material	A variety of placement methods may be used. All construction loads must not exceed the maximum limits in Table 2.	36" (900 mm) minimum cover required for dump trucks to dump over chambers.	Dozers to push parallel to rows.[4]	Roller travel parallel to rows only until 36" (900 mm) compacted cover is reached.
Ⓒ Initial Fill Material	Excavator positioned off bed recommended. Small excavator allowed over chambers. Small dozer allowed.	Asphalt can be dumped into paver when compacted pavement subbase reaches 24" (600 mm) above top of chambers.	Small LGP track dozers & skid loaders allowed to grade cover stone with at least 12" (300 mm) stone under tracks at all times. Equipment must push parallel to rows at all times.	Use dynamic force of roller only after compacted fill depth reaches 24" (600 mm) over chambers. Roller travel parallel to chamber rows only.
Ⓑ Embedment Stone	No equipment allowed on bare chambers. Use excavator or stone conveyor positioned off bed or on foundation stone to evenly fill around all chambers to at least the top of chambers.	No wheel loads allowed. Material must be placed outside the limits of the chamber bed.	No tracked equipment is allowed on chambers until a min. 12" (300 mm) cover stone is in place.	No rollers allowed.
Ⓐ Foundation Stone	No StormTech restrictions. Contractor responsible for any conditions or requirements by others relative to subgrade bearing capacity, dewatering or protection of subgrade.			

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MC-3500 & MC-7200
Design Manual

StormTech® Chamber Systems for Stormwater Management



ADS StormTech™

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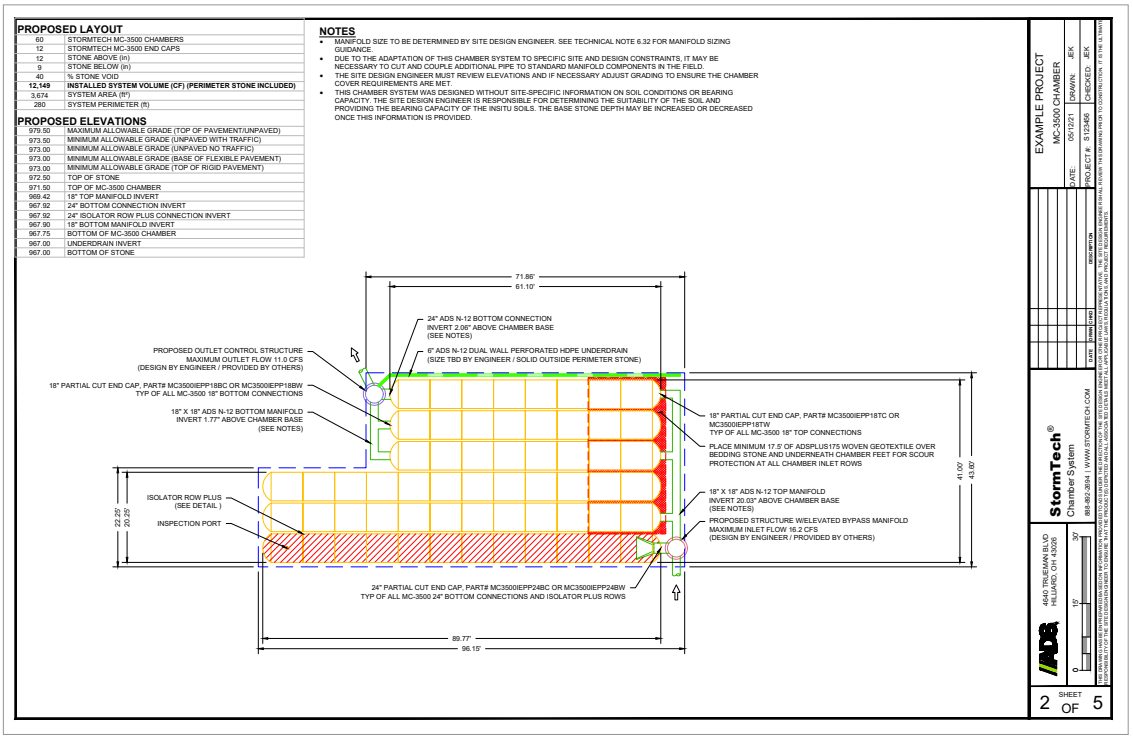
*For SC-160LP, SC-310, SC-740 & DC-780 designs, please refer to the SC-160LP/SC-310/SC-740/DC-780 Design Manual.

StormTech Engineering Services assists design professionals in specifying StormTech stormwater systems. This assistance includes the layout of chambers to meet the engineer's volume requirements and the connections to and from the chambers. They can also assist converting and cost engineering projects currently specified with ponds, pipe, concrete vaults and other manufactured stormwater detention/ retention products. Please note that it is the responsibility of the site design engineer to ensure that the chamber bed layout meets all design requirements and is in compliance with applicable laws and regulations governing a project.



This manual is exclusively intended to assist engineers in the design of subsurface stormwater systems using StormTech chambers.

StormTech MC-3500 Chamber

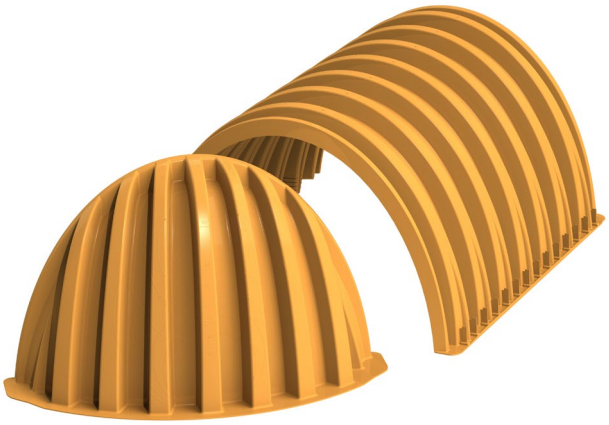
Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

MC-3500 Chamber (not to scale)

Nominal Specifications

Size (LxWxH)	90” x 77” x 45” (2286 x 1956 x 1143 mm)
Chamber Storage	109.9 ft³ (3.11 m³)
Min. Installed Storage*	175.0 ft³ (4.96 m³)
Weight	134 lbs (60.8 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below chambers, 6” (150 mm) of stone between chambers/end caps and 40% stone porosity.

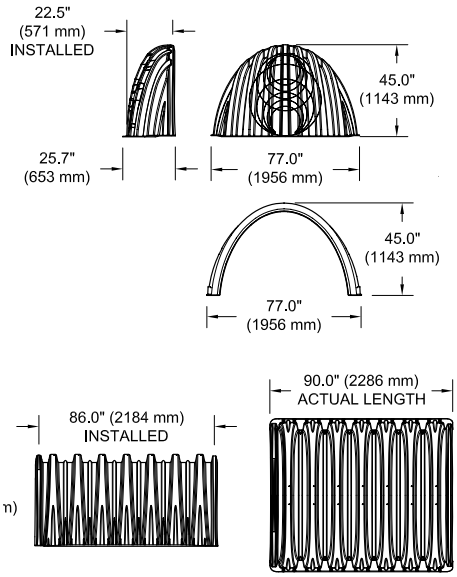


MC-3500 Chamber (not to scale)

Nominal Specifications

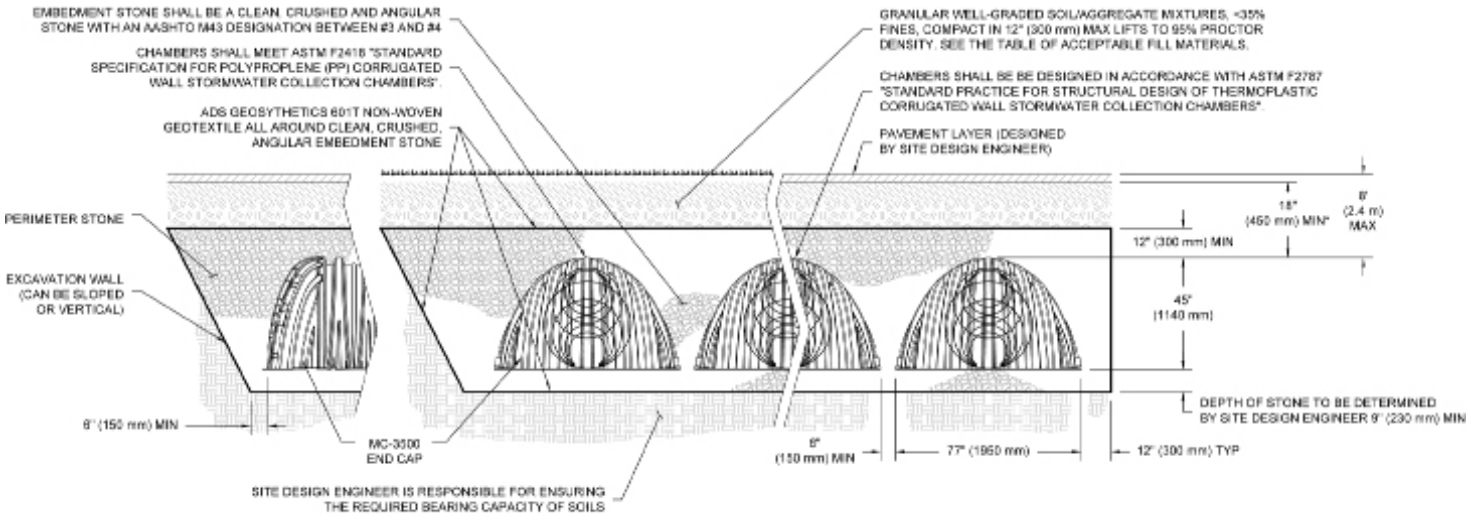
Size (LxWxH)	26.5” x 71” x 45.1” (673 x 1803 x 1145 mm)
End Cap Storage	14.9 ft³ (0.42 m³)
Min. Installed Storage*	45.1 ft³ (1.28 m³)
Weight	49 lbs (22.2 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below, 6” (150 mm) of stone perimeter, 6” (150 mm) of stone between chambers/end caps and 40% stone porosity.



Shipping

15 chambers/pallet
7 end caps/pallet
7 pallets/truck



Storage Volume Per Chamber/End Cap ft³ (m³)

	Bare Unit Storage ft³ (m³)	Chamber/End Cap and Stone Volume — Stone Foundation Depth in. (mm)			
		9 (230)	12 (300)	15 (375)	18 (450)
Chamber	109.9 (3.11)	175.0 (4.96)	179.9 (5.09)	184.9 (5.24)	189.9 (5.38)
End Cap	14.9 (0.42)	45.1 (1.28)	46.6 (1.32)	48.3 (1.37)	49.9 (1.41)

Note: Assumes 6" (150 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume.

Amount of Stone Per Chamber

ENGLISH tons (yd³)	Stone Foundation Depth			
	9"	12"	15"	18"
Chamber	8.5 (6.0)	9.1 (6.5)	9.7 (6.9)	10.4 (7.4)
End Cap	3.9 (2.8)	4.1 (2.9)	4.3 (3.1)	4.5 (3.2)
METRIC kg (m³)	**230 mm**	**300 mm**	**375 mm**	**450 mm**
Chamber	7711 (4.6)	8255 (5.0)	8800 (5.3)	9435 (5.7)
End Cap	3538 (2.1)	3719 (2.2)	3901 (2.4)	4082 (2.5)

Note: Assumes 12" (300 mm) of stone above and 6" (150 mm) row spacing and 6" (150 mm) of perimeter stone in front of end caps.

Volume of Excavation Per Chamber/End Cap yd³ (m³)

	Stone Foundation Depth			
	9" (230 mm)	12" (300 mm)	15" (375 mm)	18" (450 mm)
Chamber	11.9 (9.1)	12.4 (9.5)	12.8 (9.8)	13.3 (10.2)
End Cap	4.0 (3.1)	4.1 (3.2)	4.3 (3.3)	4.4 (3.4)

Note: Assumes 6" (150 mm) of separation between chamber rows and 24" (600 mm) of cover. The volume of excavation will vary as depth of cover increases.



Special applications will be considered on a project by project basis. Please contact our application department should you have a unique application for our team to evaluate.



StormTech MC-7200 Chamber

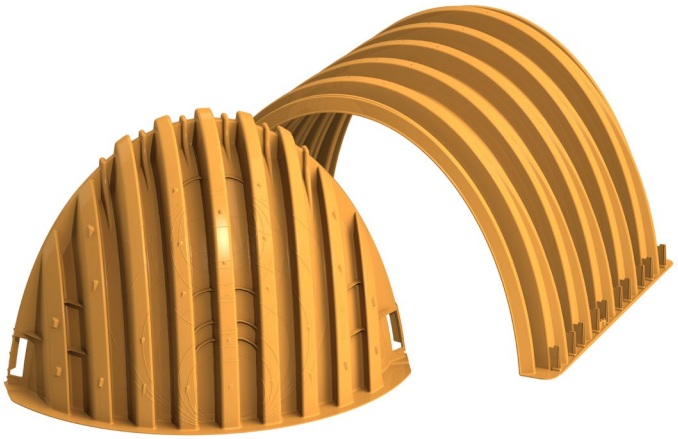
Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

MC-7200 Chamber (not to scale)

Nominal Specifications

Size (LxWxH)	83.4” x 100” x 60” (2120 x 2540 x 1524 mm)
Chamber Storage	175.9 ft³ (4.98 m³)
Min. Installed Storage*	267.3 ft³ (7.56 m³)
Weight	205 lbs (92.9 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below chambers, 9” (230 mm) of stone between chambers/end caps and 40% stone porosity.

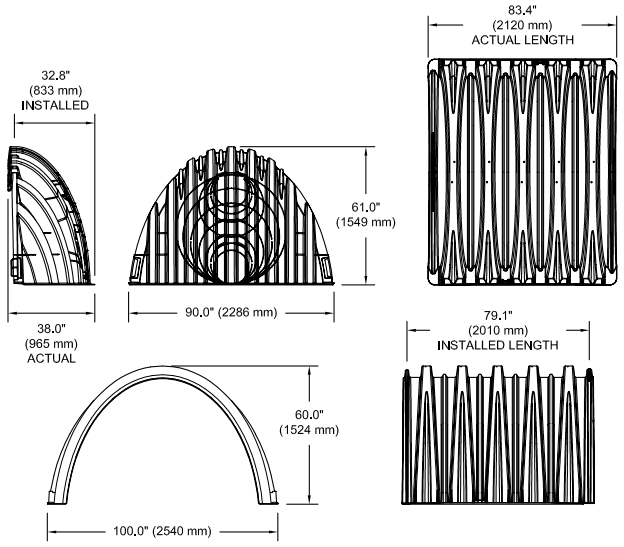


MC-7200 Chamber (not to scale)

Nominal Specifications

Size (LxWxH)	38” x 90” x 61” (965 x 2286 x 1549 mm)
End Cap Storage	39.5 ft³ (1.12 m³)
Min. Installed Storage*	115.3 ft³ (3.26 m³)
Weight	90.0 lbs (40.8 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below, 12” (300 mm) of stone perimeter, 9” (230 mm) of stone between chambers/end caps and 40% stone porosity.

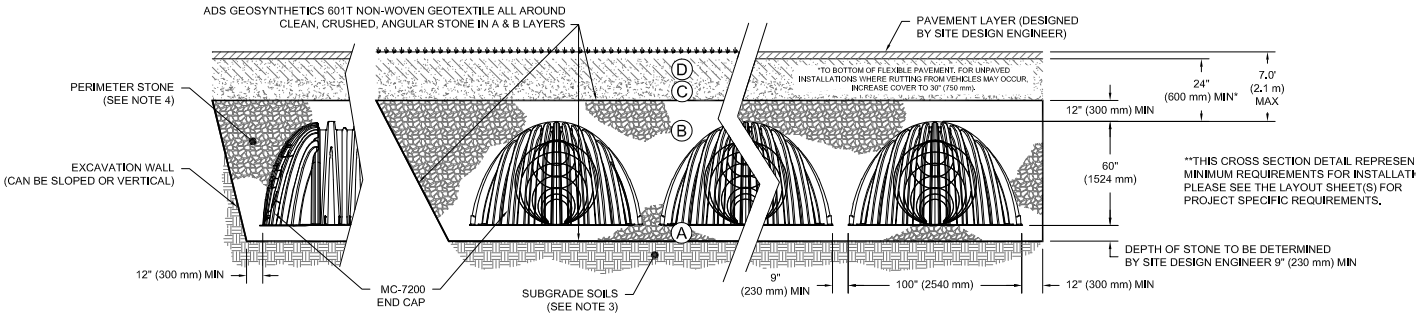


Shipping

7 chambers/pallet

5 end caps/pallet

6 pallets/truck



Storage Volume Per Chamber/End Cap ft³ (m³)

	Bare Unit Storage ft³ (m³)	Chamber/End Cap and Stone Volume — Stone Foundation Depth in. (mm)			
		9 (230)	12 (300)	15 (375)	18 (450)
Chamber	175.9 (4.98)	267.3 (7.57)	273.3 (7.74)	279.3 (7.91)	285.2 (8.08)
End Cap	39.5 (1.12)	115.3 (3.26)	111.9 (3.17)	121.9 (3.45)	125.2 (3.54)

Note: Assumes 9" (230 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume. End cap volume assumes 12" (300 mm) stone perimeter in front of end cap.

Amount of Stone Per Chamber

ENGLISH tons (yd³)	Stone Foundation Depth			
	9"	12"	15"	18"
Chamber	11.9 (8.5)	12.6 (9.0)	13.4 (9.6)	14.6 (10.1)
End Cap	9.8 (7.0)	10.2 (7.3)	10.6 (7.6)	11.1 (7.9)
METRIC kg (m³)	**230 mm**	**300 mm**	**375 mm**	**450 mm**
Chamber	10796 (6.5)	11431 (6.9)	12156 (7.3)	13245 (7.7)
End Cap	8890 (5.3)	9253 (5.5)	9616 (5.8)	10069 (6.0)

Note: Assumes 12" (300 mm) of stone above and 9" (230 mm) row spacing and 12" (300 mm) of perimeter stone in front of end caps.

Volume of Excavation Per Chamber/End Cap yd³ (m³)

	Stone Foundation Depth			
	9" (230 mm)	12" (300 mm)	15" (375 mm)	18" (450 mm)
Chamber	17.2 (13.2)	17.7 (13.5)	18.3 (14.0)	18.8 (14.4)
End Cap	9.7 (7.4)	10.0 (7.6)	10.3 (7.9)	10.6 (8.1)

Note: Assumes 9" (230 mm) of separation between chamber rows, 12" (300 mm) of perimeter in front of the end caps, and 24" (600 mm) of cover. The volume of excavation will vary as depth of cover increases.



Special applications will be considered on a project by project basis. Please contact our application department should you have a unique application for our team to evaluate.



1.0 Product Information

1.1 Product Design

StormTech's commitment to thorough product testing programs, materials evaluation and adherence to national standards has resulted in two more superior products. Like other StormTech chambers, the MC-3500 and MC-7200 are designed to meet the full scope of design requirements of the American Society of Testing Materials (ASTM) International specification F2787 "Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers" and produced to the requirements of the ASTM F 2418 "Standard Specification for Polypropylene (PP) Corrugated Stormwater Collection Chambers".

The StormTech MC-3500 and MC-7200 chambers provide the full AASHTO safety factors for live loads and permanent earth loads. The ASTM F 2787 standard provides specific guidance on how to design thermoplastic chambers in accordance with AASHTO Section 12.12. of the AASHTO LRFD Bridge Design Specifications. ASTM F 2787 requires that the safety factors included in the AASHTO guidance are achieved as a prerequisite to meeting ASTM F 2418. The three standards provide both the assurance of product quality and safe structural design.

The design of larger chambers in the same tradition of our other chambers required the collaboration of experts in soil-structure interaction, plastics and manufacturing. Years of extensive research, including laboratory testing and field verification, were required to produce chambers that are ready to meet both the rigors of installation and the longevity expected by engineers and owners.

This Design Manual provides the details and specifications necessary for consulting engineers to design stormwater management systems using the MC-3500 and MC-7200 chambers. It provides specifications for storage capacities, layout dimensions as well as requirements for design to ensure a long service life. The basic design concepts for foundation and backfill materials, subgrade bearing capacities and row spacing remain equally as pertinent for the MC-3500 and MC-7200 as the SC-740, SC-310 and DC-780 chamber systems. However, since many design values and dimensional requirements are different for these larger chambers than the SC-740, SC-310 and DC-780 chambers, design manuals and installation instructions are not interchangeable.

This manual includes only those details, dimensions, cover limits, etc for the MC-3500 and MC-7200 and is intended to be a stand-alone design guide for the MC-3500 and MC-7200 chambers. A Construction Guide specifically for these two chamber models has also been published.

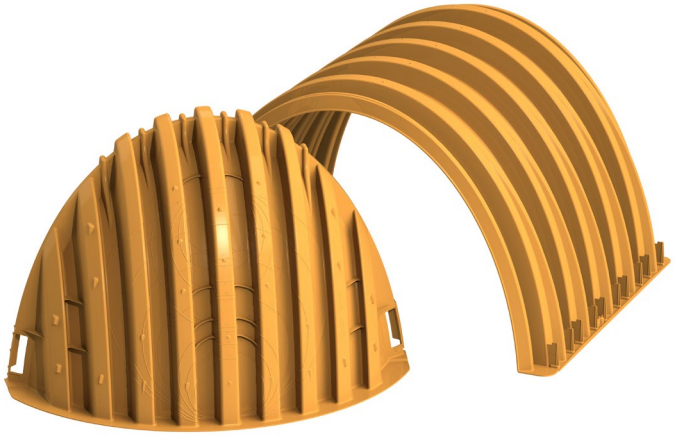
1.2 Technical Support

The StormTech Technical Services Department is available to assist the engineer with the layout of MC-3500 and MC-7200 chamber systems and answer questions regarding all the StormTech chamber models. Call the Technical Services Department, email us at info@stormtech.com or contact your local StormTech representative.

1.3 MC-3500 and MC-7200 Chambers

All StormTech chambers are designed to the full scope of AASHTO requirements without repeating end walls or other structural reinforcing. StormTech's continuously curved, elliptical arch and the surrounding angular backfill are the key components of the structural system. With the addition of patent pending integral stiffening ribs (Figure 5), the MC-3500 and MC-7200 are assured to provide a long, safe service life. Like other StormTech chambers, the MC-3500 and MC-7200 are produced from high quality, impact modified resins which are tested for short-term and long-term mechanical properties.

With all StormTech chambers, one chamber type is used for the start, middle and end of rows. Rows are formed by overlapping the upper joint corrugation of the next chamber over the lower joint corrugation of the previous chamber (Figure 6).



1.4 Chamber Joints

All StormTech chambers are designed with an optimized joining system. The height and width of the end corrugations have been designed to provide the required structural safety factors while providing an unobstructed flow path down each row.

1.0 Product Information

To assist the contractor, StormTech chambers are molded with simple assembly instructions and arrows that indicate the direction in which to build rows. The corrugation valley immediately adjacent to the lower joint corrugation is marked “Overlap Here - Lower Joint.” The corrugation valley immediately adjacent to the upper joint corrugation is marked “Build This Direction - Upper Joint.”

Two people can safely and efficiently carry and place chambers without cumbersome connectors, special tools or heavy equipment. Each row of chambers must begin and end with a joint corrugation. Since joint corrugations are of a different size than the corrugations along the body of the chamber, chambers cannot be field cut and installed. Only whole MC-3500 and MC-7200 chambers can be used. For system layout assistance contact StormTech.

1.5 MC-3500 and MC-7200 End Caps

The MC-3500 and MC-7200 end caps are easy to install. These end caps are designed with a corrugation joint that fits over the top of either end of the chamber. The end cap joint is simply set over the top of either of the upper or lower chamber joint corrugations (Figure 7).

The MC-3500 end cap has pipe cutting guides for 12”–24” (300 mm–600 mm) top inverts (Figure 9).

The MC-7200 end cap has pipe cutting guides for 12”–42” (300 mm–1050 mm) bottom inverts and 12”–24” (300 mm–600 mm) top inverts (Figure 8).

Standard and custom pre-cored end caps are available. MC-3500 pre-cored end caps, 18” in diameter and larger include a welded crown plate.

Figure 5 - Chamber and End Cap Components

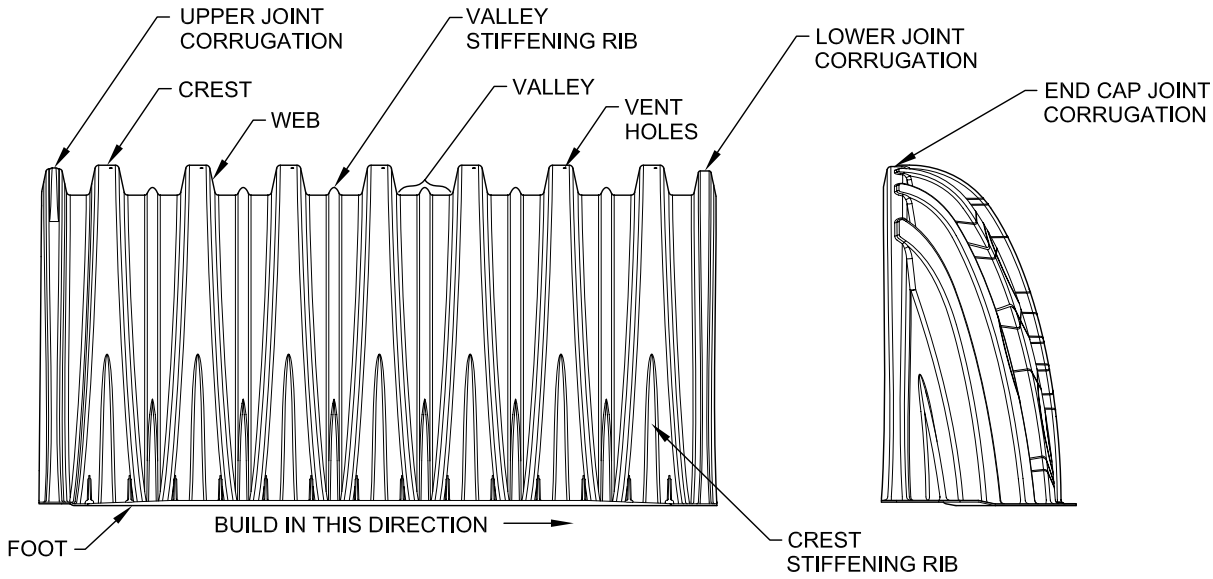


Figure 6 - Chamber Joint Overlap

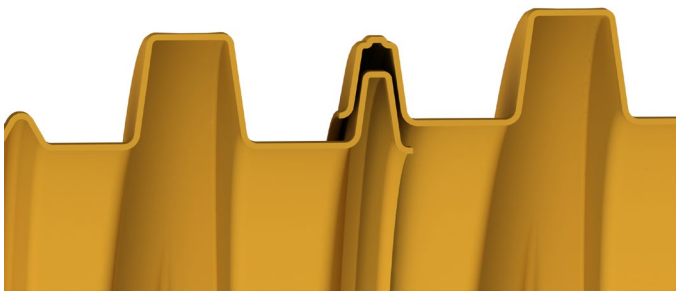


Figure 7 - End Cap Joint Overlap



1.0 Product Information

Figure 8 - MC-7200 End Cap Inverts

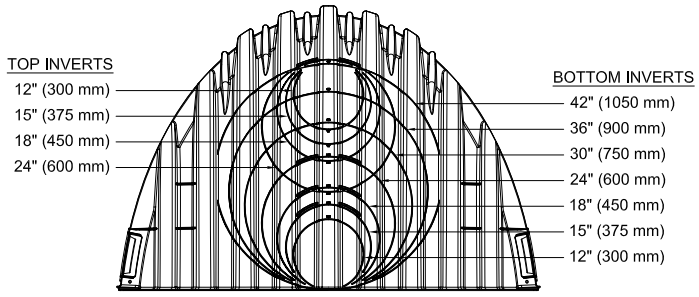
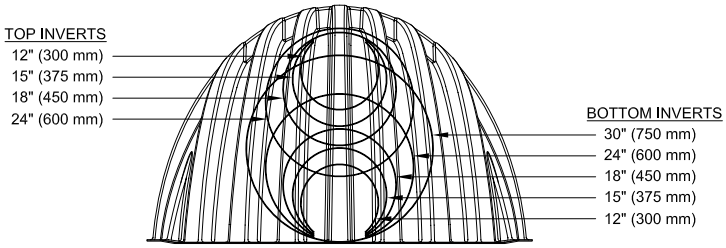


Figure 9 - MC-3500 End Cap Inverts

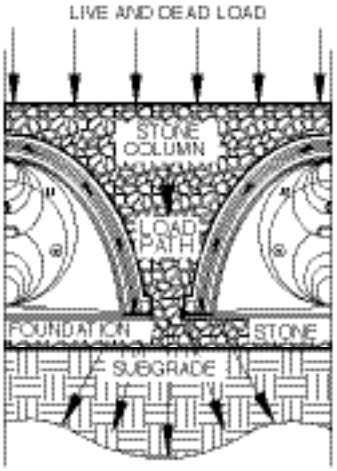


2.0 Foundations for Chambers

2.1 Foundation Requirements

StormTech chamber systems can be installed in various soil types. The subgrade bearing capacity and the cover height over the chambers determine the required depth of clean, crushed, angular foundation stone below the chambers. Foundation stone, also called bedding, is the stone between the subgrade soils and the feet of the chamber. Flexible structures are designed to transfer a significant portion of both live and dead loads through the surrounding soils. Chamber systems accomplish this by creating load paths through the columns of embedment stone between and around the rows of chambers. This creates load concentrations at the base of the columns between the rows. The foundation stone spreads out the concentrated loads to distributed loads that can be supported by the subgrade soils.

Since increasing the cover height (top of chamber to finished grade) causes increasing soil load, a greater depth of foundation stone is necessary to distribute the load to the subgrade soils. **Table 1** and **2** specify the minimum required foundation depths for varying cover heights and allowable subgrade bearing capacities. These tables are based on StormTech service loads. The minimum required foundation depth is 9” (230 mm) for both chambers.



For additional guidance on foundation stone design please see our Technical Note 6.22 - StormTech Subgrade Performance

2.2 Weaker Soils

StormTech has not provided guidance for subgrade bearing capacities less than 2000 pounds per square foot [(2.0 ksf) (96 kPa)]. These soils are often highly vari- able, may contain organic materials and could be more sensitive to moisture. A geotechnical engineer must be consulted if soils with bearing capacities less than 2000 psf (96 kPa) are present.

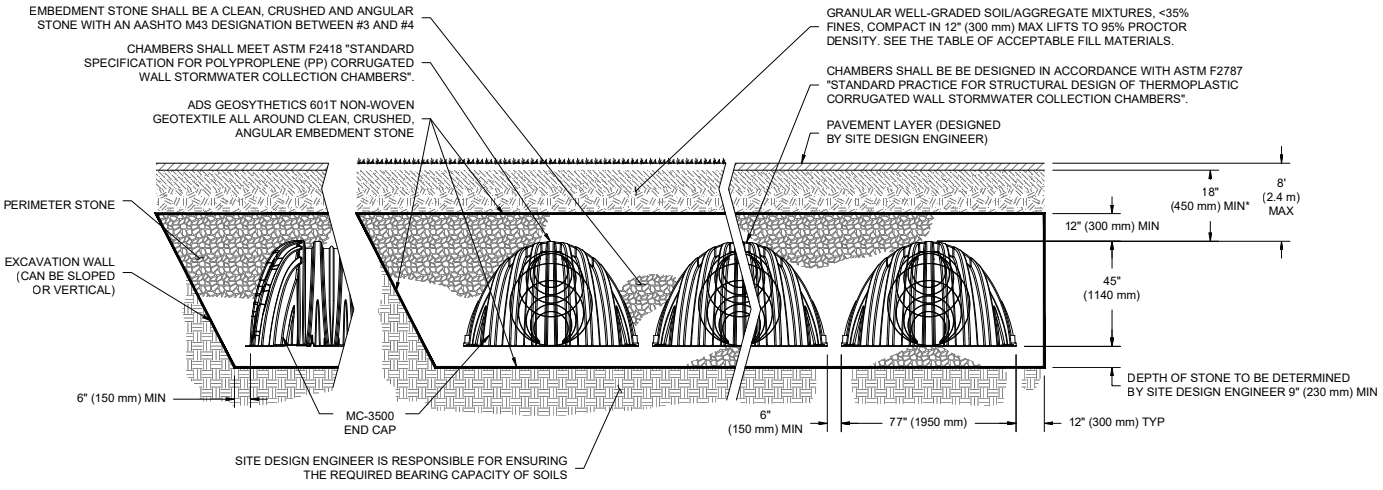
2.0 Foundations for Chambers

Table 1 - MC-3500 Minimum Required Foundation Depth in inches (millimeters)
Assumes 6" (150 mm) row spacing.

Cover Hgt. ft. (m)	Minimum Bearing Resistance for Service Loads ksf (kPa)																								
	4.4 (211)	4.3 (206)	4.2 (201)	4.1 (196)	4.0 (192)	3.9 (187)	3.8 (182)	3.7 (177)	3.6 (172)	3.5 (168)	3.4 (163)	3.3 (158)	3.2 (153)	3.1 (148)	3.0 (144)	2.9 (139)	2.8 (134)	2.7 (129)	2.6 (124)	2.5 (120)	2.4 (115)	2.3 (110)	2.2 (105)	2.1 (101)	2.0 (96)
1.5 (0.46)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)
2.0 (0.61)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)
2.5 (0.76)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	21 (525)
3.0 (0.91)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)
3.5 (1.07)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	24 (600)
4.0 (1.22)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	24 (600)
4.5 (1.37)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	24 (600)	27 (675)
5.0 (1.52)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	24 (600)	24 (600)	24 (600)	27 (675)	30 (750)
5.5 (1.68)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	24 (600)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)
6.0 (1.83)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)	30 (750)
6.5 (1.98)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)	30 (750)	30 (750)
7.0 (2.13)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)	30 (750)	30 (750)	30 (750)
7.5 (2.30)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	24 (600)	27 (675)	27 (675)	27 (675)	30 (750)	30 (750)	30 (750)	30 (750)
8.0 (2.44)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)	30 (750)	30 (750)	30 (750)	30 (750)

NOTE: The design engineer is solely responsible for assessing the bearing resistance (allowable bearing capacity) of the subgrade soils and determining the depth of foundation stone. Subgrade bearing resistance should be assessed with consideration for the range of soil moisture conditions expected under a stormwater system.

Figure 10A - MC-3500 Structural Cross Section Detail (Not to Scale)



*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).

Special applications will be considered on a project by project basis. Please contact our applications department should you have a unique application for our team to evaluate.

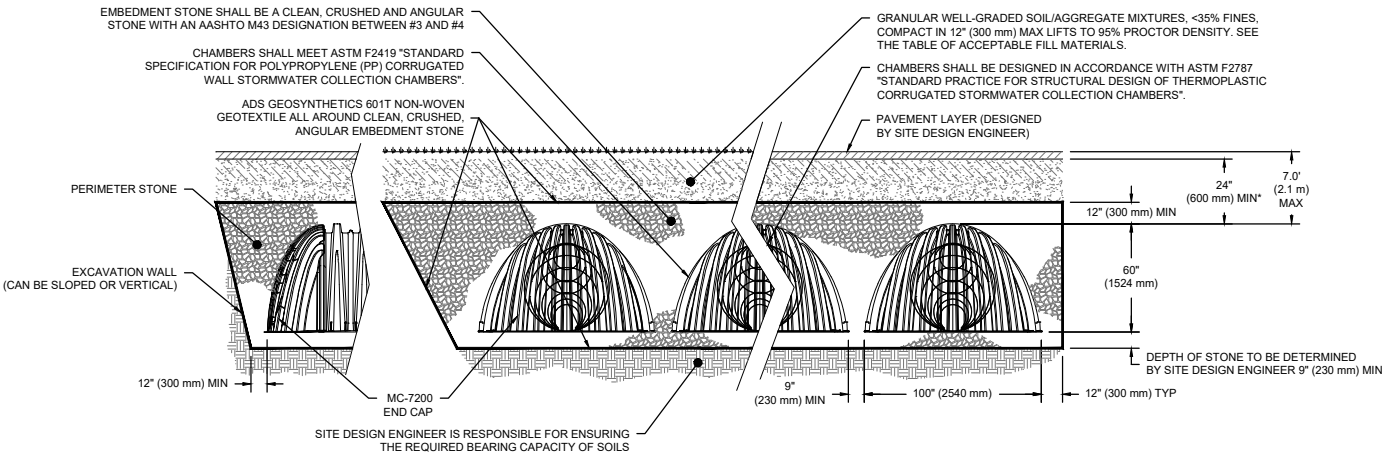
2.0 Foundations for Chambers

Table 2 - MC-7200 Minimum Required Foundation Depth in inches (millimeters)
Assumes 9” (230 mm) row spacing.

Cover Hgt. ft. (m)	Minimum Bearing Resistance for Service Loads ksf (kPa)																								
	4.4 (211)	4.3 (206)	4.2 (201)	4.1 (196)	4.0 (192)	3.9 (187)	3.8 (182)	3.7 (177)	3.6 (172)	3.5 (168)	3.4 (163)	3.3 (158)	3.2 (153)	3.1 (148)	3.0 (144)	2.9 (139)	2.8 (134)	2.7 (129)	2.6 (124)	2.5 (120)	2.4 (115)	2.3 (110)	2.2 (105)	2.1 (101)	2.0 (96)
2.0 (0.61)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	21 (525)	21 (525)
2.5 (0.76)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	24 (600)
3.0 (0.91)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	21 (525)	21 (525)	24 (600)	24 (600)	27 (675)
3.5 (1.07)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	24 (600)	24 (600)	27 (675)	30 (750)
4.0 (1.22)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	27 (675)	27 (675)	30 (750)	30 (750)
4.5 (1.37)	9 (230)	9 (230)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)	33 (825)	33 (825)
5.0 (1.52)	9 (230)	9 (230)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)	33 (825)	33 (825)	36 (900)
5.5 (1.68)	9 (230)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	24 (600)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)	33 (825)	33 (825)	36 (900)	36 (900)
6.0 (1.83)	12 (300)	12 (300)	12 (300)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)	30 (750)	33 (825)	33 (825)	36 (900)	36 (900)	36 (900)
6.5 (1.98)	12 (300)	12 (300)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	24 (600)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)	30 (750)	33 (825)	33 (825)	36 (900)	36 (900)	36 (900)	36 (900)
7.0 (2.13)	15 (375)	15 (375)	15 (375)	15 (375)	18 (450)	18 (450)	18 (450)	18 (450)	21 (525)	21 (525)	21 (525)	24 (600)	24 (600)	24 (600)	27 (675)	27 (675)	30 (750)	30 (750)	33 (825)	36 (900)	36 (900)	36 (900)	36 (900)	36 (900)	36 (900)

NOTE: The design engineer is solely responsible for assessing the bearing resistance (allowable bearing capacity) of the subgrade soils and determining the depth of foundation stone. Subgrade bearing resistance should be assessed with consideration for the range of soil moisture conditions expected under a stormwater system.

Figure 10B - MC-7200 Structural Cross Section Detail (Not to Scale)



*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 30" (750 mm).

Special applications will be considered on a project by project basis. Please contact our applications department should you have a unique application for our team to evaluate.

3.0 Required Materials/Row Separation

3.1 Foundation and Embedment Stone

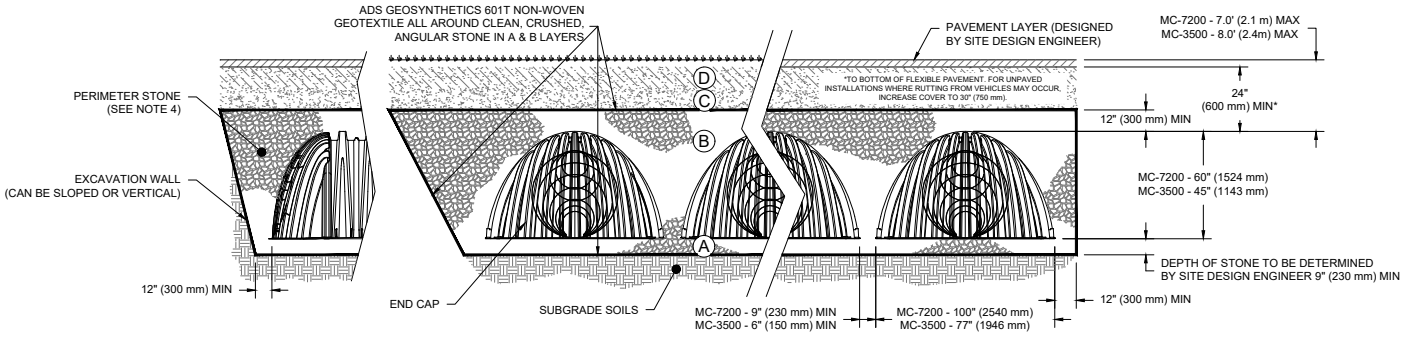
The stone surrounding the chambers consists of the foundation stone below the chambers and embedment stone surrounding the chambers. The foundation stone and embedment stone are important components of the structural system and also provide open void space for stormwater storage. Table 3 provides the stone specifications that achieve both structural requirements and a porosity of 40% for stormwater storage. Figure 11 specifies the extents of each backfill stone location.

Table 3 - Acceptable Fill Materials

	Material Location	Description	AASHTO Material Classifications	Compaction / Density Requirement
D	**Final Fill:** Fill Material for layer 'D' starts from the top of the 'C' layer to the bottom of flexible pavement or unpaved finished grade above. Note that pavement subbase may be part of the 'D' layer.	Any soil/rock materials, native soils, or per engineer's plans. check plans for pavement subgrade requirements.	N/A	Prepare per site design engineer's plans. Paved installations may have stringent material and preparation requirements.
C	**Initial Fill:** Fill material for layer 'C' starts from the top of the embedment stone ('B' layer) to 24" (600 mm) above the top of the chamber. note that pavement subbase may be a part of the 'C' layer.	Granular well-graded soil/aggregate mixtures, <35% fines or processed aggregate. most pavement subbase materials can be used in lieu of this layer.	AASHTO M145[1] a-1,a-2-4,a-3 or AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	Begin compactoins after 24" (600 mm) of material over the chambers is reached. compact addtional layers in 12" (300 mm) max lifts to a min. 95% proctor density for well-graded material and 95% relative density for processed aggregate materials.
B	**Embedment Stone:** Fill surrounding the chambers form the foudation stone ('A' layer) to the 'C' layer above.	Clean, crushed, angular stone	AASHTO M43[1] 3, 4	No compaction required
A	**Foundation Stone:** Fill below chambers from the subgrade up to the foot (bottom) of the chamber.	Clean, crushed, angular stone	AASHTO M43[1] 3, 4	Plate compact or roll to achieve a flat surface. [2] [3]

Please Note:
1. The listed AASHTO designations are for gradations only. The stone must also be clean, crushed, angular. For example, a specification for #4 stone would state: "clean, crushed, angular NO. 4 (AASHTO m43) stone".
2. Stormtech compaction requirements are met for 'A' location materials when placed and compacted in 9" (230 mm) (max) lifts using two full coverages with a vibratory compactor.
3. Where infiltration surfaces may be compromised by compaction, for standard design load conditions, a flat surface may be achieved by raking or dragging without compaction equipment. For special load designs, contact stormtech for compaction requirements.

Figure 11 - Fill Material Locations



Once layer 'C' is placed, any soil/material can be placed in layer 'D' up to the finished grade. Most pavement subbase soils can be used to replace the materials of layer 'C' or 'D' at the design engineer's discretion.

3.0 Required Materials/Row Separation

3.2 Fill Above Chambers

Refer to Table 3 and Figure 11 for acceptable fill material above the clean, crushed, angular stone. StormTech requires a minimum of 24" (600 mm) from the top of the chamber to the bottom of flexible pavement. For non-paved installations where rutting from vehicles may occur StormTech requires a minimum of 30" (750 mm) from top of chamber to finished grade.

3.3 Geotextile Separation

A non-woven geotextile meeting AASHTO M288 Class 2 separation requirements must be installed to completely envelope the system and prevent soil intrusion into the crushed, angular stone. Overlap adjacent geotextile rolls per AASHTO M288 separation guidelines. Contact StormTech for a list of acceptable geotextiles.

3.4 Parallel Row Separation/ Perpendicular Bed Separation

Parallel Row Separation

The minimum installed spacing between parallel rows after backfilling is 9" (230 mm) for the MC-7200 chambers and 6" (150mm) for the MC-3500 (measurement taken between the outside edges of the feet). Spacers may be used for layout convenience. Row spacing wider than the minimum spacing above may be specified.

Perpendicular Bed Separation

When beds are laid perpendicular to each other, a minimum installed spacing of 36" (900 mm) between beds is required.

3.5 Special Structural Designs

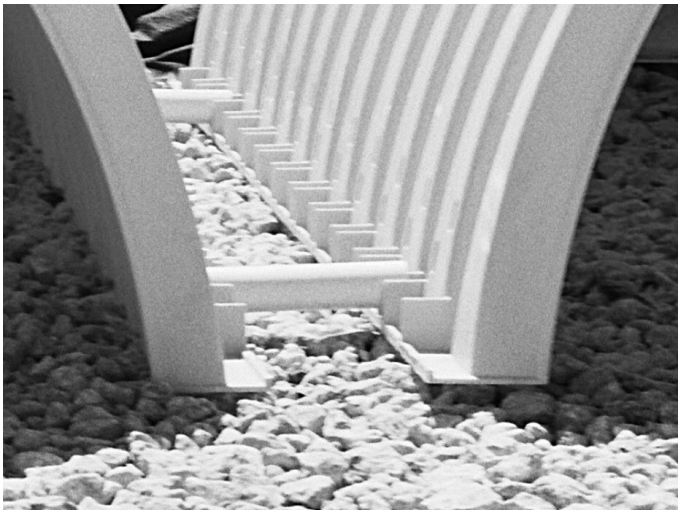
StormTech engineers may provide special structural designs to enable deeper cover depths or increase the capacity to carry higher live loads. Special designs may utilize the additional strength that can be achieved by compaction of embedment stone or by increasing the spacing between rows.

Increasing the spacing between chamber rows may also facilitate the application of StormTech chambers with either less foundation stone or with weaker subgrade soils. This may be a good option where vertical restrictions on site prevent the use of a deeper foundation.

Contact ADS Engineering Services for more information on special structural designs.



System Cross Section



Minimum Row Spacing

4.0 Hydraulics

4.1 General

StormTech subsurface chamber systems offer the flexibility for a variety of inlet and outlet configurations. Contact the StormTech Technical Services Department or your local StormTech representative for assistance configuring inlet and outlet connections.

The open graded stone around and under the chambers provides a significant conveyance capacity ranging from approximately 0.8 cfs (23 l/s) to 13 cfs (368 l/s) per MC-3500 chamber and for the MC-7200 chamber. The actual conveyance capacity is dependent upon stone size, depth of foundation stone and head of water. Although the high conveyance capacity of the open graded stone is an important component of the flow network, StormTech recommends that a system of inlet and outlet manifolds be designed to distribute and convey the peak flow through the chamber system.

It is the responsibility of the design engineer to provide the design flow rates and storage volumes for the stormwater system and to ensure that the final design meets all conveyance and storage requirements. However, StormTech will work with the design engineer to assist with manifold and chamber layouts that meet the design objectives.

4.2 The Isolator® Row Plus

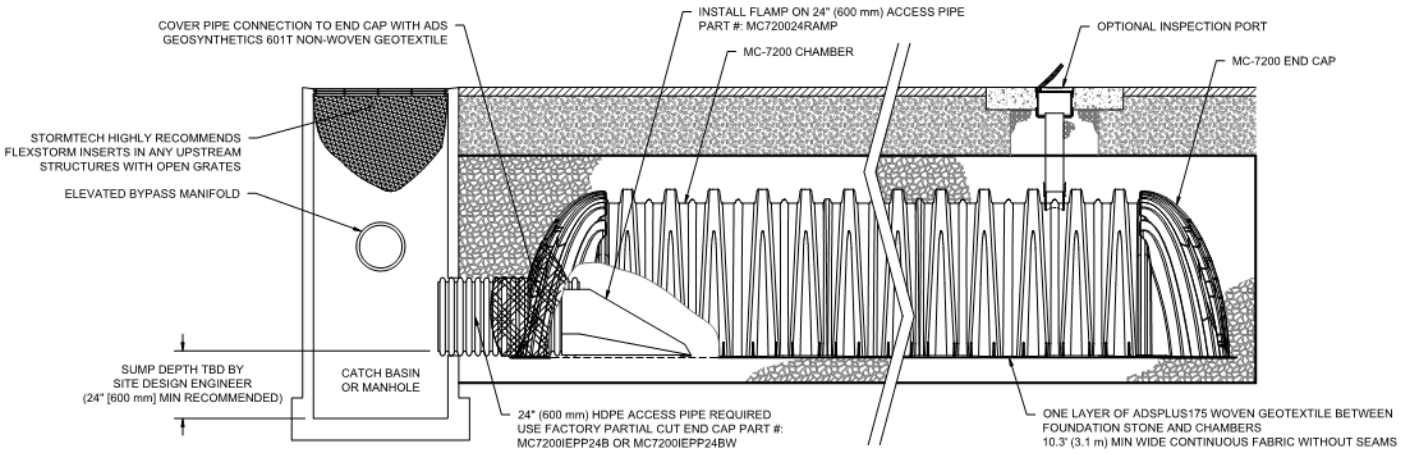
The Isolator Row Plus is a system that inexpensively captures total suspended solids (TSS) and debris and provides easy access for inspection and maintenance. In a typical configuration, a single layer of ADS Plus fabric is placed between the chambers and the stone foundations. This fabric traps and filters sediments as well as protects the stone base during cleaning and maintenance. Each installed MC-3500 chamber and MC-3500 end cap provides 42.9 ft2 (4.0 m^2) and 7.5 ft^2 (0.7 m^2) of bottom filter area respectively. Each installed MC-7200 chamber and MC-7200 end cap provides 57.9 ft^2 (5.4 m^2) and 12.8 ft^2 (1.19 m^2) of bottom filter area respectively.

The Isolator Row Plus can be configured for maintenance objectives or, in some regulatory jurisdictions, for water quality objectives. For water quality applications, the Isolator Row Plus can be sized based on water quality volume or flow rate.

All Isolator Plus Rows require: 1) a manhole for maintenance access, 2) a means of diversion of flows to the Isolator Row Plus 3) a high flow bypass and 4)FLAMP (Flared End Ramp). When used on an Isolator Row Plus, a 24” FLAMP (flared end ramp) is attached to the inside of the inlet pipe with a provided threaded rod and bolt. The FLAMP then lays on top of the ADS Plus fabric.. Flow diversion can be accomplished by either a weir in the upstream access manhole or simply by feeding the Isolator Row Plus at a lower elevation than the high flow bypass. Contact StormTech for assistance sizing Isolator Plus Rows.

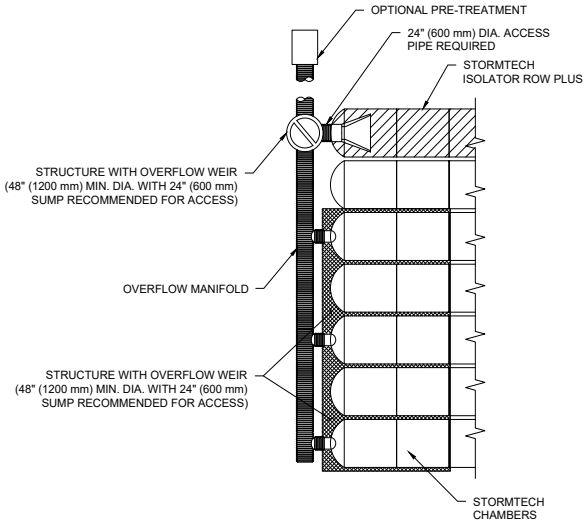
When additional stormwater treatment is required, StormTech systems can be configured using a treatment train approach where other stormwater BMPs are located in series.

Figure 12 - StormTech Isolator Row Plus Detail



4.0 Hydraulics

Figure 13 - Typical Inlet Configuration With Isolator Row Plus and Scour Protection



4.3 Inlet Manifolds

The primary function of the inlet manifold is to convey and distribute flows to a sufficient number of rows in the chamber bed such that there is ample conveyance capacity to pass the peak flows without creating an unacceptable backwater condition in upstream piping or scour the foundation stone under the chambers.

Manifolds are connected to the end caps either at the top or bottom of the end cap. Standard distances from the base of chamber to the invert of inlet and outlet manifolds connecting to StormTech end caps can be found in table 6. High inlet flow rates from either connection location produce a shear scour potential of the foundation stone. Inlet flows from top inlets also produce impingement scour potential. Scour potential is reduced when standing water is present over the foundation stone. However, for safe design across the wide range of applications, StormTech assumes minimal standing water at the time the design flow occurs.

To minimize scour potential, StormTech recommends the installation of woven scour protection fabric at each inlet row. This enables a protected transition zone from the concentrated flow coming out of the inlet pipe to a uniform flow across the entire width of the chamber for both top and bottom connections.

Allowable flow rates for design are dependent upon: the elevation of inlet pipe, foundation stone size and scour protection. With an appropriate scour protection geotextile installed from the end cap to at least 14.5 ft (4.42 m) in front of the inlet pipe for the MC-3500 and for the MC-7200, for both top and bottom feeds, the flow rates listed in Table 4 can be used for all StormTech specified foundation stone gradations.

*See StormTech's Tech Note 6.32 for manifold sizing guidance.

Table 4 - Allowable Inlet Flows*

Inlet Pipe Diameter Inches (mm)	Allowable Maximum Flow Rate cfs (l/s)
12 (300)	2.48 (70)
15 (375)	3.5 (99)
18 (450)	5.5 (156)
24 (600)	8.5 (241) [MC-3500]
24 (600)	9.5 (269) [MC-7200]

*Assumes appropriate length of scour fabric per section 4.3

Table 5 - Maximum Outlet Flow Rate Capacities From StormTech Oulet Manifolds

Pipe Diameter	Flow (CFS)	Flow (L/S)
6" (150 mm)	0.4	11.3
8" (200 mm)	0.7	19.8
10" (250 mm)	1.0	28.3
12" (300 mm)	2.0	56.6
15" (375 mm)	2.7	76.5
18" (450 mm)	4.0	113.3
24" (600 mm)	7.0	198.2
30" (750 mm)	11.0	311.5
36" (900 mm)	16.0	453.1
42" (1050 mm)	22.0	623.0
48" (1200 mm)	28.0	792.9

Table 6 - Standard Distances From Base of Chamber to Invert of Inlet and Outlet Manifolds on StormTech End Caps

MC-3500 ENDCAPS			
	Pipe Diameter	Inv. (in)	Inv. (mm)
Top	6" (150 mm)	33.21	841
	8" (200 mm)	31.16	789
	10" (250 mm)	29.04	738
	12" (300 mm)	26.36	671
	15" (375 mm)	23.39	594
	18" (450 mm)	20.03	509
	24" (600 mm)	14.48	369
Bottom	12" (750 mm)	1.35	34
	15" (900 mm)	1.5	40
	18" (1050 mm)	1.77	46
	24" (1200 mm)	2.06	52

MC-7200 ENDCAPS			
	Pipe Diameter	Inv. (in)	Inv. (mm)
Top	12" (300 mm)	35.69	907
	15" (375 mm)	32.72	831
	18" (450 mm)	29.36	746
	24" (600 mm)	23.05	585
Bottom	12" (750 mm)	1.55	34
	15" (900 mm)	1.7	43
	18" (1050 mm)	1.97	50
	24" (1200 mm)	2.26	57

5.0 Cumulative Storage Volumes

4.4 Outlet Manifolds

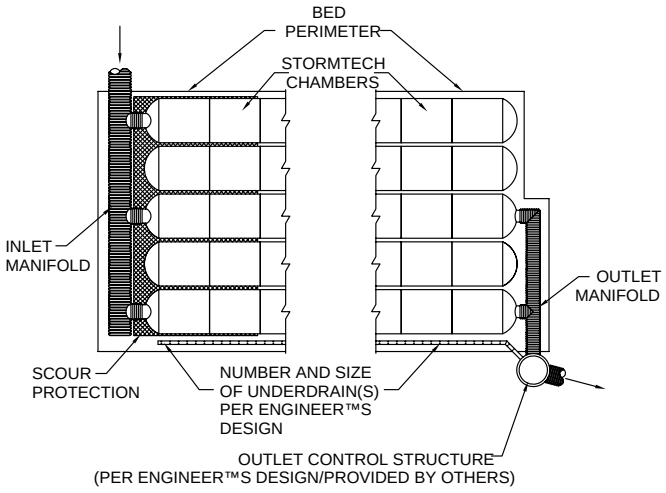
The primary function of the outlet manifold is to convey peak flows from the chamber system to the outlet control structure. Outlet manifolds are often sized for attenuated flows. They may be smaller in diameter and have fewer row connections than inlet manifolds. In some applications however, the intent of the outlet piping is to convey an unattenuated bypass flow rate and manifolds may be sized similar to inlet manifolds.

Since chambers are generally flowing at or near full at the time of the peak outlet flow rate, scour is generally not governing and outlet manifold sizing is based on pipe flow equations. In most cases, StormTech recommends that outlet manifolds connect the same rows that are connected to an inlet manifold. This provides a continuous flow path through open conduits to pass the peak flow without dependence on passing peak flows through stone.

The primary function of the underdrains is to draw down water stored in the stone below the invert of the manifold. Underdrains are generally not sized for conveyance of the peak flow.

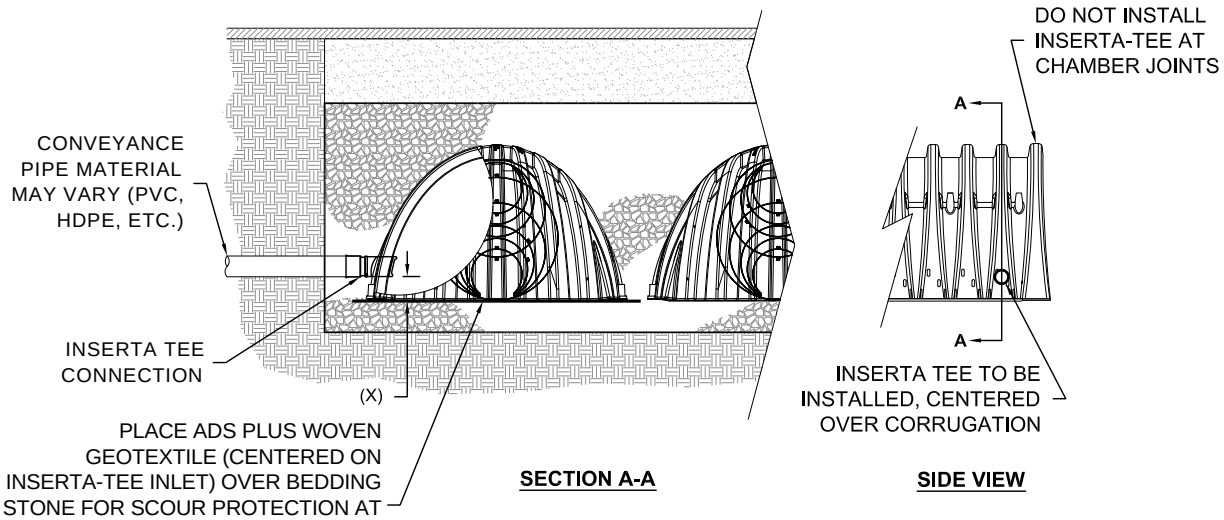
The maximum outlet flow rate capacities from StormTech outlet manifolds can be found in Table 5.

Figure 14 - Typical Inlet, Outlet and Underdrain Configuration



4.5 Inserta Tee® Inlet Connections

Figure 15 - Inserta Tee Detail



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
MC-3500	12" (250 mm)	6" (150 mm)
MC-7200	12" (250 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

5.0 Cumulative Storage Volumes

Tables 7 and 8 provide cumulative storage volumes for the MC-3500 chamber and end cap. These tables can be used to calculate the stage-storage relationship for the retention or detention system. Digital spreadsheets in which the number of chambers and end caps can be input for quick cumulative storage calculations are available at www.stormtech.com. For assistance with site-specific calculations or input into routing software, contact the StormTech Technical Services Department.

Table 7 – MC-3500 Incremental Storage Volume Per Chamber
Assumes 40% stone porosity. Calculations are based upon a 9" (230 mm) stone base under the chambers, 12" (300 mm) of stone above chambers, and 6" (150 mm) of spacing between chambers.

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft^3 (m^3)	Total System Cumulative Storage ft^3 (m^3)
66 (1676)	0.00	175.02 (4.956)
65 (1651)	0.00	173.36 (4.909)
64 (1626)	0.00	171.71 (4.862)
63 (1600)	0.00	170.06 (4.816)
62 (1575)	0.00	168.41 (4.7.69)
61 (1549)	0.00	166.76 (4.722)
60 (1524)	0.00	165.10 (4.675)
59 (1499)	0.00	163.45 (4.628)
58 (1473)	0.00	161.80 (4.582)
57 (1448)	0.00	160.15 (4.535)
56 (1422)	0.00	158.49 (4.488)
55 (1397)	0.00	156.84 (4.441)
54 (1372)	109.95 (3.113)	155.19 (4.394)
53 (1346)	109.89 (3.112)	153.50 (4.347)
52 (1321)	109.69 (3.106)	151.73 (4.297)
51 (1295)	109.40 (3.098)	149.91 (4.245)
50 (1270)	109.00 (3.086)	148.01 (4.191)
49 (1245)	108.31 (3.067)	145.95 (4.133)
48 (1219)	107.28 (3.038)	143.68 (4.068)
47 (1194)	106.03 (3.003)	141.28 (4.000)
46 (1168)	104.61 (2.962)	138.77 (3.930)
45 (1143)	103.04 (2.918)	136.17 (3.856)
44 (1118)	101.33 (2.869)	133.50 (3.780)
43 (1092)	99.50 (2.818)	130.75 (3.702)
42 (1067)	97.56 (2.763)	127.93 (3.623)
41 (1041)	95.52 (2.705)	125.06 (3.541)
40 (1016)	93.39 (2.644)	122.12 (3.458)
39 (991)	91.16 (2.581)	119.14 (3.374)
38 (965)	88.86 (2.516)	116.10 (3.288)
37 (948)	86.47 (2.449)	113.02 (3.200)
36 (914)	84.01 (2.379)	109.89 (3.112)
35 (889)	81.49 (2.307)	106.72 (3.022)
34 (864)	78.89 (2.234)	103.51 (2.931)
33 (838)	76.24 (2.159)	100.27 (2.839)

Stone Cover

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft^3 (m^3)	Total System Cumulative Storage ft^3 (m^3)
32 (813)	73.52 (2.082)	96.98 (2.746)
31 (787)	70.75 (2.003)	93.67 (2.652)
30 (762)	67.92 (1.923)	90.32 (2.558)
29 (737)	65.05 (1.842)	86.94 (2.462)
28 (711)	62.12 (1.759)	83.54 (2.366)
27 (686)	59.15 (1.675)	80.10 (2.268)
26 (680)	56.14 (1.590)	76.64 (2.170)
25 (635)	53.09 (1.503)	73.16 (2.072)
24 (610)	49.99 (1.416)	69.65 (1.972)
23 (584)	46.86 (1.327)	66.12 (1.872)
22 (559)	43.70 (1.237)	62.57 (1.772)
21 (533)	40.50 (1.147)	59.00 (1.671)
20 (508)	37.27 (1.055)	55.41 (1.569)
19 (483)	34.01 (0.963)	51.80 (1.467)
18 (457)	30.72 (0.870)	48.17 (1.364)
17 (432)	27.40 (0.776)	44.53 (1.261)
16 (406)	24.05 (0.681)	40.87 (1.157)
15 (381)	20.69 (0.586)	37.20 (1.053)
14 (356)	17.29 (0.490)	33.51 (0.949)
13 (330)	13.88 (0.393)	29.81 (0.844)
12 (305)	10.44 (0.296)	26.09 (0.739)
11 (279)	6.98 (0.198)	22.37 (0.633)
10 (254)	3.51 (0.099)	18.63 (0.527)
9 (229)	0.00	14.87 (0.421)
8 (203)	0.00	13.22 (0.374)
7 (178)	0.00	11.57 (0.328)
6 (152)	0.00	9.91 (0.281)
5 (127)	0.00	8.26 (0.234)
4 (102)	0.00	6.61 (0.187)
3 (76)	0.00	4.96 (0.140)
2 (51)	0.00	3.30 (0.094)
1 (25)	0.00	1.65 (0.047)

Stone Cover

NOTE: Add 1.65 ft^3 (0.047 m^3) of storage for each additional inch (25 mm) of stone foundation. Contact StormTech for cumulative volume spreadsheets in digital format.

5.0 Cumulative Storage Volume

Table 8 – MC-3500 Incremental Storage Volume Per End Cap
Assumes 40% stone porosity. Calculations are based upon a 9” (230 mm) stone base under the chambers, 12” (300 mm) of stone above end caps, and 6” (150 mm) of spacing between end caps and 6” (150 mm) of stone perimeter.

Depth of Water in System Inches (mm)	Cumulative End Cap Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
66 (1676)	0.00	45.10 (1.277)
65 (1651)	0.00	44.55 (1.262)
64 (1626)	0.00	44.00 (1.246)
63 (1600)	0.00	43.46 (1.231)
62 (1575)	0.00	42.91 (1.2.15)
61 (1549)	0.00	42.36 (1.200)
60 (1524)	0.00	41.81 (1.184)
59 (1499)	0.00	41.27 (1.169)
58 (1473)	0.00	40.72 (1.153)
57 (1448)	0.00	40.17 (1.138)
56 (1422)	0.00	39.62 (1.122)
55 (1397)	0.00	39.08 (1.107)
54 (1372)	15.64 (0.443)	38.53 (1.091)
53 (1346)	15.64 (0.443)	37.98 (1.076)
52 (1321)	15.63 (0.443)	37.42 (1.060)
51 (1295)	15.62 (0.442)	36.85 (1.043)
50 (1270)	15.60 (0.442)	36.27 (1.027)
49 (1245)	15.56 (0.441)	35.68 (1.010)
48 (1219)	15.51 (0.439)	35.08 (0.993)
47 (1194)	15.44 (0.437)	34.47 (0.976)
46 (1168)	15.35 (0.435)	33.85 (0.959)
45 (1143)	15.25 (0.432)	33.22 (0.941)
44 (1118)	15.13 (0.428)	32.57 (0.922)
43 (1092)	14.99 (0.424)	31.91 (0.904)
42 (1067)	14.83 (0.420)	31.25 (0.885)
41 (1041)	14.65 (0.415)	30.57 (0.866)
40 (1016)	14.45 (0.409)	29.88 (0.846)
39 (991)	14.24 (0.403)	29.18 (0.826)
38 (965)	14.00 (0.396)	28.48 (0.806)
37 (948)	13.74 (0.389)	27.76 (0.786)
36 (914)	13.47 (0.381)	27.04 (0.766)
35 (889)	13.18 (0.373)	26.30 (0.745)
34 (864)	12.86 (0.364)	25.56 (0.724)

Stone Cover

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
33 (838)	12.53 (0.355)	24.82 (0.703)
32 (813)	12.18 (0.345)	24.06 (0.681)
31 (787)	11.81 (0.335)	23.30 (0.660)
30 (762)	11.42 (0.323)	22.53 (0.638)
29 (737)	11.01 (0.312)	21.75 (0.616)
28 (711)	10.58 (0.300)	20.96 (0.594)
27 (686)	10.13 (0.287)	20.17 (0.571)
26 (680)	9.67 (0.274)	19.37 (0.549)
25 (635)	9.19 (0.260)	18.57 (0.526)
24 (610)	8.70 (0.246)	17.76 (0.503)
23 (584)	8.19 (0.232)	16.94 (0.480)
22 (559)	7.67 (0.217)	16.12 (0.456)
21 (533)	7.13 (0.202)	15.29 (0.433)
20 (508)	6.59 (0.187)	14.45 (0.409)
19 (483)	6.03 (0.171)	13.61 (0.385)
18 (457)	5.46 (0.155)	12.76 (0.361)
17 (432)	4.88 (0.138)	11.91 (0.337)
16 (406)	4.30 (0.122)	11.06 (0.313)
15 (381)	3.70 (0.105)	10.20 (0.289)
14 (356)	3.10 (0.088)	9.33 (0.264)
13 (330)	2.49 (0.071)	8.46 (0.240)
12 (305)	1.88 (0.053)	7.59 (0.215)
11 (279)	1.26 (0.036)	6.71 (0.190)
10 (254)	0.63 (0.018)	5.83 (0.165)
9 (229)	0.00	4.93 (0.139)
8 (203)	0.00	4.38 (0.124)
7 (178)	0.00	3.83 (0.108)
6 (152)	0.00	3.28 (0.093)
5 (127)	0.00	2.74 (0.077)
4 (102)	0.00	2.19 (0.062)
3 (76)	0.00	1.64 (0.046)
2 (51)	0.00	1.09 (0.031)
1 (25)	0.00	0.55 (0.015)

Stone Cover

NOTE: Add 0.56 ft³ (0.016 m³) of storage for each additional inch (25 mm) of stone foundation. Contact StormTech for cumulative volume spreadsheets in digital format.

5.0 Cumulative Storage Volumes

Tables 9 and **10** provide cumulative storage volumes for the MC-7200 chamber and end cap. These tables can be used to calculate the stage-storage relationship for the retention or detention system. Digital spreadsheets in which the number of chambers and end caps can be input for quick cumulative storage calculations are available at www.stormtech.com. For assistance with site-specific calculations or input into routing software, contact the StormTech Technical Services Department.

Table 9 – MC-7200 Incremental Storage Volume Per Chamber
Assumes 40% stone porosity. Calculations are based upon a 9" (230 mm) stone base under the chambers, 12" (300 mm) of stone above chambers, and 9" (230 mm) of spacing between chambers.

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
81 (2057)	0.00	267.30 (7.569)
80 (2032)	0.00	265.30 (7.512)
79 (2007)	0.00	263.30 (7.456)
78 (1981)	0.00	261.31 (7.399)
77 (1956)	0.00	259.31 (7.343)
76 (1930)	0.00	257.31 (7.286)
75 (1905)	0.00	255.32 (7.230)
74 (1880)	0.00	253.32 (7.173)
73 (1854)	0.00	251.32 (7.117)
72 (1829)	0.00	249.33 (7.060)
71 (1803)	0.00	247.33 (7.004)
70 (1778)	0.00	245.33 (6.947)
69 (1753)	175.90 (4.981)	243.33 (6.890)
68 (1727)	175.84 (4.979)	241.30 (6.833)
67 (1702)	175.65 (4.974)	239.19 (6.773)
66 (1676)	175.38 (4.966)	237.03 (6.712)
65 (1651)	175.02 (4.956)	234.82 (6.649)
64 (1626)	174.56 (4.943)	232.54 (6.585)
63 (1600)	173.82 (4.922)	230.10 (6.516)
62 (1575)	172.72 (4.891)	227.45 (6.441)
61 (1549)	171.41 (4.854)	224.66 (6.362)
60 (1524)	169.91 (4.811)	221.76 (6.280)
59 (1499)	168.25 (4.764)	218.77 (6.195)
58 (1473)	166.46 (4.714)	215.70 (6.108)
57 (1448)	164.53 (4.659)	212.55 (6.019)
56 (1422)	162.50 (4.602)	209.33 (5.928)
55 (1397)	160.36 (4.541)	206.05 (5.835)
54 (1372)	158.11 (4.477)	202.70 (5.740)
53 (1346)	155.77 (4.411)	199.30 (5.644)
52 (1321)	153.33 (4.342)	195.84 (5.546)
51 (1295)	150.81 (4.271)	192.33 (5.446)
50 (1270)	148.21 (4.197)	188.78 (5.346)
49 (1245)	145.53 (4.121)	185.17 (5.244)
48 (1219)	142.78 (4.043)	181.52 (5.140)
47 (1194)	139.96 (3.963)	177.83 (5.036)
46 (1168)	137.07 (3.881)	174.10 (4.930)
45 (1143)	134.11 (3.798)	170.33 (4.823)
44 (1118)	131.09 (3.712)	166.52 (4.715)
43 (1092)	128.01 (3.625)	162.68 (4.607)
42 (1067)	124.88 (3.536)	158.80 (4.497)
41 (1041)	121.68 (3.446)	154.89 (4.386)

Stone Cover

Depth of Water in System Inches (mm)	Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
40 (1016)	118.44 (3.354)	150.94 (4.274)
39 (991)	115.14 (3.260)	146.97 (4.162)
38 (965)	111.80 (3.166)	142.96 (4.048)
37 (948)	108.40 (3.070)	138.93 (3.934)
36 (914)	104.97 (2.972)	134.87 (3.819)
35 (889)	101.48 (2.874)	130.78 (3.703)
34 (864)	97.96 (2.774)	126.67 (3.587)
33 (838)	94.39 (2.673)	122.54 (3.470)
32 (813)	90.79 (2.571)	118.38 (3.352)
31 (787)	87.14 (2.468)	114.19 (3.234)
30 (762)	83.46 (2.363)	109.99 (3.114)
29 (737)	79.75 (2.258)	105.76 (2.995)
28 (711)	76.00 (2.152)	101.52 (2.875)
27 (686)	72.22 (2.045)	97.25 (2.754)
26 (680)	68.41 (1.937)	92.97 (2.632)
25 (610)	64.56 (1.828)	88.66 (2.511)
24 (609)	60.69 (1.719)	84.34 (2.388)
23 (584)	56.80 (1.608)	80.01 (2.266)
22 (559)	52.87 (1.497)	75.66 (2.142)
21 (533)	48.92 (1.385)	71.29 (2.019)
20 (508)	44.95 (1.273)	66.91 (1.895)
19 (483)	40.96 (1.160)	62.52 (1.770)
18 (457)	36.94 (1.046)	58.11 (1.646)
17 (432)	32.91 (0.932)	53.69 (1.520)
16 (406)	28.85 (0.817)	49.26 (1.395)
15 (381)	24.78 (0.702)	44.82 (1.269)
14 (356)	20.69 (0.586)	40.37 (1.143)
13 (330)	16.58 (0.469)	35.91 (1.017)
12 (305)	12.46 (0.353)	31.44 (0.890)
11 (279)	8.32 (0.236)	26.96 (0.763)
10 (254)	4.17 (0.118)	22.47 (0.636)
9 (229)	0.00	17.97 (0.509)
8 (203)	0.00	15.98 (0.452)
7 (178)	0.00	13.98 (0.396)
6 (152)	0.00	11.98 (0.339)
5 (127)	0.00	9.99 (0.283)
4 (102)	0.00	7.99 (0.226)
3 (76)	0.00	5.99 (0.170)
2 (51)	0.00	3.99 (0.113)
1 (25)	0.00	2.00 (0.057)

Stone Cover

NOTE: Add 2.00 ft³ (0.057 m³) of storage for each additional inch (25 mm) of stone foundation. Contact StormTech for cumulative volume spreadsheets in digital format.

5.0 Cumulative Storage Volumes

Table 10 – MC-7200 Incremental Storage Volume Per End Cap
Assumes 40% stone porosity. Calculations are based upon a 9" (230 mm) stone base under the chambers, 12" (300 mm) of stone above end caps, and 9" (230 mm) of spacing between end caps and 6" (150 mm) of stone perimeter.

Depth of Water in System Inches (mm)	Cumulative End Cap Storage ft^3 (m^3)	Total System Cumulative Storage ft^3 (m^3)
81 (2057)	0.00	115.28 (3.264)
80 (2032)	0.00	114.15 (3.232)
79 (2007)	0.00	113.02 (3.200)
78 (1981)	0.00	111.89 (3.168)
77 (1956)	0.00	110.76 (3.136)
76 (1930)	0.00	109.63 (3.104)
75 (1905)	0.00	108.50 (3.072)
74 (1880)	0.00	107.37 (3.040)
73 (1854)	0.00	106.24 (3.008)
72 (1829)	0.00	105.11 (2.976)
71 (1803)	0.00	103.98 (2.944)
70 (1778)	0.00	102.85 (2.912)
69 (1753)	39.54 (1.120)	101.72 (2.880)
68 (1727)	39.53 (1.119)	100.58 (2.848)
67 (1702)	39.50 (1.118)	99.43 (2.816)
66 (1676)	39.45 (1.117)	98.27 (2.783)
65 (1651)	39.38 (1.115)	97.10 (2.750)
64 (1626)	39.30 (1.113)	95.92 (2.716)
63 (1600)	39.19 (1.110)	94.73 (2.682)
62 (1575)	39.06 (1.106)	93.52 (2.648)
61 (1549)	38.90 (1.101)	92.29 (2.613)
60 (1524)	38.71 (1.096)	91.04 (2.578)
59 (1499)	38.49 (1.090)	89.78 (2.542)
58 (1473)	38.24 (1.083)	88.50 (2.506)
57 (1448)	37.97 (1.075)	87.21 (2.469)
56 (1422)	37.67 (1.067)	85.90 (2.432)
55 (1397)	37.34 (1.057)	84.57 (2.395)
54 (1372)	36.98 (1.047)	83.23 (2.357)
53 (1346)	36.60 (1.036)	81.87 (2.318)
52 (1321)	36.19 (1.025)	80.49 (2.279)
51 (1295)	35.75 (1.012)	79.10 (2.240)
50 (1270)	35.28 (0.999)	77.69 (2.200)
49 (1245)	34.79 (0.985)	76.26 (2.159)
48 (1219)	34.27 (0.970)	74.82 (2.119)
47 (1194)	33.72 (0.955)	73.36 (2.077)
46 (1168)	33.15 (0.939)	71.89 (2.036)
45 (1143)	32.57 (0.922)	70.40 (1.994)
44 (1118)	31.96 (0.905)	68.91 (1.951)
43 (1092)	31.32 (0.887)	67.40 (1.909)
42 (1067)	30.68 (0.869)	65.88 (1.866)
41 (1041)	30.00 (0.850)	64.35 (1.822)

Stone Cover

Depth of Water in System Inches (mm)	Cumulative End Cap Storage ft^3 (m^3)	Total System Cumulative Storage ft^3 (m^3)
40 (1016)	29.30 (0.830)	62.80 (1.778)
39 (991)	28.58 (0.809)	61.23 (1.734)
38 (965)	27.84 (0.788)	59.65 (1.689)
37 (948)	27.07 (0.767)	58.07 (1.644)
36 (914)	26.29 (0.744)	56.46 (1.599)
35 (889)	25.48 (0.722)	54.85 (1.553)
34 (864)	24.66 (0.698)	53.23 (1.507)
33 (838)	23.83 (0.675)	51.60 (1.461)
32 (813)	22.98 (0.651)	49.96 (1.415)
31 (787)	22.12 (0.626)	48.31 (1.368)
30 (762)	21.23 (0.601)	46.65 (1.321)
29 (737)	20.32 (0.575)	44.97 (1.273)
28 (711)	19.40 (0.549)	43.29 (1.226)
27 (686)	18.48 (0.523)	41.61 (1.178)
26 (680)	17.54 (0.497)	39.91 (1.130)
25 (610)	16.59 (0.470)	38.21 (1.082)
24 (609)	15.62 (0.442)	36.50 (1.033)
23 (584)	14.64 (0.414)	34.78 (0.985)
22 (559)	13.66 (0.387)	33.07 (0.936)
21 (533)	12.66 (0.359)	31.33 (0.887)
20 (508)	11.65 (0.330)	29.60 (0.838)
19 (483)	10.63 (0.301)	27.85 (0.3789)
18 (457)	9.60 (0.272)	26.11 (0.739)
17 (432)	8.56 (0.242)	24.35 (0.690)
16 (406)	7.51 (0.213)	22.59 (0.640)
15 (381)	6.46 (0.183)	20.83 (0.590)
14 (356)	5.41 (0.153)	19.07 (0.540)
13 (330)	4.35 (0.123)	17.31 (0.490)
12 (305)	3.28 (0.093)	15.53 (0.440)
11 (279)	2.19 (0.062)	13.75 (0.389)
10 (254)	1.11 (0.031)	11.97 (0.339)
9 (229)	0.00	10.17 (0.288)
8 (203)	0.00	9.04 (0.256)
7 (178)	0.00	7.91 (0.224)
6 (152)	0.00	6.78 (0.192)
5 (127)	0.00	5.65 (0.160)
4 (102)	0.00	4.52 (0.128)
3 (76)	0.00	3.39 (0.096)
2 (51)	0.00	2.26 (0.064)
1 (25)	0.00	1.13 (0.032)

Stone Cover

NOTE: Add 1.08 ft^3 (0.031 m^3) of storage for each additional inch (25 mm) of stone foundation. Contact StormTech for cumulative volume spreadsheets in digital format.

6.0 MC-3500 Chamber System Sizing

The following steps provide the calculations necessary for preliminary sizing of an MC-3500 chamber system. For custom bed configurations to fit specific sites, contact the StormTech Technical Services Department or your local StormTech representative.

1) Determine the amount of storage volume (VS) required. It is the design engineer's sole responsibility to determine the storage volume required.

Table 11 - Storage Volume Per Chamber/End Cap ft³ (m³)

	Bare Unit Storage ft³ (m³)	Chamber/End Cap and Stone Volume — Stone Foundation Depth in. (mm)			
		9 (230)	12 (300)	15 (375)	18 (450)
MC-3500 Chamber	109.9 (3.11)	175.0 (4.96)	179.9 (5.09)	184.9 (5.24)	189.9 (5.38)
MC-3500 End Cap	14.9 (0.42)	45.1 (1.28)	46.6 (1.32)	48.3 (1.37)	49.9 (1.41)

NOTE: Assumes 6" (150 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume. End cap volume assumes 6" (150 mm) stone perimeter.

2) Determine the number of chambers (C) required. To calculate the number of chambers required for adequate storage, divide the storage volume (Vs) by the storage volume of the chamber (from **Table 11**), as follows: **C = Vs / Storage Volume per Chamber**

3) Determine the number of end caps required. The number of end caps (EC) required depends on the number of rows required by the project. Once the num- ber of chamber rows is determined, multiply the number of chamber rows by 2 to determine the number of end caps required. **EC = No. of Chamber Rows x 2**

NOTE: Additional end caps may be required for systems having inlet locations within the chamber bed.

4) Determine additional storage provided by end caps. End Caps will provide additional storage to the project. Multiply the number of end caps (EC) by the storage volume per end cap (ECS) to determine the additional storage (As) provided by the end caps. **As = EC x ECs**

5) Adjust number of chambers (C) to account for additional end cap storage (As). The original number of chambers (C) can now be reduced due to the additional storage in the end caps. Divide the additional storage (As) by the storage volume per chamber to determine the number of chambers that can be removed. **Number of chambers to remove = As/ volume per chamber**

NOTE: Additional storage exists in the stone perimeter as well as in the inlet and outlet manifold systems. Contact StormTech's Technical Services Department for assistance with determining the number of chambers and end caps required for your project.

6) Determine the required bed size (S). The size of the bed will depend on the number of chambers and end caps required:

MC-3500 area per chamber = 49.6 ft² (4.6 m²)
MC-3500 area per end cap = 16.4 ft² (1.5 m²)
S = (C x area per chamber) + (EC x area per end cap)

NOTE: It is necessary to add 12" (300 mm) of stone perimeter parallel to the chamber rows and 6" (150 mm) of stone perimeter from the base of all end caps. The additional area due to perimeter stone is not included in the area numbers above.

7) Determine the amount of stone (Vst) required. To calculate the total amount of clean, crushed, angular stone required, multiply the number of chambers (C) and the number of end caps (EC) by the selected weight of stone from **Table 12.**

NOTE: Clean, crushed, angular stone is also required around the perimeter of the system.

Table 12 - Amount of Stone Per Chamber/End Cap

ENGLISH tons (yd³)	Stone Foundation Depth			
	9"	12"	15"	18"
Chamber	8.5 (6.0)	9.1 (6.5)	9.7 (6.9)	10.4 (7.4)
End Cap	3.9 (2.8)	4.1 (2.9)	4.3 (3.1)	4.5 (3.2)
METRIC kg (m³)	**230 mm**	**300 mm**	**375 mm**	**450 mm**
Chamber	7711 (4.6)	8255 (5.0)	8800 (5.3)	9435 (5.7)
End Cap	3538 (2.1)	3719 (2.2)	3901 (2.4)	4082 (2.5)

NOTE: Assumes 12" (300 mm) of stone above, and 6" (150 mm) row spacing, and 6" (150 mm) of perimeter stone in front of end caps.

8) Determine the volume of excavation (Ex) required. Each additional foot of cover will add a volume of excavation of 1.9 yd³ (1.5 m³) per MC-3500 chamber and 0.6 yd³ (0.5 m³) per MC-3500 end cap.

Table 13—Volume of Excavation Per Chamber/End Cap yd³ (m³)

	Stone Foundation Depth			
	9" (230 mm)	12" (300 mm)	15" (375 mm)	18" (450 mm)
Chamber	11.9 (9.1)	12.4 (9.5)	12.8 (9.8)	13.3 (10.2)
End Cap	4.0 (3.1)	4.1 (3.2)	4.3 (3.3)	4.4 (3.4)

NOTE: Assumes 6" (150 mm) separation between chamber rows, 6" (150 mm) of perimeter in front of end caps, and 24" (600 mm) of cover. The volume of excavation will vary as the depth of cover increases.

9) Determine the area of geotextile (F) required. The bottom, top and sides of the bed must be covered with a non-woven geotextile (filter fabric) that meets AASHTO M288 Class 2 requirements. The area of the sidewalls must be calculated and a 24" (600 mm) overlap must be included for all seams. Geotextiles typically come in 15 foot (4.57 m) wide rolls.

6.0 MC-7200 Chamber System Sizing

The following steps provide the calculations necessary for preliminary sizing of an MC-7200 chamber system. For custom bed configurations to fit specific sites, contact the StormTech Technical Services Department or your local StormTech representative.

1) Determine the amount of storage volume (VS) required. It is the design engineer's sole responsibility to determine the storage volume required.

Table 14 - Storage Volume Per Chamber/End Cap ft³ (m³)

	Bare Unit Storage ft³ (m³)	Chamber/End Cap and Stone Volume — Stone Foundation Depth in. (mm)			
		9 (230)	12 (300)	15 (375)	18 (450)
MC-7200 Chamber	175.9 (4.98)	267.3 (7.57)	273.3 (7.74)	279.3 (7.91)	285.2 (8.08)
MC-7200 End Cap	39.5 (1.12)	115.3 (3.26)	118.6 (3.36)	121.9 (3.45)	125.29 (3.54)

NOTE: Assumes 9" (230 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume. End cap volume assumes 12" (300 mm) stone perimeter.

2) Determine the number of chambers (C) required.
To calculate the number of chambers required for adequate storage, divide the storage volume (Vs) by the storage volume of the chamber (from **Table 14**), as follows: **C = Vs / Storage Volume per Chamber**

3) Determine the number of end caps required.
The number of end caps (EC) required depends on the number of rows required by the project. Once the number of chamber rows is determined, multiply the number of chamber rows by 2 to determine the number of end caps required. **EC = No. of Chamber Rows x 2**

NOTE: Additional end caps may be required for systems having inlet locations within the chamber bed.

4) Determine additional storage provided by end caps.
End Caps will provide additional storage to the project. Multiply the number of end caps (EC) by the storage volume per end cap (ECS) to determine the additional storage (As) provided by the end caps. **As = EC x ECs**

5) Adjust number of chambers (C) to account for additional end cap storage (As). The original number of chambers (C) can now be reduced due to the additional storage in the end caps. Divide the additional storage (As) by the storage volume per chamber to determine the number of chambers that can be removed. **Number of chambers to remove = As/ volume per chamber**

NOTE: Additional storage exists in the stone perimeter as well as in the inlet and outlet manifold systems. Contact StormTech's Technical Services Department for assistance with determining the number of chambers and end caps required for your project.

6) Determine the required bed size (S).
The size of the bed will depend on the number of chambers and end caps required:

MC-7200 area per chamber = 59.9 ft² (5.6 m²)
MC-7200 area per end cap = 33.9 ft² (3.1 m²)

S = (C x area per chamber) + (EC x area per end cap)

NOTE: It is necessary to add 12" (300 mm) of stone perimeter parallel to the chamber rows and 6" (150 mm) of stone perimeter from the base of all end caps. The additional area due to perimeter stone is not included in the area numbers above.

7) Determine the amount of stone (Vst) required.
To calculate the total amount of clean, crushed, angular stone required, multiply the number of chambers (C) and the number of end caps (EC) by the selected weight of stone from **Table 15.**

NOTE: Clean, crushed, angular stone is also required around the perimeter of the system.

Table 15 - Amount of Stone Per Chamber/End Cap

ENGLISH tons (yd³)	Stone Foundation Depth			
	9"	12"	15"	18"
Chamber	11.9 (8.5)	12.6 (9.0)	13.4 (9.6)	14.6 (10.1)
End Cap	9.8 (7.0)	10.2 (7.3)	10.6 (7.6)	11.1 (7.9)
METRIC kg (m³)	**230 mm**	**300 mm**	**375 mm**	**450 mm**
Chamber	10796 (6.5)	11431 (6.9)	12156 (7.3)	13245 (7.7)
End Cap	8890 (5.3)	9253 (5.5)	9616 (5.8)	10069 (6.0)

NOTE: Assumes 12" (300 mm) of stone above, and 9" (230 mm) row spacing, and 12" (300 mm) of perimeter stone in front of end caps.

8) Determine the volume of excavation (Ex) required.
Each additional foot of cover will add a volume of excavation of 2.2 yd³ (1.7 m³) per MC-7200 chamber and 1.4 yd³ (0.8 m³) per MC-7200 end cap.

Table 13- Volume of Excavation Per Chamber/End Cap yd³ (m³)

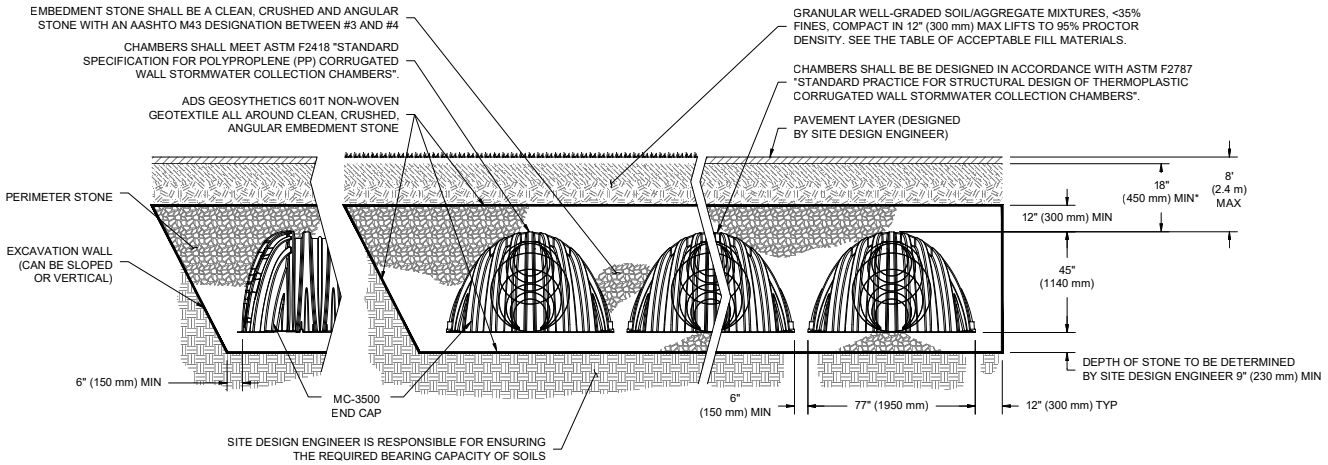
	Stone Foundation Depth			
	9" (230 mm)	12" (300 mm)	15" (375 mm)	18" (450 mm)
Chamber	17.2 (13.2)	17.7 (13.5)	18.3 (14.0)	18.8 (14.4)
End Cap	9.7 (7.4)	10.0 (7.6)	10.3 (7.9)	10.6 (8.1)

NOTE: Assumes 9" (230 mm) separation between chamber rows, 12" (300 mm) of perimeter in front of end caps, and 24" (600 mm) of cover. The volume of excavation will vary as the depth of cover increases.

9) Determine the area of geotextile (F) required.
The bottom, top and sides of the bed must be covered with a non-woven geotextile (filter fabric) that meets AASHTO M288 Class 2 requirements. The area of the sidewalls must be calculated and a 24" (600 mm) overlap must be included for all seams. Geotextiles typically come in 15 foot (4.57 m) wide rolls.

7.0 Structural Cross Sections and Specifications

Figure 16A - MC-3500 Structural Cross Section Detail (Not to Scale)



Special applications will be considered on a project by project basis. Please contact our application department should you have a unique application for our team to evaluate.

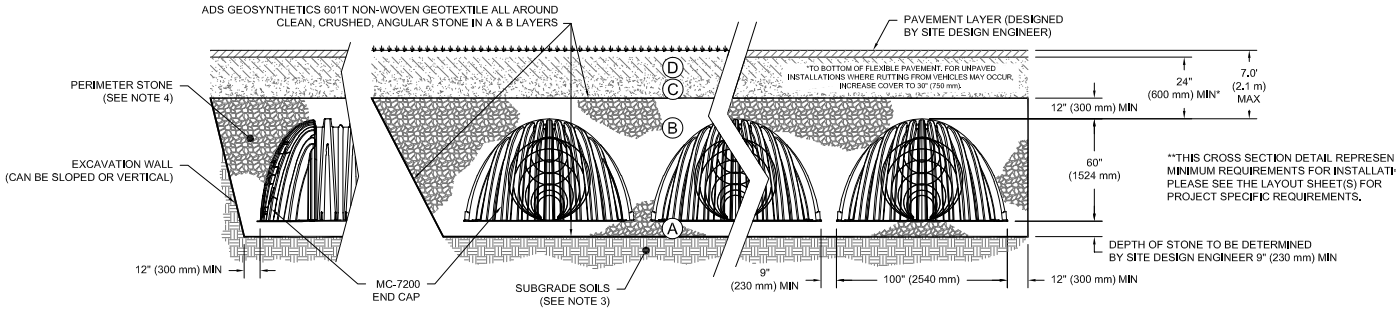
MC-3500 Stormwater Chamber Specifications

1. Chambers shall be StormTech MC-3500 or approved equal.
2. Chambers shall be made from virgin, impact-modified polypropylene copolymers.
3. Chamber rows shall provide continuous, unobstructed internal space with no internal panels that would impede flow.
4. The structural design of the chambers, the structural backfill and the installation requirements shall ensure that the load factors specified in the AASHTO LRFD Bridge Design Specifications, Section 12.12 are met for: 1) long-duration dead loads and 2) short-duration live loads, based on the AASHTO Design Truck with consideration for impact and multiple vehicle presences.
5. Chambers shall meet the requirements of ASTM F 2418, “Standard Specification for Polypropylene (PP) Corrugated Wall Stormwater Collection Chambers.”
6. Chambers shall conform to the requirements of ASTM F 2787, “Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers.”
7. Only chambers that are approved by the engineer will be allowed. The contractor shall submit (3 sets) of the following to the engineer for approval before delivering chambers to the project site:
   - A structural evaluation by a registered structural engineer that demonstrates that the load factors specified in the AASHTO LRFD Bridge Design Specifications, Section 12.12 are met. The 50-year creep modulus data specified in ASTM F 2418 must be used as part of the AASHTO structural evaluation to verify long-term performance.
   - Structural cross section detail on which the structural cross section is based.
8. The installation of chambers shall be in accordance with the manufacturer’s latest Construction Guide.

Detail drawings available in Cad Rev. 2000 format at www.stormtech.com

7.0 Structural Cross Sections and Specifications

Figure 16B - MC-7200 Structural Cross Section Detail (Not to Scale)



Special applications will be considered on a project by project basis. Please contact our application department should you have a unique application for our team to evaluate.

MC-7200 Stormwater Chamber Specifications

1. Chambers shall be StormTech MC-7200 or approved equal.
2. Chambers shall be made from virgin, impact-modified polypropylene copolymers.
3. Chamber rows shall provide continuous, unobstructed internal space with no internal panels that would impede flow.
4. The structural design of the chambers, the structural backfill and the installation requirements shall ensure that the load factors specified in the AASHTO LRFD Bridge Design Specifications, Section 12.12 are met for: 1) long-duration dead loads and 2) short-duration live loads, based on the AASHTO Design Truck with consideration for impact and multiple vehicle presences.
5. Chambers shall meet the requirements of ASTM F 2418, “Standard Specification for Polypropylene (PP) Corrugated Wall Stormwater Collection Chambers.”
6. Chambers shall conform to the requirements of ASTM F 2787, “Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers.”
7. Only chambers that are approved by the engineer will be allowed. The contractor shall submit (3 sets) of the following to the engineer for approval before delivering chambers to the project site:
   - A structural evaluation by a registered structural engineer that demonstrates that the load factors specified in the AASHTO LRFD Bridge Design Specifications, Section 12.12 are met. The 50-year creep modulus data specified in ASTM F 2418 must be used as part of the AASHTO structural evaluation to verify long-term performance.
   - Structural cross section detail on which the structural cross section is based.
8. The installation of chambers shall be in accordance with the manufacturer’s latest Construction Guide.

Detail drawings available in Cad Rev. 2000 format at www.stormtech.com

8.0 General Notes

1. StormTech requires installing contractors to use and understand the latest StormTech **MC-3500 and MC-7200 Construction Guides** prior to beginning system installation.
2. StormTech offers installation consultations to installing contractors. Contact our Technical Service Department or local StormTech representative at least 30 days prior to system installation to arrange a pre-installation consultation. Our representatives can then answer questions or address comments on the StormTech chamber system and inform the installing contractor of the minimum installation requirements before beginning the system's construction. Call 860-529-8188 to speak to a Technical Service Representative or visit www.stormtech.com to receive a copy of our Construction Guide.
3. StormTech requirements for systems with pavement design (asphalt, concrete pavers, etc.): Minimum cover is 18" (450mm) for the MC-3500 and 24"(600mm) for the MC-7200 not including pavement; MC-3500 maximum cover is 8.0' (1.98 m) and MC-7200 maximum cover is 7.0' (2.43 m) both including pavement. For designs with cover depths deeper than these maximums, please contact Stormtech. For installations that do not include pavement, where rutting from vehicles may occur, minimum required cover is increased to 30" (762 mm).
4. The contractor must report any discrepancies with the bearing capacity of the subgrade materials to the design engineer.
5. AASHTO M288 Class 2 non-woven geotextile (ADS601 or equal) (filter fabric) must be used as indicated in the project plans.
6. Stone placement between chamber rows and around perimeter must follow instructions as indicated in the most current version of StormTech MC-3500 / MC-7200 Construction Guides.
7. Backfilling over the chambers must follow requirements as indicated in the most current version of StormTech MC-3500 / MC-7200 Construction Guides.
8. The contractor must refer to StormTech MC-3500 / MC-7200 Construction Guides for a Table of Acceptable Vehicle Loads at various depths of cover. This information is also available at the StormTech website: www.stormtech.com. The contractor is responsible for preventing vehicles that exceed StormTech requirements from traveling across or parking over the stormwater system. Temporary fencing, warning tape and appropriately located signs are commonly used to prevent unauthorized vehicles from entering sensitive construction areas.
9. The contractor must apply erosion and sediment control measures to protect the stormwater system during all phases of site construction per local codes and design engineer's specifications.
10. STORMTECH PRODUCT WARRANTY IS LIMITED. Contact StormTech for warranty information.

9.0 Inspection and Maintenance

9.1 Isolator Row Plus Inspection

Regular inspection and maintenance are essential to assure a properly functioning stormwater system. Inspection is easily accomplished through the manhole or optional inspection ports of an Isolator Row Plus. Please follow local and OSHA rules for a confined space entry.

Inspection ports can allow inspection to be accomplished completely from the surface without the need for a con- fined space entry. Inspection ports provide visual access to the system with the use of a flashlight. A stadia rod may be inserted to determine the depth of sediment. If upon visual inspection it is found that sediment has accumulated to an average depth exceeding 3" (76 mm), cleanout is required.

A StormTech Isolator Row Plus should initially be inspected immediately after completion of the site's construction. While every effort should be made to prevent sediment from entering the system during construction, it is during this time that excess amounts of sediments are most likely to enter any stormwater system. Inspection and maintenance, if necessary, should be performed prior to passing responsibility over to the site's owner. Once in normal service, a StormTech Isolator Row Plus should be inspected bi-annually until an understanding of the sites characteristics is developed. The site's maintenance manager can then revise the inspection schedule based on experience or local requirements.

9.2 Isolator Row Plus Maintenance

JetVac maintenance is recommended if sediment has been collected to an average depth of 3" (76 mm) inside the Isolator Row Plus. More frequent maintenance may be required to maintain minimum flow rates through the Isolator Row Plus. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediments. As the nozzle is retrieved, a wave of suspended sediments is flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/ JetVac combi- nation vehicles. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" (1143 mm) are best. StormTech recommends a maximum nozzle pressure of 2000 psi be utilized during cleaning. The JetVac process shall only be performed on StormTech Rows that have ADS Plus fabric over the foundation stone.

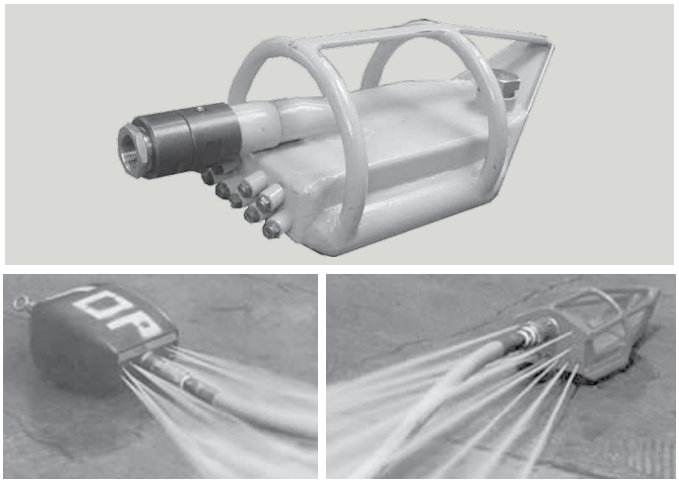
A Flamp (flared end ramp) is attached to the inlet pipe on the inside of the chamber end cap to provide a smooth transition from pipe invert to fabric bottom. It is configured to improve chamber function performance over time by distributing sediment and debris that would otherwise collect at the inlet. It also serves to improve the fluid and solid flow back into the inlet pipe during maintenance and cleaning, and to guide cleaning and inspection equipment back into the inlet pipe when complete.



Flamp (Flared End Ramp)



A typical JetVac truck (This is not a StormTech product.)



Examples of culvert cleaning nozzles appropriate for Isolator Row Plus maintenance. (These are not StormTech products).



MC-7200 MC-3500 DC-780 SC-740 SC-310 SC-160LP

A Family of Products and Services for the Stormwater Industry:

MC-3500 and MC-7200 Chambers and End Caps

SC-160LP, SC-310 and SC-740 Chambers & End Caps

DC-780 Chambers and End Caps

Fabricated End Caps

Fabricated Manifold Fittings

Patented Isolator Row PLUS for Maintenance and Water Quality

Chamber Separation Spacers

In-House System Layout Assistance

On-Site Educational Seminars

Worldwide Technical Sales Group

Centralized Product Applications Department

Research and Development Team

Technical Literature, O&M Manuals and Detailed CAD drawings all downloadable via our Website

StormTech provides state-of-the-art products and services that meet or exceed industry performance standards and expectations. We offer designers, regulators, owners and contractors the highest quality products and services for stormwater management that Saves Valuable Land and Protects Water Resources.

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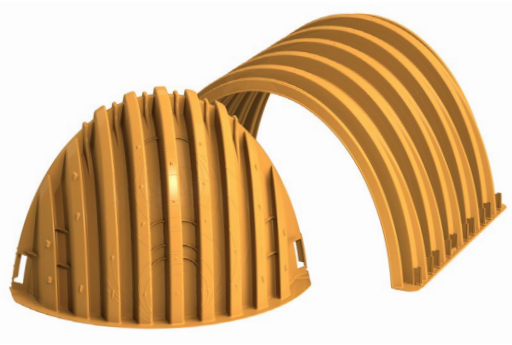
StormTech MC-7200 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.



Nominal Chamber Specifications
(not to scale)

Size (L x W x H)
83” x 100” x 60”
2108 mm x 2540 mm x 1524 mm

Chamber Storage
175.9 ft³ (4.98 m³)

Min. Installed Storage*
267.3 ft³ (7.57 m³)

Weight
202 lbs (91.6 kg)

Shipping
7 chambers/pallet
5 end caps/pallet
6 pallets/truck

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below chambers, 9” (230 mm) of stone between chambers/ end caps and 40% stone porosity.

Nominal End Cap Specifications
(not to scale)

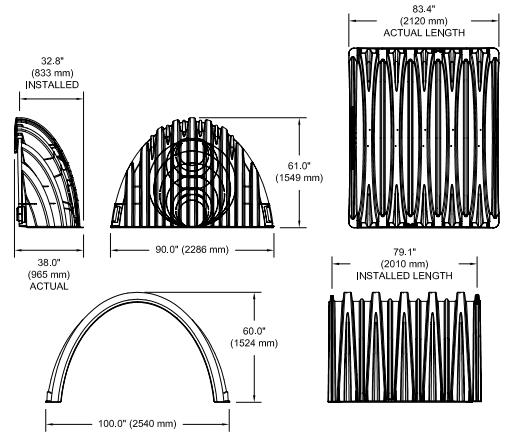
Size (L x W x H)
38” x 90” x 61”
965 mm x 2286 mm x 1549 mm

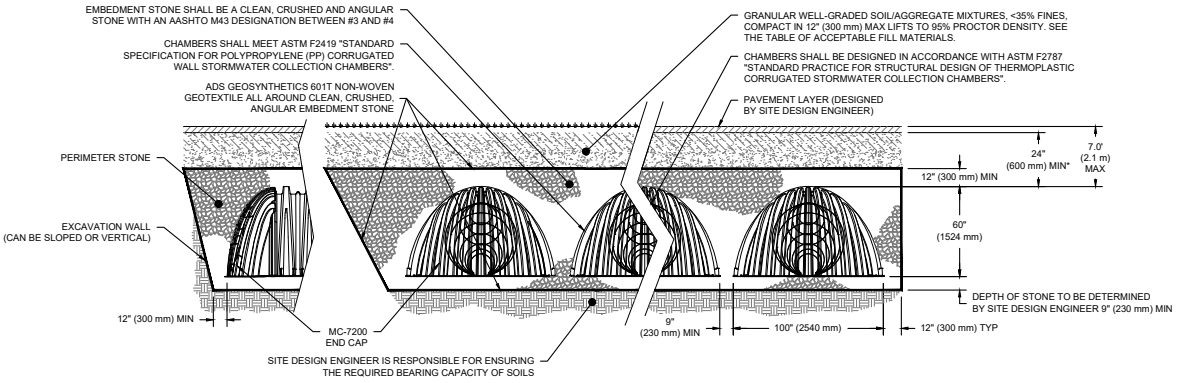
End Cap Storage
39.5 ft³ (1.12 m³)

Min. Installed Storage*
115.3 ft³ (3.26 m³)

Weight
Nominal 90.0 lbs (40.8 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below, 12” (300 mm) of stone perimeter, 9” (230 mm) of stone between chambers/ end caps and 40% stone porosity.





*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 30" (750 mm).

ADS StormTech™

StormTech MC-7200 Specifications

Storage Volume Per Chamber

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)			
		9 in (230 mm)	12 in (300 mm)	15 in (375 mm)	18 in (450 mm)
Chamber	175.9 (4.98)	267.3 (7.57)	273.3 (7.74)	279.3 (7.91)	285.3 (8.08)
End Cap	39.5 (1.12)	115.3 (3.26)	118.6 (3.36)	121.9 (3.45)	125.2 (3.54)

Note: Assumes 9" (230 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume. End cap volume assumes 12" (300 mm) stone perimeter in front of end cap.

Amount of Stone Per Chamber

English Tons (yds³)	Stone Foundation Depth			
	9 in	12 in	15 in	18 in
Chamber	12.1 (8.5)	12.9 (9.0)	13.6 (9.6)	14.3 (10.1)
End Cap	9.8 (7.0)	10.2 (7.3)	10.6 (7.6)	11.1 (7.9)
Metric Kilograms (m³)	**230 mm**	**300 mm**	**375 mm**	**450 mm**
Chamber	10977 (6.5)	11703 (6.9)	12338 (7.3)	12973 (7.7)
End Cap	8890 (5.3)	9253 (5.5)	9616 (5.8)	10069 (6.0)

Note: Assumes 12" (300 mm) of stone above and 9" (230 mm) row spacing and 12" (300 mm) of perimeter stone in front of end caps. 1 yd³ = 1.42 english tons.

Volume Excavation Per Chamber yd³ (m³)

	Stone Foundation Depth			
	9 in (230 mm)	12 in (300 mm)	15 in (375mm)	18 in (450 mm)
Chamber	17.2 (13.2)	17.7 (13.5)	18.3 (14.0)	18.8 (14.4)
End Cap	9.7 (7.4)	10.0 (7.6)	10.3 (7.9)	10.6 (8.1)

Note: Assumes 9" (230 mm) of separation between chamber rows, 12" (300 mm) of perimeter in front of the end caps, and 24" (600 mm) of cover. The volume of excavation will vary as depth of cover increases.

Working on a project?
Visit us at www.stormtech.com and utilize the Design Tool

ADS StormTech™

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6.2 Electronic Data Submittal

Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their local Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

Digital copies of the Approved Final WQMP will be provided to the project owner and the City of Rialto through email.

6.3 Post Construction

Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

Attachment H – Operation and Maintenance Plan

To be completed prior to final approval.

RECORDING REQUESTED BY
AND WHEN RECORDED MAIL TO:

_____
(Please Print Name)
City of Rialto
335 W. Rialto Avenue
Rialto, CA 92376

SPACE ABOVE THIS LINE FOR RECORDERS USE

WATER QUALITY MANAGEMENT PLAN AND STORM WATER BMP TRANSFER, ACCESS AND MAINTENANCE AGREEMENT

CITY OF RIALTO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA

This Agreement is made this _____ day of _____, 20XX, by and between _____ ("Owner"), and the City of Rialto, a municipal corporation ("City"). The Owner and the City are sometimes each individually referred to herein as a "Party" and, collectively, as the "Parties"

RECITALS

WHEREAS, the 1987 amendments to the Clean Water Act ("CWA") added new Section 402(p) to the CWA establishing a framework for regulating municipal, industrial, and construction storm water discharges under the National Pollutant Discharge Elimination System ("NPDES") Permit; and

WHEREAS, Section 402(p) of the CWA requires NPDES permits for storm water discharges from Municipal Separate Sewer Systems (MS4), as well as other designated storm water discharges that are considered significant contributors of pollutants to waters of the United States; and

WHEREAS, the City is a co-permittee under the "Waste Discharge Requirements for the County of San Bernardino and the Incorporated Cities of San Bernardino County, Order No. R8-2010-0036, NPDES NO> CAS618036, Areawide Urban Storm Water Runoff" dated January 29, 2010 and issued by the California Regional Water Quality Control Board – Santa Ana Region, (the "NPDES Permit"); and

WHEREAS, among other things, the NPDES Permit requires the City to review and approve a Water Quality Management Plan ("WQMP") developed using the appropriate and Regional Board approved WQMP template for each new development project; and to require the preparation and implementation of an Operation and Maintenance Plan to ensure the long-term maintenance and operation of all structural and non-structural Best Management Practices ("BMPs") incorporated in each WQMP; and

WHEREAS, to comply with its obligations under the NPDES Permit with respect to new development projects the City enacted Section 12.60.260 of the Rialto Municipal Code vesting the City Engineer or designee with the authority to review and approve a WQMP for all new development projects and further requiring that the Owner of each project and the City to enter into a recordable "Water Quality Management Plan" Agreement to ensure the long term maintenance and operations of structural and non-structural BMPs in each WQMP; and

WHEREAS, the Owner is the legal property owner of the real property situated in the State of California, County of San Bernardino, County of San Bernardino, located at _____ in the City of Rialto, more commonly identified by San Bernardino County Assessor's Parcel No. _____ and more particularly and legally described in "Exhibit A," and shown on "Exhibit B," (the "Property") as Tract Map No. _____, attached hereto and incorporated herein by reference.

WHEREAS, at the time of initial approval of the development project known as _____ within the Property described herein, (the "Project"), the City required the Project to employ BMPs to minimize pollutants in urban storm water runoff in accordance with section 12.60.260 of the Rialto Municipal Code and NPDES Permit; and

WHEREAS, in order to minimize pollutants in urban storm water runoff and to minimize other adverse impacts of urban storm water runoff, the Owner has chosen to install and/or implement BMPs as described in the WQMP for the Project, on file with the City, a copy of which is on file with the City Engineer, and is incorporated herein by reference; and

WHEREAS, said WQMP for the Project has been certified by the Owner and reviewed and approved by the City; and

WHEREAS, said BMPs specified in the approved WQMP for the Project have been installed according to the approved WQMP plans and are functional as intended, and have been certified by Owner's Engineer of Record and the Owner; and

WHEREAS, said BMPs, with installation and/or implementation on private property and draining only private property, are part of a private facility with all maintenance or replacement therefore, the sole responsibility of the Owner in accordance with the terms of this Agreement; and

WHEREAS, the Owner is aware that periodic and continuous maintenance, including, but not necessarily limited to, filter material replacement and sediment removal, is required to assure proper performance of all BMPs in the WQMP for the Project, and that, furthermore, such maintenance activity will require compliance with all Federal, State, and local laws and regulations, including those pertaining to confined space and waste disposal methods, in effect at the time such maintenance occurs.

NOW THEREFORE, in consideration of the City's approval of the Project and the mutual promises contained herein, the City of Rialto and _____ hereby agrees as follows:

1. The Owner hereby provides the City or the City's designee complete access, of any duration, to the BMPs and their immediate vicinity (a) at any time, upon reasonable notice; or (b) in the event of emergency , as determined by City Engineer or designee with no advance notice; for the purpose of inspection, sampling, testing of the BMPs, and in case of emergency , to undertake all necessary repairs or other preventative measures at Owner's expense as provided for in Section 3, below. The City shall make every effort at all times to minimize or avoid interference with Owner's use of the Property when undertaking such inspections and repairs.

2. The Owner shall use its best efforts diligently to inspect each and every BMP installed within the Project once each calendar year prior to October 1st, to document said inspections in writing with any supporting data or materials, to maintain a record of said inspections on site at all times, and to maintain all BMPs in a manner assuring peak performance at all times. All reasonable precautions shall be exercised by the Owner and the Owner's representative or contractor in the removal and extraction of any material(s) from the BMPs, and the ultimate disposal of the material(s) in manner consistent with all relevant laws and regulations in effect at the time. As may be requested from time to time by the City, the Owner shall provide the City with documentation identifying the materials(s) removed, the quantity, and the location of disposal destination, as appropriate.

3. In the event the Owner, or its successors or assigns, fails to accomplish the necessary maintenance contemplated by this Agreement, within thirty (30) days of being given written notice by the City to do so, setting forth with specificity the actions to be taken, the City is authorized to cause any maintenance necessary to be done and charge the entire cost and expense to the Owner or the Owner's successors or assigns, including administrative costs, attorneys fees and interest thereon at the maximum rate authorized by the law, twenty (20) days after the Owner's receipt of the notice of expense until paid in full.

4. The City may require the Owner to post security in a form and for a time period satisfactory to the City to guarantee the performance of the obligations stated herein. Should the Owner fail to perform the obligations under this Agreement, the City may, in the case of a cash bond, act for the Owner using the cash proceeds, or in the case of a surety bond, require the sureties to perform the obligations of this Agreement. As an additional remedy, the City Engineer may reasonably withdraw any previous storm water-related approval with respect to the Property on which BMPs have been improperly installed, modified without permission of the City and/or inadequately implemented and maintained until such time as the Owner repays to the City its reasonable costs incurred in accordance with paragraph 3 above.

5. This Agreement affects County of San Bernardino Assessor's Parcel Nos. _____, and shall be recorded in the Official Records of the County of San Bernardino County at the expense of the Owner and shall constitute notice to all successors and assigns of the title to said Property of the obligation herein set forth. This agreement shall also entitle the City to record a lien against the Property in such amount as will fully reimburse the City, including interest as herein above set forth, subject to foreclosure in event of default in payment.

6. In event any action is commenced to enforce or interpret any of the terms or conditions of this agreement the prevailing Party shall, in addition to any costs and other relief, be entitled to the recovery of its reasonable attorney's fees, including fees for the use of in-house counsel by a Party.

7. It is the intent of the Parties that the burdens and benefits herein undertaken shall constitute equitable servitudes that run with the Property and shall be binding upon future Owners of all or any portion of the Property. Any Owner's liability hereunder shall terminate at the time it ceases to be an Owner of the encumbered Property, except for obligations which accrue prior to the date of transfer by such Owner, which shall remain the personal obligation of such Owner.

8. The obligations herein undertaken shall be binding upon the heirs, successors, executors, administrators and assigns of the parties hereto. The term "Owner" shall include not only the present Owner, but also heirs, successors, executors, administrators, and assigns. The Owner shall notify any successor to title of all or part of the Property about the existence of this Agreement. The Owner shall provide a copy of such notice to the City at the same time such notice is provided to the successor.

9. Time is of essence in the performance of this Agreement.

10. Any notice to the Party required or called for in this Agreement shall be in writing and shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two (72) hours after deposit in the U.S. Mail, whichever is earlier. A Party may change a notice address only by providing written notice thereof to the other Party.

CITY	OWNER
Public Works Director/City Engineer	_____
City of Rialto	_____
335 W. Rialto Avenue	_____
Rialto, CA 92376	_____

11. This Agreement shall be governed by and constructed in accordance with the laws of the State of California.

12. Any amendment to this Agreement shall be in writing and approved by the City Engineer and the Owner.

IN WITNESS WHEREOF, the Parties hereto have affixed their signatures as the date first written above.

CITY OF RIALTO

By: _____
Savat Kamphou, P.E.
City Engineer

OWNER:

By: _____
Name: _____
Company Name: _____

6.4 Other Supporting Documentation

- BMP Educational Materials
- Activity Restriction – C, C&R's & Lease Agreements

Attachment E – Geotechnical Report

Geotechnologies, Inc.
Consulting Geotechnical Engineers
439 Western Avenue
Glendale, California 91201-2837
818.240.9600 • Fax 818.240.9675

Celebrating 50 YEARS OF SERVICE 1971-2021

May 24, 2022
Updated May 25, 2022
File Number 22257

Lincoln Property Company
915 Wilshire Boulevard, Suite 2050
Los Angeles, California 90017

Attention: Grant Kuhlmann

Subject: Geotechnical Engineering Investigation
Proposed Industrial Development
160 North Cactus Avenue, Rialto, California

Dear Mr. Kuhlmann:

This letter transmits the Geotechnical Engineering Investigation for the subject property prepared by Geotechnologies, Inc. This report provides geotechnical recommendations for the development of the site, including earthwork, seismic design, retaining walls, excavations and foundation design. Engineering for the proposed project should not begin until approval of the geotechnical investigation is granted by the local building official. Significant changes in the geotechnical recommendations may result due to the building department review process.

The validity of the recommendations presented herein is dependent upon review of the geotechnical aspects of the project during construction by this firm. The subsurface conditions described herein have been projected from limited subsurface exploration and laboratory testing. The exploration and testing presented in this report should in no way be construed to reflect any variations which may occur between the exploration locations or which may result from changes in subsurface conditions.

Should you have any questions please contact this office.

Respectfully submitted,
GEOTECHNOLOGIES, INC.

REGISTERED PROFESSIONAL ENGINEER
GREGORIO VARELA
No. 81201
Exp. 9/30/23
CIVIL
STATE OF CALIFORNIA

GREGORIO VARELA
R.C.E. 81201

GV:km

Distribution: (3) Addressee

Email to: [gkuhlmann@lpc.com]

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GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED INDUSTRIAL DEVELOPMENT
160 NORTH CACTUS AVENUE
RIALTO, CALIFORNIA

INTRODUCTION

This report presents the results of the geotechnical engineering investigation performed on the subject site. The purpose of this investigation was to identify the distribution and engineering properties of the geologic materials underlying the site, and to provide geotechnical recommendations for the design of the proposed development.

This investigation included eight exploratory excavations, collection of representative samples, laboratory testing, engineering analysis, review of published geologic data, review of available geotechnical engineering information and the preparation of this report. The exploratory excavation locations are shown on the enclosed Plot Plan. The results of the exploration and the laboratory testing are presented in the Appendix of this report.

PROPOSED DEVELOPMENT

Information concerning the proposed development was furnished by the client. In addition, the Conceptual Site Plan prepared by Ware Malcomb, dated May 23, 2022 was reviewed for the preparation of this report. The proposed project consists of construction of an industrial development. The development will consist of a single-story 163,730 square feet industrial building. This building will be built at-, or near the existing site grade, and will have an interior clearance height of approximately 36 feet. A loading dock is proposed within the south side of the building. Surface parking and driving aisles will surround the proposed building. The location and alignment of the proposed development is shown in the enclosed Plot Plan.

Column loads are estimated to be between 50 and 300 kips. Wall loads are estimated to be between 2 and 12 kips per lineal foot. These loads reflect the dead plus live load. Grading will consist of excavations on the order of 5 feet in depth for the recommended removal and recompaction of existing unsuitable soils.

Any changes in the design of the project or location of any structure, as outlined in this report, should be reviewed by this office. The recommendations contained in this report should not be considered valid until reviewed and modified or reaffirmed, in writing, subsequent to such review.

SITE CONDITIONS

The site is located at 160 North Cactus Avenue, in the City of Rialto, California. The site is square in shape, and just over 8 acres in area. The site is bounded by a bike trail to the north, a stormwater channel followed by North Cactus Avenue to the east, West Rialto Avenue to the south, and the Bob Murphy Community School Campus to the west. The site is shown relative to nearby topographic features in the enclosed Vicinity Map.

The site grade is relatively level, with no pronounced highs or lows. At the time of our exploration, the western portion of the site was vacant, as the previous development had been demolished. The eastern portion of the site was observed to be developed with a single-story office building, a single-story warehouse building, and adjoining paved parking.

Vegetation at the site is non-existent. Drainage across the site appears to be by sheetflow to the City streets.

GEOTECHNICAL EXPLORATION

FIELD EXPLORATION

The site was explored on April 12 and 13, 2022 by drilling eight borings. The borings were drilled to depths between 15 and 50 feet below the existing excavating grade, with the aid of a truck-mounted drilling machine using 8-inch diameter hollowstem augers. The exploration locations are shown on the Plot Plan and the geologic materials encountered are logged on Plates A-1 through A-8.

The location of exploratory excavations was determined from hardscaped features shown in the enclosed Plot Plan. The location of the borings should be considered accurate only to the degree implied by the method used.

Geologic Materials

Fill materials were encountered in all eight exploratory borings, to depths ranging between 3 and 5 feet below the existing site grade. The fill consists of a mixture of silty sand, and sand, which is yellowish brown to dark brown in color, moist, medium dense, and fine grained, with few cobbles.

The fill is in turn underlain by native alluvial soils, consisting primarily of sands and silty sands. The native soils range from yellowish brown to dark brown in color, and are moist, medium dense to very dense, and fine to coarse grained, with layers containing various amounts of pebbles, gravel and cobbles.

More detailed descriptions of the earth materials encountered may be obtained from individual logs of the subsurface excavations.

Groundwater

Groundwater was not encountered during exploration, conducted to a maximum depth of 50 feet below the existing site grade. According to Plate 4B, Generalized Depth to Groundwater (1960) for the Southwestern San Bernardino, Special Report 113 published by CDMG (1974), the depth to groundwater on the subject site is approximately 300 feet below the ground surface. A copy of this map is included in the Appendix of this report.

Fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors not evident at the time of the measurements reported herein. Fluctuations also may occur across the site. High groundwater levels can result in changed conditions.

Caving

Caving could not be directly observed during exploration due to the type of excavation equipment utilized. Based on the experience of this firm, large diameter excavations, excavations that encounter granular, cohesionless soils may experience caving.

SEISMIC EVALUATION

REGIONAL GEOLOGIC SETTING

The subject property is located within the Peninsular Ranges Geomorphic Province. The Peninsular Ranges are characterized by northwest-trending blocks of mountain ridges and sediment-floored valleys. The dominant geologic structural features are northwest trending fault zones that either die out to the northwest or terminate at east-trending reverse faults that form the southern margin of the Transverse Ranges.

The subject property is located south of the Transverse Ranges Geomorphic Province. The Transverse Ranges are characterized by roughly east-west trending mountains and the northern and southern boundaries are formed by reverse fault scarps. The convergent deformational features of the Transverse Ranges are a result of north-south shortening due to plate tectonics. This has resulted in local folding and uplift of the mountains along with the propagation of thrust faults (including blind thrusts). The intervening valleys have been filled with sediments derived from the bordering mountains.

REGIONAL FAULTING

Based on criteria established by the California Division of Mines and Geology (CDMG) now called California Geologic Survey (CGS), Faults may be categorized as Holocene-active, Pre-Holocene faults, and Age-undetermined faults. Holocene-active faults are those which show evidence of surface displacement within the last 11,700 years. Pre-Holocene faults are those that have not moved in the past 11,700 years. Age-undetermined faults are faults where the recency of fault movement has not been determined.

Buried thrust faults are faults without a surface expression but are a significant source of seismic activity. They are typically broadly defined based on the analysis of seismic wave recordings of hundreds of small and large earthquakes in the southern California area. Due to the buried nature of these thrust faults, their existence is usually not known until they produce an earthquake. The risk for surface rupture potential of these buried thrust faults is inferred to be low (Leighton, 1990). However, the seismic risk of these buried structures in terms of recurrence and maximum potential magnitude is not well established. Therefore, the potential for surface rupture on these surface-verging splays at magnitudes higher than 6.0 cannot be precluded.

Rialto-Colton Fault

Based on review of the Fault Activity Map of California (CGS, 2010), and Exhibit 5.1 of the City of Rialto General Plan (December 2010), the inferred location of the Rialto-Colton Fault terminates approximately ⅓-mile to the southeast of the site. Copies of these two maps have been enclosed in the Appendix of this report as the "Fault Activity Map" and the "City of Rialto Fault Map".

The Rialto-Colton Fault is categorized by the California Geologic Survey as a "Late Quaternary" Fault, which last displacement may have occurred within the past 700,000 years. The location of this fault is poorly constrained. No Special Studies Zones have been delineated by the State of California along any part of the Rialto-Colton Fault.

It should be noted that the City of Rialto shows that the groundwater barrier caused by the Rialto-Colton Fault extends beyond the fault trace, and transverses the subject site. This is illustrated in the enclosed City of Rialto Fault Map.

SEISMIC HAZARDS AND DESIGN CONSIDERATIONS

The primary geologic hazard at the site is moderate to strong ground motion (acceleration) caused by an earthquake on any of the local or regional faults. The potential for other earthquake-induced hazards was also evaluated including surface rupture, liquefaction, dynamic settlement, inundation and landsliding.

Surface Rupture

In 1972, the Alquist-Priolo Special Studies Zones Act (now known as the Alquist-Priolo Earthquake Fault Zoning Act) was passed into law. As revised in 2018, The Act defines "Holocene-active" Faults utilizing the same aging criteria as that used by California Geological

Survey (CGS). However, established state policy has been to zone only those faults which have direct evidence of movement within the last 11,700 years. It is this recency of fault movement that the CGS considers as a characteristic for faults that have a relatively high potential for ground rupture in the future.

CGS policy is to delineate a boundary from 200 to 500 feet wide on each side of the Holocene-Active fault trace based on the location precision, the complexity, or the regional significance of the fault. If a site lies within an Earthquake Fault Zone, a geologic fault rupture investigation must be performed that demonstrates that the proposed building site is not threatened by surface displacement from the fault before development permits may be issued.

Ground rupture is defined as surface displacement which occurs along the surface trace of the causative fault during an earthquake. Based on research of available literature and results of site reconnaissance, no known Holocene-active or Pre-Holocene faults underlie the subject site. In addition, the subject site is not located within an Alquist-Priolo Earthquake Fault Zone. Based on these considerations, the potential for surface ground rupture at the subject site is considered low.

Liquefaction

Liquefaction is a phenomenon in which saturated silty to cohesionless soils below the groundwater table are subject to a temporary loss of strength due to the buildup of excess pore pressure during cyclic loading conditions such as those induced by an earthquake. Liquefaction-related effects include loss of bearing strength, amplified ground oscillations, lateral spreading, and flow failures.

Based on the historical highest groundwater level provided in Plate 4B, Generalized Depth to Groundwater (1960) for the Southwestern San Bernardino, Special Report 113 published by CDMG (1974), the depth to groundwater on the subject site is approximately 300 feet below the

ground surface. No groundwater was encountered during exploration, excavated to a maximum depth of 50 feet below existing ground surface.

Due to the depth to the historical highest groundwater level, and the density of the native soils, the soils underlying the site are not considered susceptible to liquefaction during the ground motion expected during the design basis earthquake.

Dynamic Dry Settlement

Seismically-induced settlement or compaction of dry or moist, cohesionless soils can be an effect related to earthquake ground motion. Such settlements are typically most damaging when the settlements are differential in nature across the length of structures.

Some seismically-induced settlement of the proposed structures should be expected as a result of strong ground-shaking, however, due to the uniform nature of the underlying geologic materials, and the density of these materials, excessive differential settlements are not expected to occur.

Tsunamis, Seiches and Flooding

The subject site is far and/or high enough from the ocean or lakes such that it would not be prone to hazards of a tsunami, seiche, or flooding from a breached upgradient reservoir.

Based on review of Exhibit 5.2 of the City of Rialto General Plan (December 2010), the site is located in an area considered outside the 500-year flood plain.

Landsliding

The probability of seismically-induced landslides occurring on the site is considered to be low due to the general lack of elevation difference across or adjacent to the site.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the exploration, laboratory testing, and research, it is the finding of Geotechnologies, Inc. that construction of the proposed development is considered feasible from a geotechnical engineering standpoint provided the advice and recommendations presented herein are followed and implemented during construction.

During exploration, fill materials were observed to extend to depths ranging between 3 and 5 feet below the existing grade. The existing fill materials are not suitable for support of the proposed foundations and interior slabs-on-grade, but may be reused for the preparation of a compacted fill pad. The fill is in turn underlain by native alluvial soils, consisting primarily of interlayered mixtures of sand and silty sand. Groundwater was not encountered during exploration, conducted to a maximum depth of 50 feet below the existing site grade.

The proposed industrial building may be supported by conventional foundations bearing in a uniform compacted fill pad. For the construction of a uniform compacted fill pad, all existing fill materials and upper alluvial soils shall be removed and recompacted to a minimum depth of 5 feet below the proposed grade, or of 3 feet below the bottom of the proposed foundations, whichever is deeper. In addition, the compacted fill should extend horizontally a minimum of 3 feet beyond the edge of foundations or for a distance equal to the depth of fill below the foundation, whichever is greater.

Foundations for small outlying structures that will not be connected to the proposed structure, such as planter walls, screen walls, and trash enclosures, may be supported on conventional foundations bearing in properly placed compacted fill and/or undisturbed native alluvial soils.

Complete removal and recompaction of all existing fill soils is not necessary beneath paving sections or outdoor concrete flatwork such as walkways or patio areas. In order to provide uniform support it is recommended that a minimum of 12 inches of the exposed subgrade beneath the flatwork or paving sections be scarified and recompacted.

The validity of the conclusions and design recommendations presented herein is dependent upon review of the geotechnical aspects of the proposed construction by this firm. The subsurface conditions described herein have been projected from excavations on the site as indicated and should in no way be construed to reflect any variations which may occur between these excavations or which may result from changes in subsurface conditions. Any changes in the design, as outlined in this report, should be reviewed by this office. The recommendations contained herein should not be considered valid until reviewed and modified or reaffirmed subsequent to such review.

SEISMIC DESIGN CONSIDERATIONS

California Building Code Seismic Parameters

Based on information derived from the subsurface investigation, the subject site is classified as Site Class D, which corresponds to a “Stiff Soil” Profile, according to Table 20.3-1 of ASCE 7-16. This information and the site coordinates were input into the OSHPD seismic utility program in order to calculate ground motion parameters for the site.

CALIFORNIA BUILDING CODE SEISMIC PARAMETERS	
California Building Code	2019
ASCE Design Standard	7-16
Site Class	D
Mapped Spectral Acceleration at Short Periods (S_S)	1.924g
Site Coefficient (F_a)	1.0
Maximum Considered Earthquake Spectral Response for Short Periods (S_{MS})	1.924g
Five-Percent Damped Design Spectral Response Acceleration at Short Periods (S_{DS})	1.283g
Mapped Spectral Acceleration at One-Second Period (S_1)	0.759g
Site Coefficient (F_v)	1.7*
Maximum Considered Earthquake Spectral Response for One-Second Period (S_{M1})	1.290g*
Five-Percent Damped Design Spectral Response Acceleration for One-Second Period (S_{D1})	0.860g*

* *According to ASCE 7-16, a Long Period Site Coefficient (F_v) of 1.7 may be utilized provided that the value of the Seismic Response Coefficient (C_s) is determined by Equation 12.8-2 for values of $T \leq 1.5T_s$ and taken as equal to 1.5 times the value computed in accordance with either Equation 12.8-3 for $T_L \geq T > 1.5T_s$ or equation 12.8-4 for $T > T_L$. Alternatively, a site-specific ground motion hazard analysis may be performed in accordance with ASCE 7-16 Section 21.1 and/or a ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 to determine ground motions for any structure.*

EXPANSIVE SOILS

The onsite geologic materials are in the very low expansion range. The Expansion Index was found to be 2 and 3 for bulk samples representative of the on-site soils.

WATER-SOLUBLE SULFATES

The Portland cement portion of concrete is subject to attack when exposed to water-soluble sulfates. Usually the two most common sources of exposure are from soil and marine environments.

The sources of natural sulfate minerals in soils include the sulfates of calcium, magnesium, sodium, and potassium. When these minerals interact and dissolve in subsurface water, a sulfate concentration is created, which will react with exposed concrete. Over time sulfate attack will destroy improperly proportioned concrete well before the end of its intended service life.

The water-soluble sulfate content of the onsite geologic materials was tested by California Test 417. The water-soluble sulfate content was determined to be less than 0.1% percentage by weight for the soils tested. Based on the most recent revision to American Concrete Institute (ACI) Standard 318, the sulfate exposure is considered to be negligible for geologic materials with less than 0.1% and Type I cement may be utilized for concrete foundations in contact with the site soils.

GRADING GUIDELINES

Site Preparation

- A thorough search should be made for possible underground utilities and/or structures. Any existing or abandoned utilities or structures located within the footprint of the proposed grading should be removed or relocated as appropriate.

- All vegetation, existing fill, and soft or disturbed geologic materials should be removed from the areas to receive controlled fill. All existing fill materials and any disturbed geologic materials resulting from grading operations shall be completely removed and properly recompacted prior to foundation excavation.

- Any vegetation or associated root system located within the footprint of the proposed structures should be removed during grading.

- Subsequent to the indicated removals, the exposed grade shall be scarified to a depth of six inches, moistened to optimum moisture content, and recompacted in excess of the minimum required comparative density.

- The excavated areas shall be observed by the geotechnical engineer prior to placing compacted fill.

Recommended Overexcavation

Within the proposed building area, all fill and upper native alluvial soils shall be excavated to a minimum depth of 5 feet below the bottom of the proposed grade, or 3 feet below the bottom of the proposed foundations, whichever is greater. The excavation shall extend at least 3 feet beyond the edge of foundations, or for a distance equal to the depth of fill below the foundations, whichever is greater. It is very important that the position of the proposed structure is accurately located so that the limits of the graded area are accurate, and the grading operation proceeds efficiently.

Compaction

All fill should be mechanically compacted in layers not more than 8 inches thick. All fill shall be compacted to at least 90 percent of the maximum laboratory density for the materials used. The maximum density shall be determined by the laboratory operated by Geotechnologies, Inc. using the test method described in the most recent revision of ASTM D 1557.

Field observation and testing shall be performed by a representative of the geotechnical engineer during grading to assist the contractor in obtaining the required degree of compaction and the proper moisture content. Where compaction is less than required, additional compactive effort shall be made with adjustment of the moisture content, as necessary, until a minimum of 90 percent compaction is obtained.

Acceptable Materials

The excavated onsite geologic materials are considered satisfactory for reuse in compacted fills as long as any oversize material, debris and/or organic matter is removed. Cobbles should be expected to be present in the on-site materials. Cobbles exceeding 6 inches in dimension shall not be utilized in compacted fills.

Any imported soil shall be observed and tested by the representative of the geotechnical engineer prior to use in fill areas. Imported materials should contain sufficient fines so as to be relatively impermeable and result in a stable subgrade when compacted. Any required import soil should have an expansion index less than 40. The water-soluble sulfate content of the import materials should be less than 0.1% percentage by weight.

Imported soil should be free from chemical or organic substances which could affect the proposed development. A competent professional should be retained in order to test imported materials and address environmental issues and organic substances which might affect the proposed development.

Utility Trench Backfill

Utility trenches should be backfilled with controlled fill. The utility should be bedded with clean sands at least one foot over the crown. The remainder of the backfill may be onsite soil compacted to 90 percent of the laboratory maximum density. Utility trench backfill should be tested by representatives of this firm in general accordance with the most recent revision of ASTM D 1557.

Shrinkage

Shrinkage results when a volume of soil removed at one density is compacted to a higher density. A shrinkage factor between 2 and 12 percent should be anticipated when excavating and recompacting the existing fill and underlying native geologic materials on the site to an average comparative compaction of 92 percent.

Weather Related Grading Considerations

When rain is forecast all fill that has been spread and awaits compaction shall be properly compacted prior to stopping work for the day or prior to stopping due to inclement weather. These fills, once compacted, shall have the surface sloped to drain to an area where water can be removed.

Temporary drainage devices should be installed to collect and transfer excess water to the street in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope.

Work may start again, after a period of rainfall, once the site has been reviewed by a representative of this office. Any soils saturated by the rain shall be removed and aerated so that the moisture content will fall within three percent of the optimum moisture content.

Surface materials previously compacted before the rain shall be scarified, brought to the proper moisture content and recompacted prior to placing additional fill, if considered necessary by a representative of this firm.

Abandoned Seepage Pits

No abandoned seepage pits were encountered during exploration and none are known to exist on the site. However, should such a structure be encountered during grading, options to permanently abandon seepage pits include complete removal and backfill of the excavation with compacted fill, or drilling out the loose materials and backfilling to within a few feet of grade with slurry, followed by a compacted fill cap.

If the subsurface structures are to be removed by grading, the entire structure should be demolished. The resulting void may be refilled with compacted soil. Concrete and brick generated during the seepage pit removal may be reused in the fill as long as all fragments are less than 6 inches in longest dimension and the debris comprises less than 15 percent of the fill by volume. All grading should comply with the recommendations of this report.

Where the seepage pit structure is to be left in place, the seepage pits should cleaned of all soil and debris. This may be accomplished by drilling. The pits should be filled with minimum 1-1/2 sack concrete slurry to within 5 feet of the bottom of the proposed foundations. In order to provide a more uniform foundation condition, the remainder of the void should be filled with controlled fill.

Geotechnical Observations and Testing During Grading

Geotechnical observations and testing during grading are considered to be a continuation of the geotechnical investigation. It is critical that the geotechnical aspects of the project be reviewed by representatives of Geotechnologies, Inc. during the construction process. Compliance with the design concepts, specifications or recommendations during construction requires review by this firm during the course of construction. Any fill which is placed should be observed, tested, and

verified if used for engineered purposes. Please advise this office at least twenty-four hours prior to any required site visit.

Proper compaction is necessary to reduce settlement of overlying improvements. Some settlement of compacted fill should be anticipated. Any utilities supported therein should be designed to accept differential settlement. Differential settlement should also be considered at the points of entry to the structure.

LEED Considerations

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System encourages adoption of sustainable green building and development practices. Credit for LEED Certification can be assigned for reuse of construction waste and diversion of materials from landfills in new construction.

In an effort to provide the design team with a viable option in this regard, demolition debris could be crushed onsite in order to use it in the ongoing grading operations. The environmental ramifications of this option, if any, should be considered by the team.

The demolition debris should be limited to concrete, asphalt and other non-deleterious materials. All deleterious materials should be removed including, but not limited to, paper, garbage, ceramic materials and wood.

For structural fill applications, the materials should be crushed to 2 inches in maximum dimension or smaller. The crushed materials should be thoroughly blended and mixed with onsite soils prior to placement as compacted fill. The amount of crushed material should not exceed 20 percent. The blended and mixed materials should be tested by this office prior to placement to insure it is suitable for compaction purposes. The blended and mixed materials

should be tested by Geotechnologies, Inc. during placement to ensure that it has been compacted in a suitable manner.

FOUNDATION DESIGN

Conventional

The proposed industrial building may be supported by conventional foundations bearing in a properly compacted fill pad. Continuous foundations may be designed for a bearing capacity of 2,750 pounds per square foot, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended compacted fill pad.

Column foundations may be designed for a bearing capacity of 3,250 pounds per square foot, and should be a minimum of 24 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended compacted fill pad.

The bearing capacity increase for each additional foot of width is 150 pounds per square foot. The bearing capacity increase for each additional foot of depth is 500 pounds per square foot. The maximum recommended bearing capacity is 6,000 pounds per square foot.

The bearing capacities indicated above are for the total of dead and frequently applied live loads, and may be increased by one third for short duration loading, which includes the effects of wind or seismic forces.

Miscellaneous Foundations

Conventional foundations for structures such as privacy walls or trash enclosures which will not be rigidly connected to the proposed structure may bear in properly compacted fill, or may be deepened through any existing fill to bear in undisturbed alluvial soils. Miscellaneous continuous

foundations may be designed for a bearing capacity of 2,000 pounds per square foot, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended bearing material. No bearing capacity increases are recommended. Since the recommended bearing capacity is a net value, the weight of concrete in the foundations may be taken as 50 pounds per cubic foot and the weight of the soil backfill may be neglected when determining the downward load on the foundations.

Foundation Reinforcement

All continuous foundations should be reinforced with a minimum of two #4 steel bars. One should be placed near the top of the foundation, and one should be placed near the bottom.

Lateral Design

Resistance to lateral loading may be provided by friction acting at the base of foundations and by passive earth pressure. An allowable coefficient of friction of 0.35 may be used with the dead load forces.

Passive geologic pressure for the sides of foundations poured against undisturbed or recompacted soil may be computed as an equivalent fluid having a density of 300 pounds per cubic foot with a maximum earth pressure of 1,500 pounds per square foot.

The passive and friction components may be combined for lateral resistance without reduction. A one-third increase in the passive value may be used for short duration loading such as wind or seismic forces.

Foundation Settlement

Settlement of the foundation system is expected to occur on initial application of loading. The maximum settlement is not expected to exceed ½-inch and occur below the heaviest loaded columns. Differential settlement is not expected to exceed ¼-inch.

Foundation Observations

It is critical that all foundation excavations are observed by a representative of this firm to verify penetration into the recommended bearing materials. The observation should be performed prior to the placement of reinforcement. Foundations should be deepened to extend into satisfactory geologic materials, if necessary.

Foundation excavations should be cleaned of all loose soils prior to placing steel and concrete. Any required foundation backfill should be mechanically compacted, flooding is not permitted.

RETAINING WALL DESIGN

Miscellaneous Cantilever Retaining Walls

The proposed building will be built near the existing site grade. Therefore, the only retaining walls anticipated would be associated with the construction of loading docks.

Miscellaneous retaining walls supporting a level backslope may be designed utilizing a triangular distribution of pressure. Cantilever retaining walls may be designed for 30 pounds per cubic foot for walls retaining up to 6 feet of earth.

For this equivalent fluid pressure to be valid, walls which are to be restrained at the top should be backfilled prior to the upper connection being made. Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures.

Dynamic (Seismic) Earth Pressure

Based on the 2019 California Building Code, retaining walls exceeding 6 feet in height shall be designed to resist the additional earth pressure caused by seismic ground shaking. Miscellaneous retaining walls anticipated for the proposed project are not expected to exceed 6 feet in height. Therefore the dynamic earth pressure may be omitted.

Retaining Wall Drainage

Retaining walls should be provided with a subdrain. Subdrains may consist of 4-inch diameter perforated pipes, places with perforated facing down. The pipe shall be encased in at least one foot of gravel around the pipe. The gravel shall be wrapped in filter fabric. The gravel may consist of three-quarter inch to one-inch crushed rock.

As an alternative to the standard perforated subdrain pipe and gravel drainage system, the use of gravel pockets and weepholes is an acceptable drainage method. Weepholes shall be a minimum of 2 inches in diameter, placed at 8 feet on center along the base of the wall. Gravel pockets shall be a minimum of 1 cubic foot in dimension, and may consist of three-quarter inch to one-inch crushed rocks, wrapped in filter fabric.

Certain types of subdrain pipe are not acceptable to the various municipal agencies, it is recommended that prior to purchasing subdrainage pipe, the type and brand is cleared with the proper municipal agencies. Subdrainage pipes should outlet to an acceptable location.

The lateral earth pressures recommended above for retaining walls assume that a permanent drainage system will be installed so that external water pressure will not be developed against the walls. If a drainage system is not provided, the walls should be designed to resist an external hydrostatic pressure due to water in addition to the lateral earth pressure. In any event, it is recommended that retaining walls be waterproofed.

Sump Pump Design

The purpose of the recommended retaining wall drainage system is to relieve hydrostatic pressure for retaining walls bearing above the design-based groundwater level, where the only water which could affect the proposed retaining walls would be irrigation waters and precipitation.

Based on these considerations the retaining wall drainage system is not expected to experience an appreciable flow of water, and in particular, no groundwater will affect it. However, for the purposes of design, a flow of 5 gallons per minute may be assumed.

Waterproofing

Moisture effecting retaining walls is one of the most common post construction complaints. Poorly applied or omitted waterproofing can lead to efflorescence or standing water inside the building. Efflorescence is a process in which a powdery substance is produced on the surface of the concrete by the evaporation of water. The white powder usually consists of soluble salts such as gypsum, calcite, or common salt. Efflorescence is common to retaining walls and does not affect their strength or integrity.

It is recommended that retaining walls be waterproofed. Waterproofing design and inspection of its installation is not the responsibility of the geotechnical engineer. A qualified waterproofing

consultant should be retained in order to recommend a product or method which would provide protection to below grade walls.

Retaining Wall Backfill

Any required backfill should be mechanically compacted in layers not more than 8 inches thick, to at least 90 percent of the maximum density obtainable by the most recent revision of ASTM D 1557 method of compaction. Flooding should not be permitted. Compaction within 5 feet, measured horizontally, behind a retaining structure should be achieved by use of light weight, hand operated compaction equipment.

Proper compaction of the backfill will be necessary to reduce settlement of overlying walks and paving. Some settlement of required backfill should be anticipated, and any utilities supported therein should be designed to accept differential settlement, particularly at the points of entry to the structure.

TEMPORARY EXCAVATIONS

The on-site fill and native soils are suitable for vertical excavations up to 5 feet where not surcharged by adjacent traffic, structures or property lines. Where sufficient space is available, temporary unsurcharged embankments could be cut at a uniform 1:1 slope gradient to a maximum depth of 10 feet. A uniform sloped excavation is sloped from bottom to top and does not have a vertical component.

Where sloped embankments are utilized, the tops of the slopes should be barricaded to prevent vehicles and storage loads near the top of slope within a horizontal distance equal to the depth of the excavation. If the temporary construction embankments are to be maintained during the rainy season, berms are strongly recommended along the tops of the slopes to prevent runoff water

from entering the excavation and eroding the slope faces. Water should not be allowed to pond on top of the excavation nor to flow towards it.

Excavation Observations

It is critical that the soils exposed in the cut slopes are observed by a representative of Geotechnologies, Inc. during excavation so that modifications of the slopes can be made if variations in the geologic material conditions occur. Many building officials require that temporary excavations should be made during the continuous observations of the geotechnical engineer. All excavations should be stabilized within 30 days of initial excavation.

SLABS ON GRADE

Concrete Slabs-on Grade

Interior concrete floor slabs should be a minimum of 4 inches in thickness. Slabs-on-grade should be cast over properly compacted fill materials. Any geologic materials loosened or over-excavated should be wasted from the site or properly compacted to 90 percent of the maximum dry density.

Outdoor concrete flatwork, not subject to vehicular traffic, should be a minimum of 4 inches in thickness. Outdoor concrete flatwork should be cast over undisturbed native soils or properly compacted fill materials. Any geologic materials loosened or over-excavated should be wasted from the site or properly compacted to 90 percent of the maximum dry density.

Design of Slabs That Receive Moisture-Sensitive Floor Coverings

Geotechnologies, Inc. does not practice in the field of moisture vapor transmission evaluation and mitigation. Therefore, it is recommended that a qualified consultant be engaged to evaluate

the general and specific moisture vapor transmission paths and any impact on the proposed construction. The qualified consultant should provide recommendations for mitigation of potential adverse impacts of moisture vapor transmission on various components of the structure.

Where dampness would be objectionable, it is recommended that the floor slabs should be waterproofed. A qualified waterproofing consultant should be retained in order to recommend a product or method which would provide protection for concrete slabs-on-grade.

All concrete slabs-on-grade should be supported on vapor retarder. The design of the slab and the installation of the vapor retarder should comply with the most recent revisions of ASTM E 1643 and ASTM E 1745. The vapor retarder should comply with ASTM E 1745 Class A requirements.

Where a vapor retarder is used, a low-slump concrete should be used to minimize possible curling of the slabs. The barrier can be covered with a layer of trimable, compactible, granular fill, where it is thought to be beneficial. Where a granular fill layer is utilized, this layer should be a minimum of 2 inches in thickness. See ACI 302.2R-32, Chapter 7 for information on the placement of vapor retarders and the use of a fill layer.

Concrete Crack Control

The recommendations presented in this report are intended to reduce the potential for cracking of concrete slabs-on-grade due to settlement. However even where these recommendations have been implemented, foundations, stucco walls and concrete slabs-on-grade may display some cracking due to minor soil movement and/or concrete shrinkage. The occurrence of concrete cracking may be reduced and/or controlled by limiting the slump of the concrete used, proper concrete placement and curing, and by placement of crack control joints at reasonable intervals, in particular, where re-entrant slab corners occur.

For standard control of concrete cracking, a maximum crack control joint spacing of 15 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle points are recommended. The crack control joints should be installed as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by a structural engineer.

Complete removal of the existing fill soils beneath outdoor flatwork such as walkways or patio areas, is not required, however, due to the rigid nature of concrete, some cracking, a shorter design life and increased maintenance costs should be anticipated. In order to provide uniform support beneath the flatwork it is recommended that a minimum of 12 inches of the exposed subgrade beneath the flatwork be scarified and recompacted to 90 percent relative compaction.

Slab Reinforcing

Concrete slabs-on-grade and outdoor flatwork should be reinforced with a minimum of #3 steel bars on 24-inch centers each way.

PAVEMENTS

Prior to placing paving, the existing grade should be scarified to a depth of 12 inches, moistened as required to obtain optimum moisture content, and recompacted to 95 percent of the maximum density as determined by the most recent revision of ASTM D 1557. The client should be aware that removal of all existing fill in the area of new paving is not required. However, pavement constructed in this manner will most likely have a shorter design life and increased maintenance costs. The following pavement sections are recommended:

Service	Asphalt Pavement Thickness Inches	Base Course Inches
Passenger Cars	3	4
Medium Trucks	4	6
Heavy Trucks	5	8

Concrete paving may also be utilized for the project. For concrete paving sections to be subject to passenger cars and medium truck traffic, concrete paving shall be a minimum of 6 inches in thickness, and shall be underlain by 4 inches of aggregate base. For concrete paving sections to be subject to heavy truck traffic, concrete paving shall be a minimum of 7 inches in thickness, and shall be underlain by 4 inches of aggregate base. For standard crack control maximum expansion joint spacing of 15 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle points are recommended. Concrete paving should be reinforced with a minimum of #3 steel bars on 24-inch centers each way.

Aggregate base should be compacted to a minimum of 95 percent of the most recent revision of ASTM D 1557 laboratory maximum dry density. Base materials should conform to Sections 200-2.2 or 200-2.4 of the "Standard Specifications for Public Works Construction", (Green Book), latest edition.

The performance of pavement is highly dependent upon providing positive surface drainage away from the edges. Ponding of water on or adjacent to pavement can result in saturation of the subgrade materials and subsequent pavement distress.

SITE DRAINAGE

Proper surface drainage is critical to the future performance of the project. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. Proper site drainage should be maintained at all times.

All site drainage, with the exception of any required to disposed of onsite by stormwater regulations, should be collected and transferred to the street in non-erosive drainage devices. The proposed structure should be provided with roof drainage. Discharge from downspouts, roof drains and scuppers should not be permitted on unprotected soils within five feet of the building perimeter. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope. Planters which are located within a distance equal to the depth of a retaining wall should be sealed to prevent moisture adversely affecting the wall. Planters which are located within five feet of a foundation should be sealed to prevent moisture affecting the earth materials supporting the foundation.

STORMWATER DISPOSAL

Introduction

Recently regulatory agencies have been requiring the disposal of a certain amount of stormwater generated on a site by infiltration into the site soils. Increasing the moisture content of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. This means that any overlying structure, including buildings, pavements and concrete flatwork, could sustain damage due to saturation of the subgrade soils. Structures serviced by subterranean levels could be adversely impacted by stormwater disposal by increasing the design fluid pressures on retaining walls and causing leaks in the walls. Proper site drainage is critical to the performance of any structure in the built environment.

The Proposed System

Due to the preliminary stage of the project, the type and location of any potential stormwater disposal system have not been specifically addressed for the proposed development. Based on

communication with the civil engineer, it is anticipated that the infiltration will be conducted at depths ranging between 10 and 15 feet below the existing site grade.

The final location and design of the proposed infiltration system shall be reviewed and approved by this office prior to construction to evaluate whether the intent of the recommendations provided by this firm are satisfied.

Percolation Testing

Percolation testing was conducted in Borings B7 and B8, following the Porchet Method. Both borings were drilled to a depth of 15 feet. At the completion of drilling, a 2-inch diameter casing was placed within the center of the borehole for the purpose of conducting percolation testing. The casing consisted of a slotted PVC pipe within the lower 5 feet of the borehole, and solid PVC pipe to the top of the borehole. A sand pack consisting of #3 Monterey Sand was poured into the annular space around the slotted portion of the casing. A 1-foot thick, hydrated bentonite seal was placed over the sand and drill cuttings were placed to the ground surface.

Prior to testing, the boreholes were filled with water for the purpose of pre-soaking for 2 hours. After presoaking, the boreholes were refilled with water, and the rate of drop in the water level was measured. The percolation test readings were recorded a minimum of 8 times or until a stabilized rate of drop was obtained, whichever occurred first.

The table below summarizes the results of the infiltration rate derived from the testing. Field readings and calculations for the percolation testing are included in the Appendix. These infiltration rates do not include a safety factor. A safety factor shall be added to this rate. The civil engineer shall determine and apply a safety factor which is adequate for the design of the proposed infiltration system.

Boring No.	Depth of Boring Below Existing Ground Surface (ft.)	Percolation Testing Conducted Between Depths (ft.)	Infiltration Rate (in./hr.)
B7	15	10 to 15	30.3
B8	15	10 to 15	37.0

At the completion of the percolation testing, the PVC casing was removed from the percolation testing well, and the resulting hole was backfilled with on-site soils to the ground surface.

Stormwater Disposal Recommendations

Based on the results of the exploration, testing and research, it is the finding of this firm that on-site stormwater infiltration disposal is feasible from a geotechnical standpoint. The potential infiltration system is not expected to impact the neighboring or proposed developments, provided the advice and recommendations presented herein are implemented during design and construction.

The native site soils encountered during the geotechnical explorations conducted by this firm consist mainly of sandy soils suitable for stormwater infiltration. The previous section of this report presents the anticipated infiltration rates of selected soil layers. These infiltration rates may be utilized by the civil engineer for the design of a stormwater infiltration system suitable for the project.

Any proposed stormwater infiltration system should be located at least 10 feet away from any building or private property line. The final location and design of the proposed infiltration system shall be reviewed and approved by this office prior to construction.

The infiltration system should permit percolation below a depth of 10 feet below grade. The alluvial deposits encountered below a depth of 10 feet should allow stormwater to percolate in a generally vertical manner. Therefore, there is no potential for creating a perched water condition.

The onsite soils are in the very low expansion range, and are not susceptible to hydroconsolidation. The site is not located in a hillside area and no slopes are nearby. The site is not located in an area considered susceptible to liquefaction.

It is recommended that the design team, including the structural engineer, waterproofing consultant, plumbing engineer, environmental engineer and landscape architect be consulted in regards to the design and construction of filtration systems. The design and construction of stormwater infiltration systems is not the responsibility of the geotechnical engineer. However, based on the experience of this firm, it is recommended that several aspects of the use of such facilities should be considered by the design and construction team:

- All infiltration devices should be provided with overflow protection. Once the device is full of water, additional water flowing to the device should be diverted to another acceptable disposal area, or disposed offsite in an acceptable manner.

- All connections associated with stormwater infiltration systems should be sealed and water-tight. Water leaking into the subgrade soils can lead to loss of strength, piping, erosion, settlement and/or expansion of the effected earth materials.

- Excavations proposed for the installation of stormwater systems should comply with the "Temporary Excavations" sections of this geotechnical engineering investigation, as well as CalOSHA Regulations where applicable.

- Caving should be expected during drilling of any potential drywells. Where caving occurs, it will be necessary to utilize casing to maintain an open shaft. Cobbles and gravel should be expected during drilling.

DESIGN REVIEW

Engineering of the proposed project should not begin until approval of the geotechnical report by the Building Official is obtained in writing. Significant changes in the geotechnical recommendations may result during the building department review process.

It is recommended that the geotechnical aspects of the project be reviewed by this firm during the design process. This review provides assistance to the design team by providing specific recommendations for particular cases, as well as review of the proposed construction to evaluate whether the intent of the recommendations presented herein are satisfied.

CONSTRUCTION MONITORING

Geotechnical observations and testing during construction are considered to be a continuation of the geotechnical investigation. It is critical that this firm review the geotechnical aspects of the project during the construction process. Compliance with the design concepts, specifications or recommendations during construction requires review by this firm during the course of construction. All foundations should be observed by a representative of this firm prior to placing concrete or steel. Any fill which is placed should be observed, tested, and verified if used for engineered purposes. Please advise Geotechnologies, Inc. at least twenty-four hours prior to any required site visit.

If conditions encountered during construction appear to differ from those disclosed herein, notify Geotechnologies, Inc. immediately so the need for modifications may be considered in a timely manner.

It is the responsibility of the contractor to ensure that all excavations and trenches are properly sloped or shored. All temporary excavations should be cut and maintained in accordance with applicable OSHA rules and regulations.

EXCAVATION CHARACTERISTICS

The exploration performed for this investigation is limited to the geotechnical excavations described. Direct exploration of the entire site would not be economically feasible. The owner, design team and contractor must understand that differing excavation and drilling conditions may be encountered based on boulders, gravel, oversize materials, groundwater and many other conditions. Fill materials, especially when they were placed without benefit of modern grading codes, regularly contain materials which could impede efficient grading and drilling. Southern California sedimentary bedrock is known to contain variable layers which reflect differences in depositional environment. Such layers may include abundant gravel, cobbles and boulders. Similarly bedrock can contain concretions. Concretions are typically lenticular and follow the bedding. They are formed by mineral deposits. Concretions can be very hard. Excavation and drilling in these areas may require full size equipment and coring capability. The contractor should be familiar with the site and the geologic materials in the vicinity.

CLOSURE AND LIMITATIONS

The purpose of this report is to aid in the design and completion of the described project. Implementation of the advice presented in this report is intended to reduce certain risks associated with construction projects. The professional opinions and geotechnical advice contained in this report are sought because of special skill in engineering and geology and were prepared in accordance with generally accepted geotechnical engineering practice. Geotechnologies, Inc. has a duty to exercise the ordinary skill and competence of members of the engineering profession. Those who hire Geotechnologies, Inc. are not justified in expecting infallibility, but can expect reasonable professional care and competence.

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the geologic conditions do not deviate from those disclosed in the investigation. If any variations are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geotechnologies, Inc. should be notified so that supplemental recommendations can be prepared.

This report is issued with the understanding that it is the responsibility of the owner, or the owner's representatives, to ensure that the information and recommendations contained herein are brought to the attention of the project architect and engineer and are incorporated into the plans. The owner is also responsible to see that the contractor and subcontractors carry out the geotechnical recommendations during construction.

The findings of this report are valid as of the date of this report. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside control of this firm. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Geotechnical observations and testing during construction is considered to be a continuation of the geotechnical investigation. It is, therefore, most prudent to employ the consultant performing the initial investigative work to provide observation and testing services during construction. This practice enables the project to flow smoothly from the planning stages through to completion.

Should another geotechnical firm be selected to provide the testing and observation services during construction, that firm should prepare a letter indicating their assumption of the responsibilities of geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for review. The letter should acknowledge the concurrence of the new geotechnical engineer with the recommendations presented in this report.

EXCLUSIONS

Geotechnologies, Inc. does not practice in the fields of methane gas, radon gas, environmental engineering, waterproofing, dewatering organic substances or the presence of corrosive soils or wetlands which could affect the proposed development including mold and toxic mold. Nothing in this report is intended to address these issues and/or their potential effect on the proposed development. A competent professional consultant should be retained in order to address environmental issues, waterproofing, organic substances and wetlands which might effect the proposed development.

GEOTECHNICAL TESTING

Classification and Sampling

The soil is continuously logged by a representative of this firm and classified by visual examination in accordance with the Unified Soil Classification system. The field classification is verified in the laboratory, also in accordance with the Unified Soil Classification System. Laboratory classification may include visual examination, Atterberg Limit Tests and grain size distribution. The final classification is shown on the excavation logs.

Samples of the geologic materials encountered in the exploratory excavations were collected and transported to the laboratory. Undisturbed samples of soil are obtained at frequent intervals. Unless noted on the excavation logs as an SPT sample, samples acquired while utilizing a

hollow-stem auger drill rig are obtained by driving a thin-walled, California Modified Sampler with successive 30-inch drops of a 140-pound automatic-trip hammer. The soil is retained in brass rings of 2.50 inches outside diameter and 1.00 inch in height. The central portion of the samples are stored in close fitting, waterproof containers for transportation to the laboratory. Samples noted on the excavation logs as SPT samples are obtained in general accordance with the most recent revision of ASTM D 1586. Samples are retained for 30 days after the date of the geotechnical report.

Moisture and Density Relationships

The field moisture content and dry unit weight are determined for each of the undisturbed soil samples, and the moisture content is determined for SPT samples in general accordance with the most recent revision of ASTM D 4959 or ASTM D 4643. This information is useful in providing a gross picture of the soil consistency between exploration locations and any local variations. The dry unit weight is determined in pounds per cubic foot and shown on the “Excavation Logs”, A-Plates. The field moisture content is determined as a percentage of the dry unit weight.

Direct Shear Testing

Shear tests are performed in general accordance with the most recent revision of ASTM D 3080 with a strain controlled, direct shear machine manufactured by Soil Test, Inc. or a Direct Shear Apparatus manufactured by GeoMatic, Inc. The rate of deformation ranges between approximately 0.005 and 0.025 inches per minute. Each sample is sheared under varying confining pressures in order to determine the Mohr-Coulomb shear strength parameters of the cohesion intercept and the angle of internal friction. Samples are generally tested in an artificially saturated condition. Depending upon the sample location and future site conditions, samples may be tested at field moisture content. The results are plotted on the "Shear Test Diagram," B-Plates.

The most recent revision of ASTM 3080 limits the particle size to 10 percent of the diameter of the direct shear test specimen. The sheared sample is inspected by the laboratory technician running the test. The inspection is performed by splitting the sample along the sheared plane and observing the soils exposed on both sides. Where oversize particles are observed in the shear plane, the results are discarded and the test run again with a fresh sample.

Consolidation Testing

Settlement predictions of the soil's behavior under load are made on the basis of the consolidation tests in general accordance with the most recent revision of ASTM D 2435. The consolidation apparatus is designed to receive a single one-inch high ring. Loads are applied in several increments in a geometric progression, and the resulting deformations are recorded at selected time intervals. Porous stones are placed in contact with the top and bottom of each specimen to permit addition and release of pore fluid. Samples are generally tested at increased moisture content to determine the effects of water on the bearing soil. The normal pressure at which the water is added is noted on the drawing. Results are plotted on the "Consolidation Test," C-Plates.

Expansion Index Testing

The expansion tests performed on the remolded samples are in accordance with the Expansion Index testing procedures, as described in the most recent revision of ASTM D 4829. The soil sample is compacted into a metal ring at a saturation degree of 50 percent. The ring sample is then placed in a consolidometer, under a vertical confining pressure of 1 lbf/square inch and inundated with distilled water. The deformation of the specimen is recorded for a period of 24 hour or until the rate of deformation becomes less than 0.0002 inches/hour, whichever occurs first. The expansion index, EI, is determined by dividing the difference between final and initial

height of the ring sample by the initial height, and multiplied by 1,000. Results are presented in Plate D of this report.

Laboratory Compaction Characteristics

The maximum dry unit weight and optimum moisture content of a soil are determined in general accordance with the most recent revision of ASTM D 1557. A soil at a selected moisture content is placed in five layers into a mold of given dimensions, with each layer compacted by 25 blows of a 10 pound hammer dropped from a distance of 18 inches subjecting the soil to a total compactive effort of about 56,000 pounds per cubic foot. The resulting dry unit weight is determined. The procedure is repeated for a sufficient number of moisture contents to establish a relationship between the dry unit weight and the water content of the soil. The data when plotted represent a curvilinear relationship known as the compaction curve. The values of optimum moisture content and modified maximum dry unit weight are determined from the compaction curve. Results are presented in Plate D of this report.

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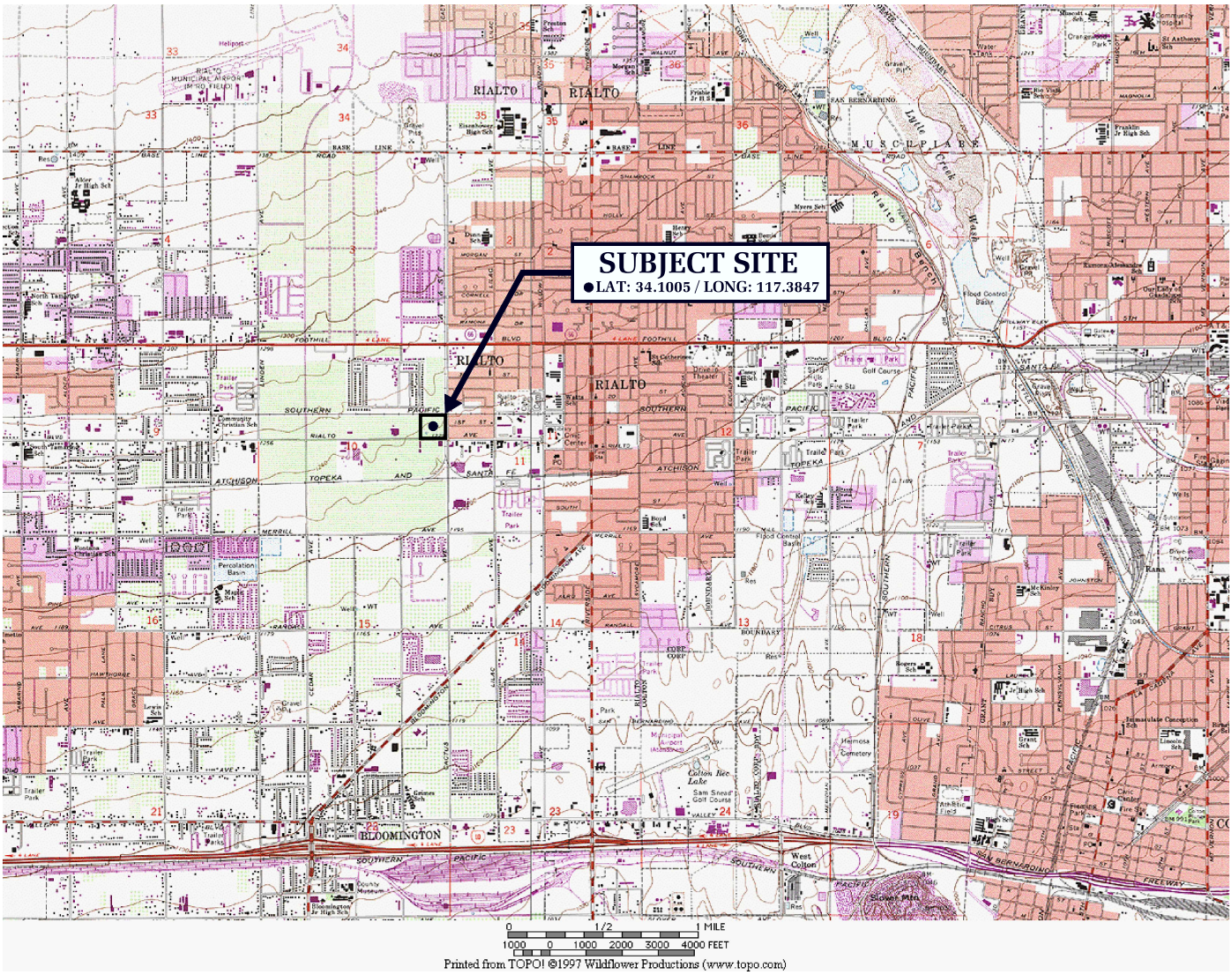


N

Geotechnologies, Inc

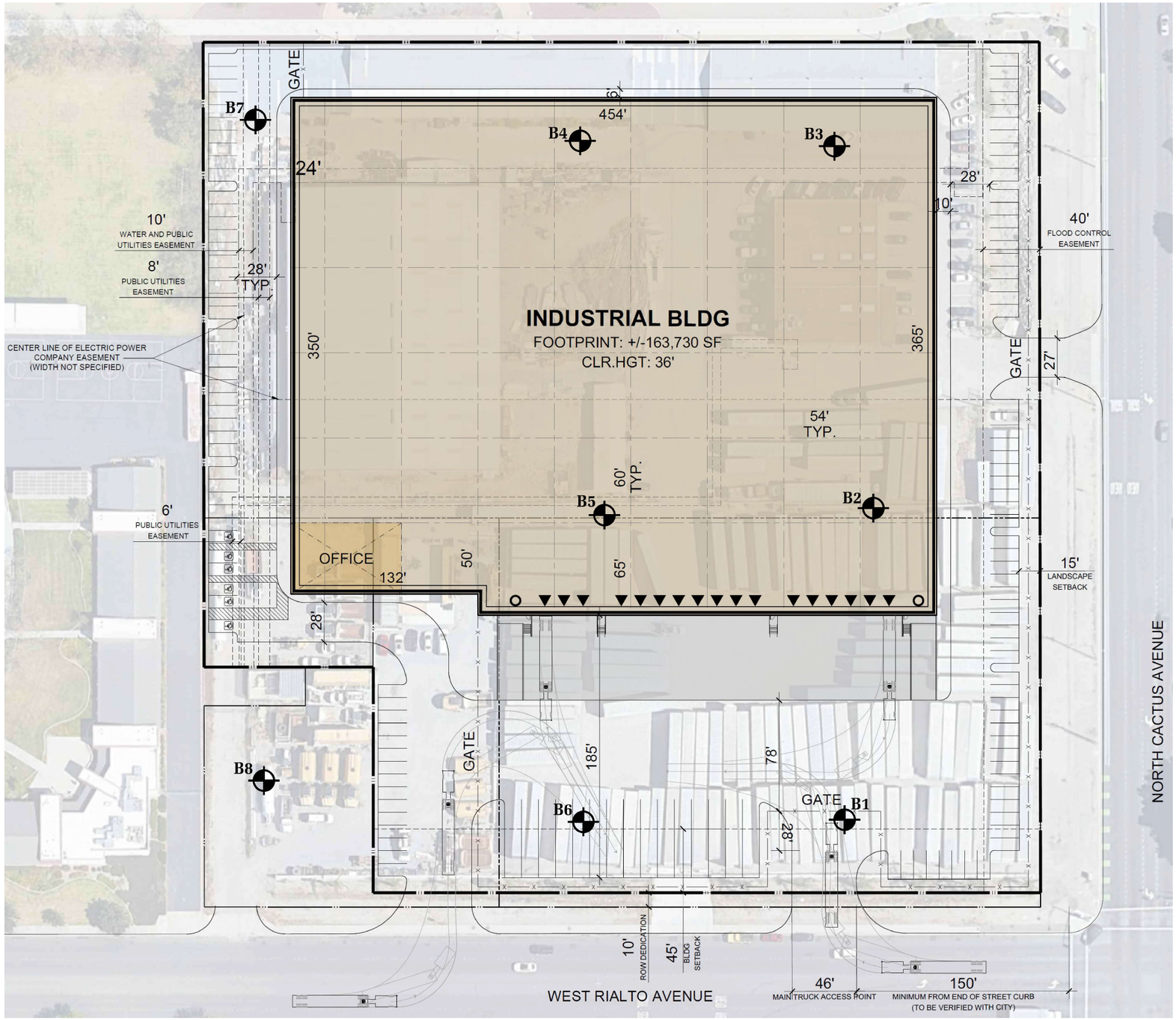
REFERENCE: U.S.G.S. TOPOGRAPHIC MAPS, 7.5 MINUTE SERIES, FONTANA, CA QUADRANGLE

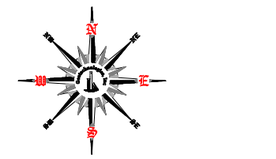
VICINITY MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257





LEGEND

B8 LOCATION & NUMBER OF BORING

REFERENCE: CONCEPTUAL SITE PLAN BY WARE MALCOMB DATED 05/23/22

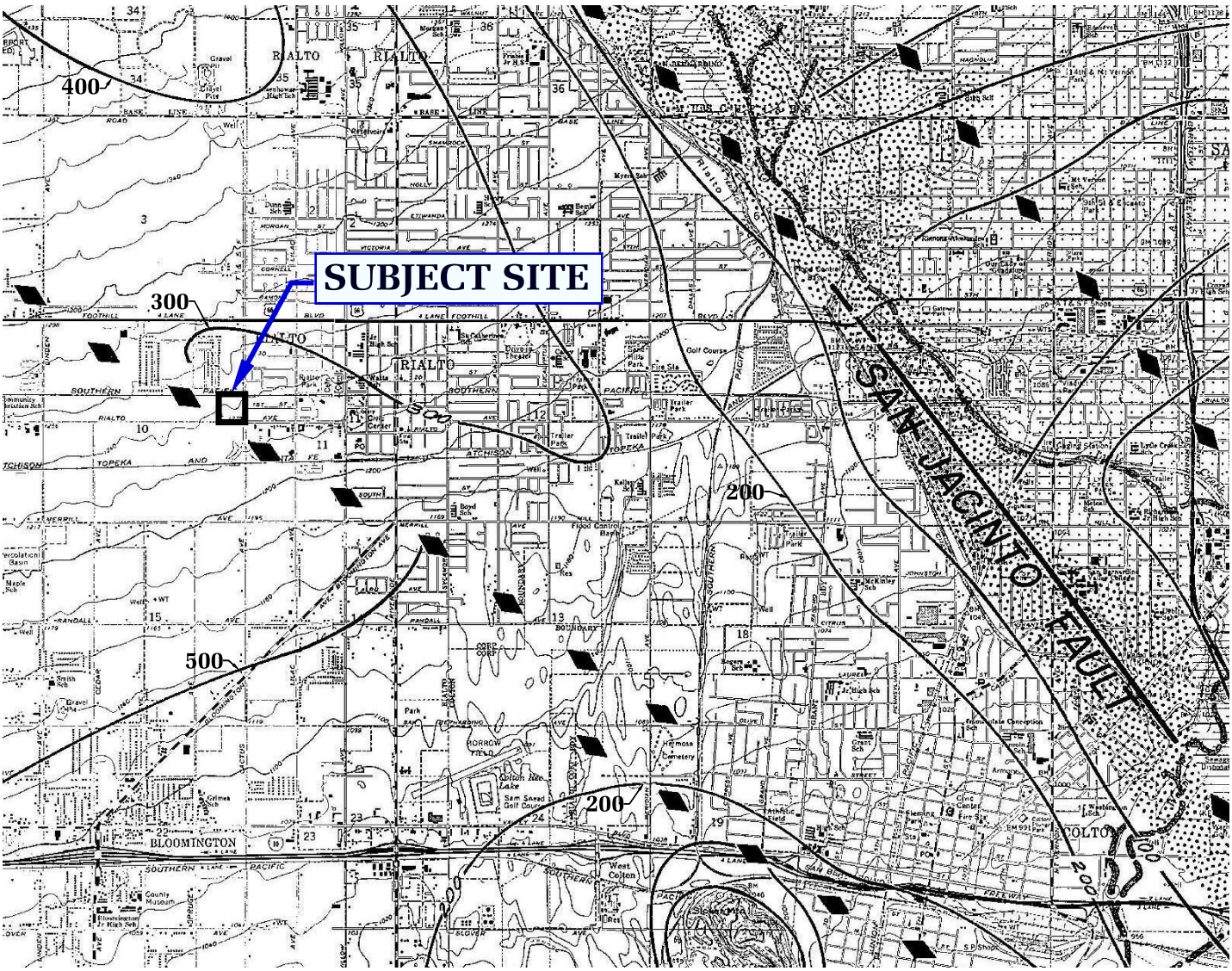
Geotechnologies, Inc.
Consulting Geotechnical Engineers

PLOT PLAN

LINCOLN PROPERTY COMPANY

File No.: 22257

Date: May 2022



SCALE IN MILES

0 1 2

300 Depth to groundwater in feet

N

REFERENCE:

PLATE 4B, SPECIAL REPORT 113, 1974, MAP SHOWING SURFACE WATER AND MARSHES IN THE LATE 1800's, AND GENERALIZED DEPTH TO GROUNDWATER (1960), UPPER SANTA ANA VALLEY, SOUTHWESTERN SAN BERNARDINO COUNTY, CA

HISTORICALLY HIGHEST GROUNDWATER LEVELS

Geotechnologies, Inc.
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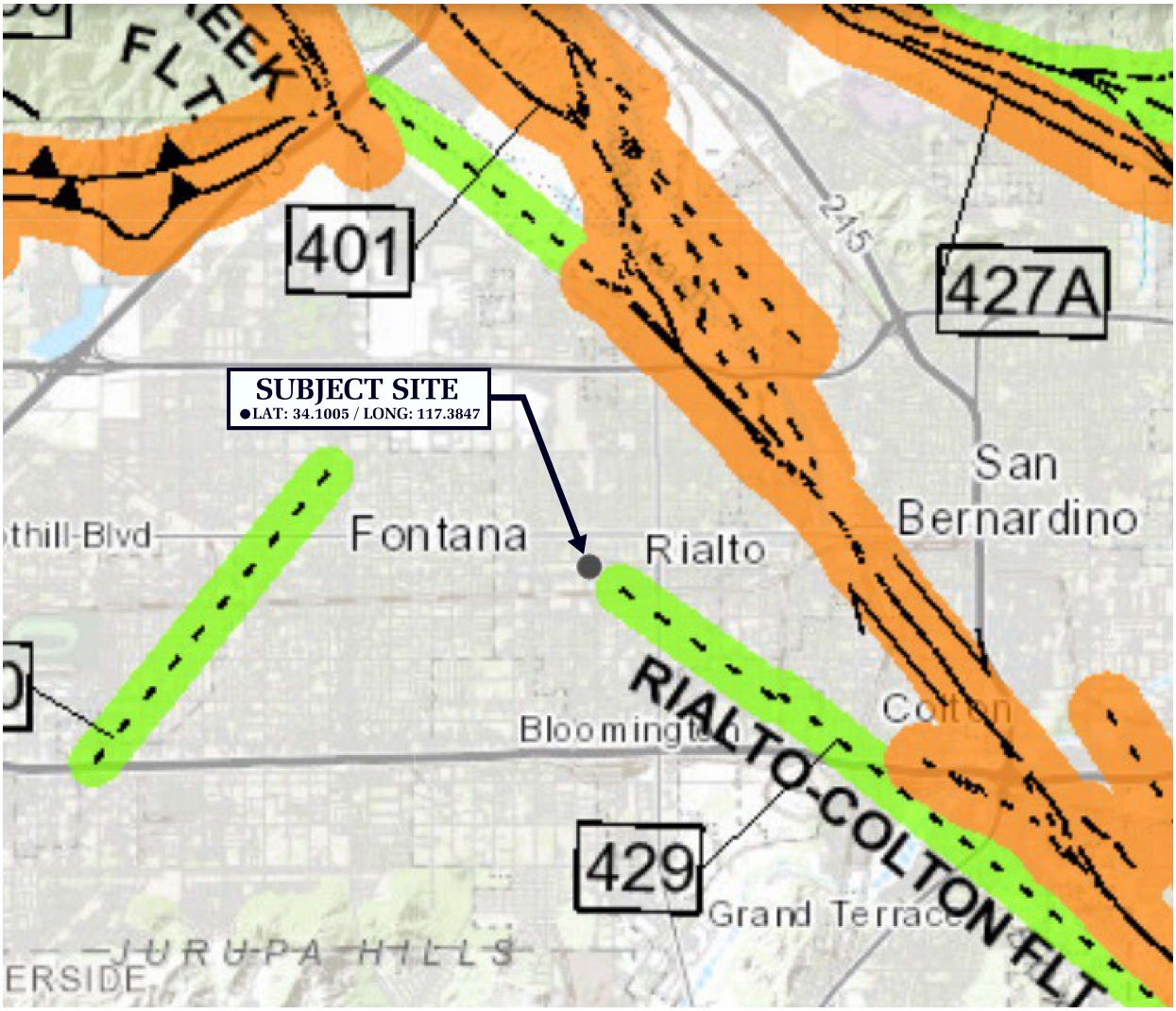
LINCOLN PROPERTY COMPANY

FILE No. 22257



Holocene fault displacement (during past 11,700 years) without historic record.

Late Quaternary fault displacement (during past 700,000 years).

Quaternary fault (age undifferentiated).

Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement.

N

REFERENCE: FAULT ACTIVITY MAP OF CALIFORNIA (CGS, 2010)

FAULT ACTIVITY MAP

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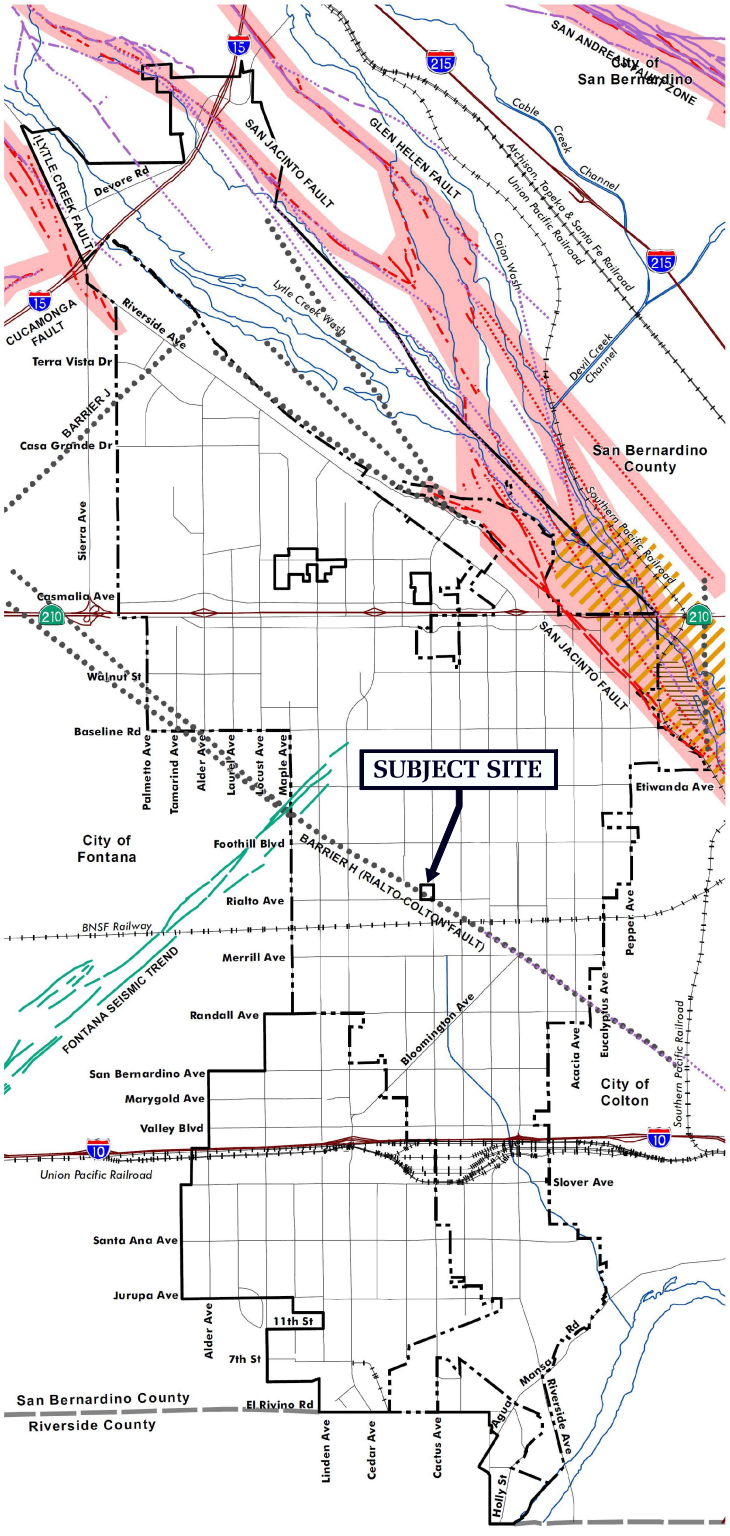
LINCOLN PROPERTY COMPANY

FILE NO. 22257



Seismic and Geologic Hazards

(Faults: Solid where location is known, dashed where approximate, dotted where inferred.)

- Fault (Morton and Miller, 2003)
- Alquist-Priolo Earthquake Fault (CGS, 2002)
- Alquist-Priolo Earthquake Fault Zone (CGS, 2002)
- Lineaments identified in aerial photos
- Groundwater barrier (Dutcher and Garrett, 1963) by F. Jordan (personal communication, 2002)
- Moderate liquefaction susceptibility. Sediment are young (less than 10,000 years old), unconsolidated, with fine-grained layers, and there has been artesian well activity historically.
- Approximate bog, swap, or marsh land area in the early 1900s

Base Map Features

- Rialto Incorporated Area
- Rialto Sphere of Influence
- County Boundary
- Freeway/Highway
- Local Road
- Railroad
- Hydrological Feature

Notes:
This map is intended for general land use planning only. Information on this map is not sufficent to serve as a substitute for detailed geologic investigations of individual sites, nor does it satisfy the evaluation requirements set forth in geologic hazard regulations.

Sources:
Earth Consultants International (ECI);
Morton and Miller (2003); Alquist-Priolo Earthquake Fault Zones in San Bernardino South (1977), San Bernardino North (1974), and Devore (1995) Quads. [reproduced with permission CGS CD-ROM 2001-05 (2002)]; Jennings (1994) [reproduced with permission CDMG, CD-ROM (2000)]; Dutcher and Garrett (1963); Jordan, F. (personal communications (2002); USGS 7.5-minute Digital Elevation Model and W.C. Mendenhall (1904)

0 0.5 1 1.5 2 Miles

REFERENCE: RIALTO GENERAL PLAN (DECEMBER, 2010)

CITY OF RIALTO FAULT MAP

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LINCOLN PROPERTY COMPANY

FILE NO. 22257

BORING LOG NUMBER 1

Lincoln Property Company **Date: 4/12/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
				-		
				1 --		
				-		
				2 --		
2.5	45	2.2	125.3	-		
	50/5"			3 --		
				-	SP/SW	NATIVE SOILS: Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				4 --		
				-		
5	100/9"	1.6	115.3	5 --		
				-		
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	90	4.5	121.0	10 --		
				-	SP	Sand, yellowish brown, moist, very dense, fine to medium grained, few pebbles
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	100/10"	2.7	116.5	15 --		
				-	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	100/9"	5.6	102.5	20 --		
				-		Total Depth: 20 Feet No Water Fill To 3 Feet
				21 --		
				-		
				22 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				-		
				23 --		
				-		
				24 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				25 --		
				-		

BORING LOG NUMBER 2

Lincoln Property Company **Date: 4/12/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		FILL: Silty Sand, yellowish brown, moist, medium dense, fine grained, few cobbles
				-		
				1 --		
				-		
				2 --		
2.5	5	10.1	100.1	-		
				3 --		
				-	SM	NATIVE SOILS: Silty Sand, yellowish brown, moist, medium dense, fine grained
				4 --		
				-		
5	16	6.2	SPT	5 --		
				-		
				6 --		
				-		
				7 --		
7.5	56	12.9	119.1	-		
				8 --		yellow and light brown, medium dense to dense, fine to medium grained
				-		
				9 --		
				-		
10	31	2.7	SPT	10 --		
				-	SP/SW	Sand to Gravelly Sand, dark and yellowish brown, moist, medium dense, fine to coarse grained
				11 --		
				-		
				12 --		
12.5	79	3.4	110.3	-		
				13 --		
				-		
				14 --		
				-		
15	49	3.3	SPT	15 --		
				-		dense
				16 --		
				-		
				17 --		
17.5	90	2.8	124.6	-		
				18 --		
				-		
				19 --		
				-		
20	49	2.9	SPT	20 --		
				-		
				21 --		
				-		
				22 --		
22.5	45	2.6	124.0	-		
	50/4"			23 --	SP	Cobbly Sand, grayish brown, slightly moist, very dense, fine to coarse grained
				-		
				24 --		
				-		
25	40	2.3	SPT	25 --		
	50/3"			-	SP/SW	Sand, grayish brown, moist, very dense, fine to coarse grained, some pebbles

BORING LOG NUMBER 2

Lincoln Property Company

File No. 22257

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 26 -- - 27 --		**NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.**
27.5	79	5.1	128.5	- 28 -- - 29 --		**Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted**
30	40 50/4"	3.1	SPT	- 30 -- - 31 --		**SPT=Standard Penetration Test**
32.5	100/9"	2.3	122.1	- 32 -- - 33 --		
35	88	3.4	SPT	- 34 -- - 35 --		
37.5	100/8"	2.8	116.4	- 36 -- - 37 --		
40	80	3.6	SPT	- 38 -- - 39 -- - 40 --	SP	Sand, yellow and grayish brown, moist, very dense, fine to medium grained
42.5	100/9"	2.3	118.9	- 41 -- - 42 --	SP/SW	Sand to Gravelly Sand, grayish brown, moist, very dense, fine to coarse grained
45	69 50/3"	3.5	SPT	- 43 -- - 44 -- - 45 --		
47.5	89	4.2	114.8	- 46 -- - 47 --	SP	Sand, yellowish brown, moist, very dense, fine to medium grained
50	74	3.0	SPT	- 48 -- - 49 -- - 50 --		**Total Depth: 50 Feet No Water Fill To 3 Feet**

BORING LOG NUMBER 3

Lincoln Property Company **Date: 4/12/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		3 Inch Asphalt, No Base
				-		
				1 --		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
				-		
				2 --		
2.5	81	6.5	118.2	-		
				3 --		
				-	SM/SP	NATIVE SOILS: Silty Sand to Sand, dark brown, moist, dense, fine grained, few cobbles
				4 --		
				-		
5	74	4.1	133.5	5 --		
	50/4"			-	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	88	15.4	116.6	10 --		
				-	SM/SP	Silty Sand to Sand, dark and yellowish brown, moist, dense, fine grained, few cobbles
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	42	3.6	124.8	15 --		
	50/5"			-	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	100/9"	2.7	114.8	20 --		
				-		Total Depth: 20 Feet No Water Fill To 3 Feet
				21 --		
				-		
				22 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				-		
				23 --		
				-		
				24 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				25 --		
				-		

BORING LOG NUMBER 4

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Concrete Slab
				0 --		FILL: Silty Sand to Sand, dark brown, moist, medium dense, fine grained, few cobbles
				-		
				1 --		
				-		
				2 --		
2.5	83	6.7	129.1	-		
				3 --		
				-	SM/SP	NATIVE SOILS: Silty Sand to Sand, dark and yellowish brown, moist, dense, fine grained, few cobbles
				4 --		
				-		
5	72	11.9	121.3	5 --	SM	Silty Sand, dark brown, moist, dense, fine grained, few cobbles
				-		
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	45 50/4"	3.6	118.2	10 --	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				-		
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	43 50/5"	4.1	116.8	15 --		
				-		
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	40 50/3"	3.7	116.8	20 --		Total Depth: 20 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
				25 --		
				-		

BORING LOG NUMBER 5

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		
				-		
				1 --		
				-		
				2 --		
2.5	40 50/5"	1.5	129.0	-		
				3 --	SP/SW	NATIVE SOILS: Sand with Pebbles, dark and yellowish brown, moist, very dense, fine to coarse grained
				-		
				4 --		
				-		
5	45 50/4"	7.6	115.1	5 --	SM	Silty Sand, dark brown, moist, very dense, fine grained, few cobbles
				-		
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	88	2.0	117.9	10 --	SP	Sand, dark brown, moist, very dense, fine to medium grained
				-		
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	44 50/3"	3.3	122.4	15 --	SP	Sand, dark brwon, moist, very dense, fine to medium grained
				-		
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	100/8"	3.5	107.4	20 --		Total Depth: 20 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
				25 --		
				-		

BORING LOG NUMBER 6

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
				-		
				1 --		
				-		
				2 --		
2.5	40	1.8	129.0	-		
	50/5"			3 --		
				-	SW	NATIVE SOILS: Gravelly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				4 --		
				-		
5	89	1.5	122.2	5 --		
				-		
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	95	2.3	122.0	10 --		
				-		
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	42	2.0	113.7	15 --		
	50/5"			-	SP	Sand, dark and yellowish brown, moist, very dense, fine to medium grained
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	100/9"	2.2	115.1	20 --		
				-		Total Depth: 20 Feet No Water Fill To 3 Feet
				21 --		
				-		
				22 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				-		
				23 --		
				-		
				24 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				25 --		
				-		

BORING LOG NUMBER 7

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Concrete Slab
				0 --		5 Inch Concrete, No Base
				-		
				1 --		FILL: Silty Sand to Sand, dark and yellowish brown, moist, medium dense, fine grained, minor cobbles
				-		
				2 --		
2.5	71	2.6	117.3	-		
				3 --		
				-	SP	NATIVE SOILS: Sand, yellowish brown, moist, dense, fine grained
				4 --		
				-		
5	40 50/5"	1.7	130.2	5 --	SP/SW	Sand to Cobbly Sand, yellowish brown, moist, very dense, fine to coarse grained
				-		
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	45 50/4"	3.0	123.3	10 --		
				-		
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	100/10"	2.7	122.9	15 --		Total Depth: 15 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
				20 --		
				-		
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
				25 --		
				-		

BORING LOG NUMBER 8

Lincoln Property Company **Date: 4/13/22**

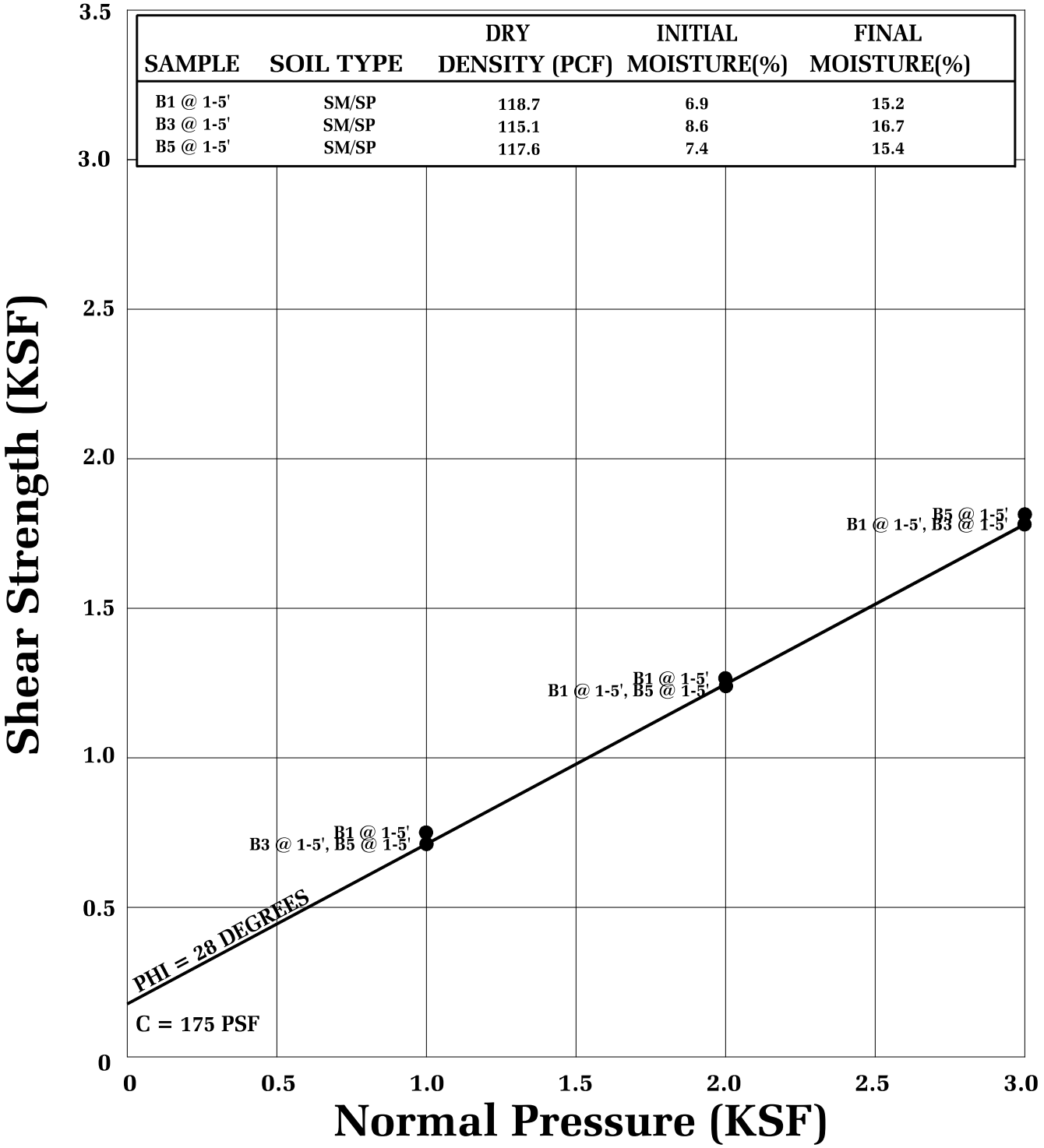
File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		FILL: Silty sand with Cobbles, dark brown, moist, medium dense, fine grained
				-		
				1 --		
				-		
				2 --		
2.5	100/10"	4.5	109.3	-		
				3 --		
				-		
				4 --		
				-		
5	100/8"	1.9	126.3	5 --		
				-	SW	NATIVE SOILS: Sand with Cobbles, dark and yellowish brown, moist, very dense, fine to coarse grained
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	100/9"	3.3	121.5	10 --		
				-	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		Sand, yellowish brown, moist, very dense, fine to medium
				-	SP	grained, few pebbles
15	42	3.1	114.1	15 --		
	50/4"			-		Total Depth: 15 Feet
				16 --		No Water
				-		Fill To 5 Feet
				17 --		
				-		NOTE: The stratification lines represent the approximate
				18 --		boundary between earth types; the transition may be gradual.
				-		
				19 --		Used 8-inch diameter Hollow-Stem Auger
				-		140-lb. Automatic Hammer, 30-inch drop
				20 --		Modified California Sampler used unless otherwise noted
				-		
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
				25 --		
				-		

BULK SAMPLE REMOLDED TO 90 PERCENT OF THE MAXIMUM LABORATORY DENSITY

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE(%)	FINAL MOISTURE(%)
B1 @ 1-5'	SM/SP	118.7	6.9	15.2
B3 @ 1-5'	SM/SP	115.1	8.6	16.7
B5 @ 1-5'	SM/SP	117.6	7.4	15.4



● Direct Shear, Saturated

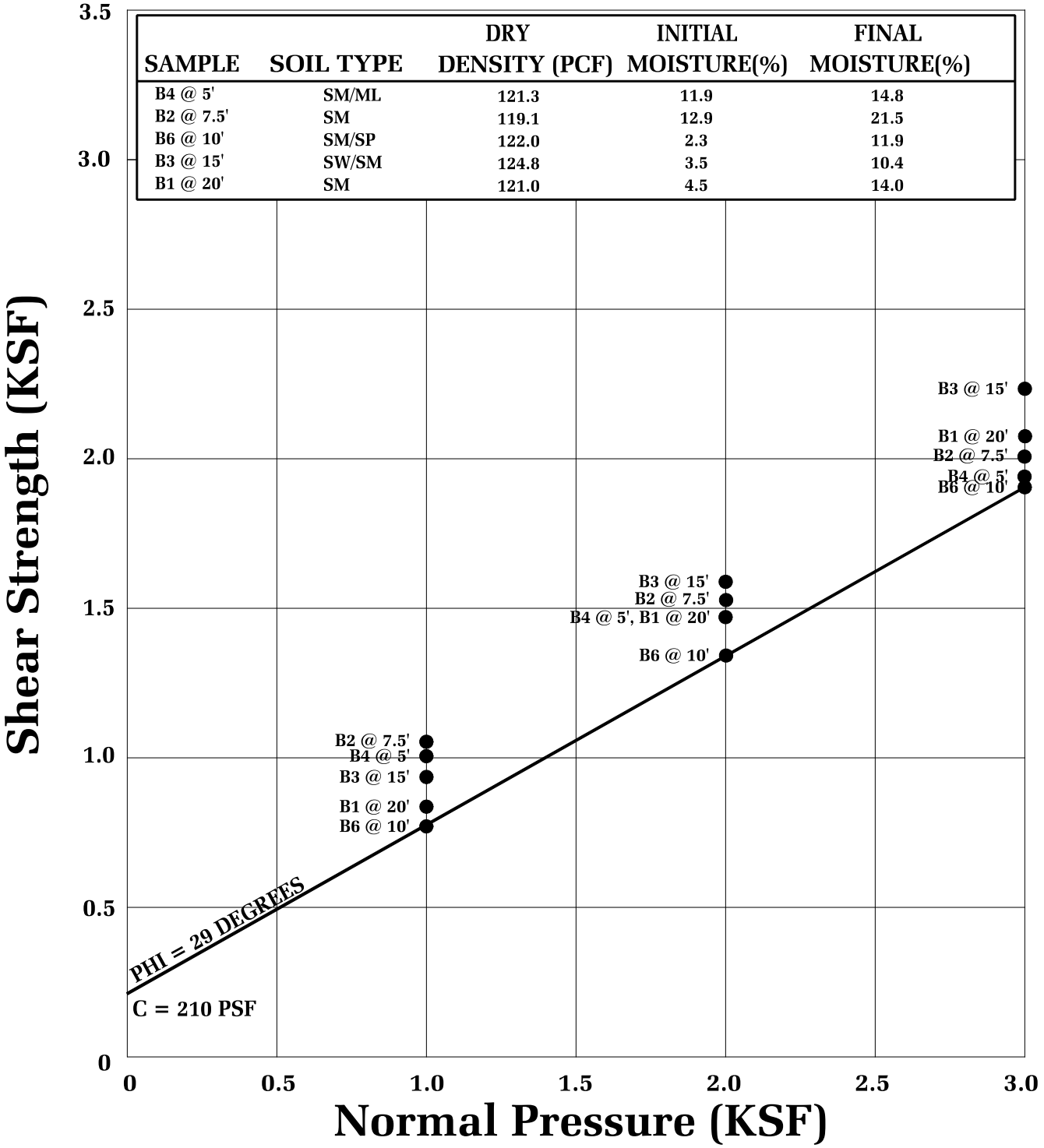
SHEAR TEST DIAGRAM

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | PLATE: B-1

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE(%)	FINAL MOISTURE(%)
B4 @ 5'	SM/ML	121.3	11.9	14.8
B2 @ 7.5'	SM	119.1	12.9	21.5
B6 @ 10'	SM/SP	122.0	2.3	11.9
B3 @ 15'	SW/SM	124.8	3.5	10.4
B1 @ 20'	SM	121.0	4.5	14.0



● Direct Shear, Saturated

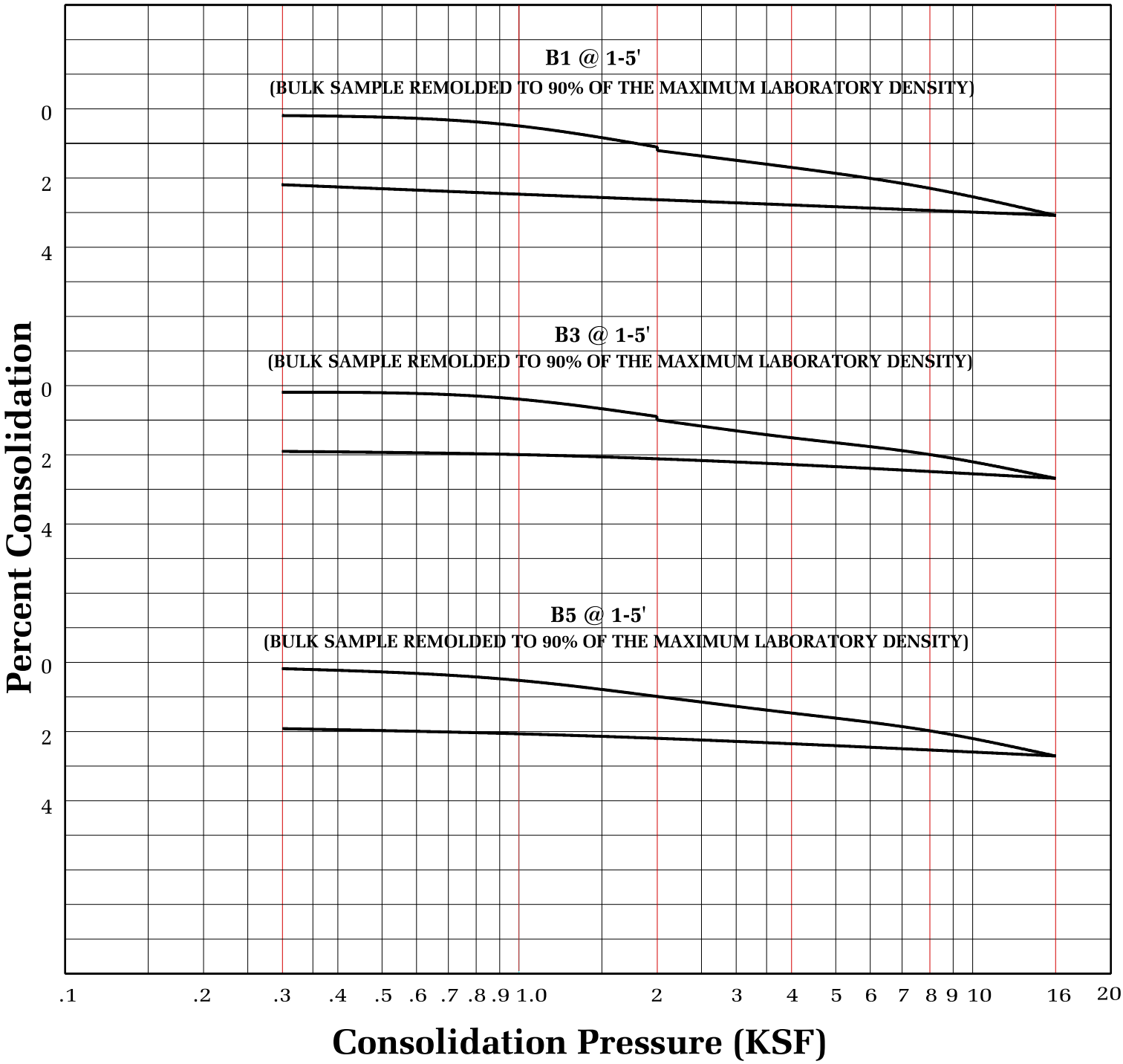
SHEAR TEST DIAGRAM

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | PLATE: B-2

WATER ADDED AT 2 KSF



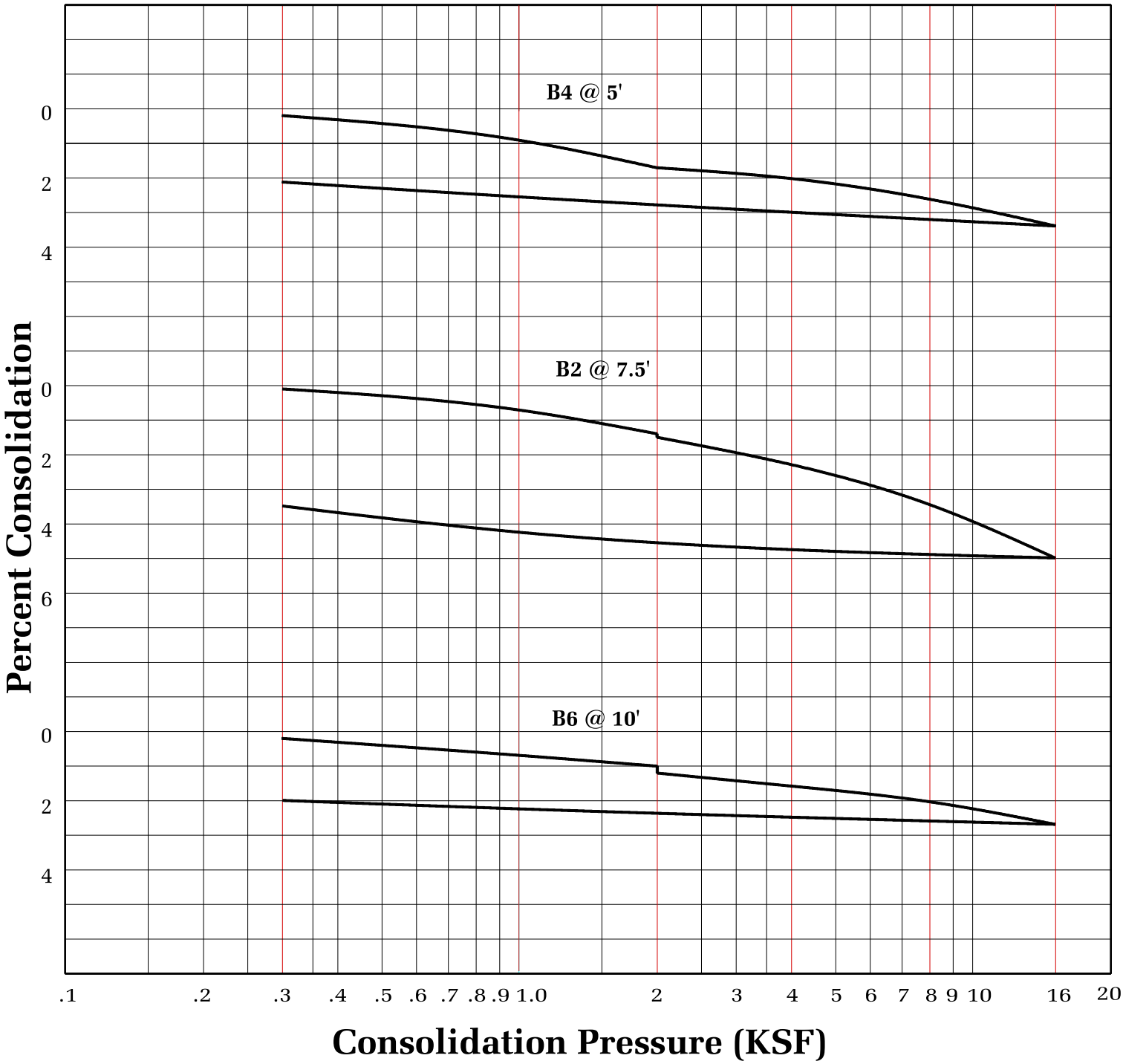
CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | **PLATE: C-1**

WATER ADDED AT 2 KSF

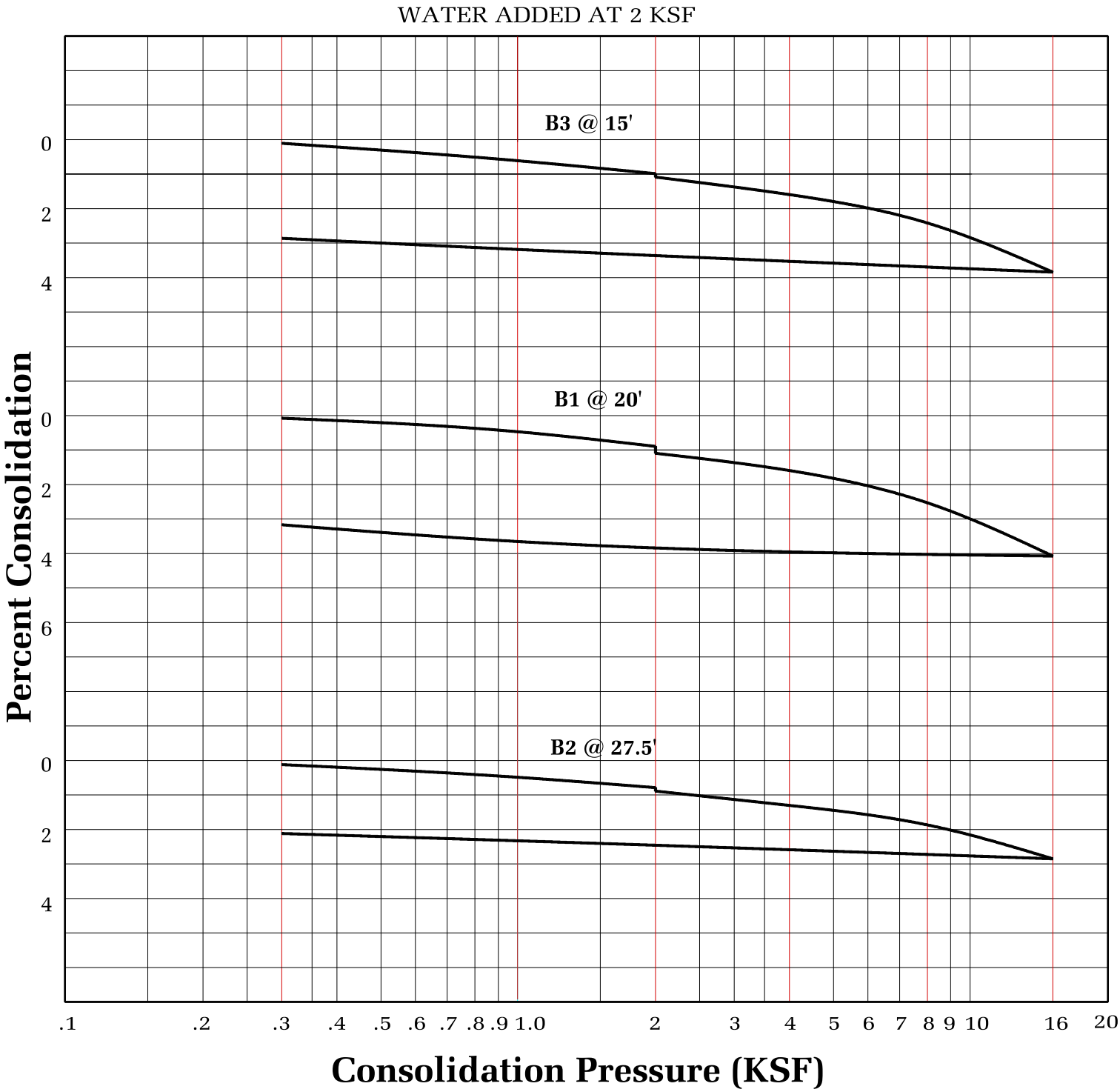


CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | **PLATE: C-2**



CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | **PLATE: C-3**

ASTM D 1557

SAMPLE	B1 @ 1- 3'	B3 @ 1-3'	B5 @ 1-3'
SOIL TYPE:	SM/SP	SM/SP	SM/SP
MAXIMUM DENSITY pcf.	131.9	127.9	130.7
OPTIMUM MOISTURE %	6.9	8.6	7.4

ASTM D 4829

SAMPLE	B1 @ 1- 5'	B3 @ 1-5'	B5 @ 1-5'
SOIL TYPE:	SM/SP	SM/SP	SM/SP
EXPANSION INDEX UBC STANDARD 18-2	3	2	3
EXPANSION CHARACTER	VERY LOW	VERY LOW	VERY LOW

SULFATE CONTENT

SAMPLE	B1 @ 1- 5'	B3 @ 1-5'	B5 @ 1-5'
SULFATE CONTENT: (percentage by weight)	< 0.10%	< 0.10%	< 0.10%

COMPACTION/EXPANSION DATA SHEET

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | PLATE: D

Geotechnologies, Inc.

Test Date: 13-Apr-22
File No. 22257
File Name : Lincoln Property Company

Percolation Rate Calculation for Boring - Porchet Method

Boring Number	7	
Boring Diameter	8	inches
Boring Radius	4	inches
Depth of Boring	15	feet
Length of Casing (dc)	15	feet
Pre-soak Time	2	hours
Measured By	H.C.	

Terms
Δt = Time Interval
Do = Initial Depth to Water
Df = Final Depth to Water
Dt = Total Depth of Test Hole

Reading Number	Clock Time	Elapsed Time	Water Measurement (Do) and (D_f)	Initial Height of Water	Final Height of Water	Change in Height	Average Head	Infiltration Rate Calculation - Porchet Equation
				(Ho)	(Hf)	(ΔH)	Havg	If = [(ΔH*60*r)/(Δt(r + 2Havg)]
		Min	feet	in	in	in	in	in/hour
1	1:15		10.00	60.00	8.40	51.60	34.2	34.2
	1:20	5	14.30					
2	1:30		10.00	60.00	12.00	48.00	36	30.3
	1:35	5	14.00					
3	1:42		10.00	60.00	10.20	49.80	35.1	32.2
	1:47	5	14.15					
4	1:55		10.00	60.00	10.20	49.80	35.1	32.2
	2:00	5	14.15					
5	2:10		10.00	60.00	10.20	49.80	35.1	32.2
	2:15	5	14.15					

Lowest Calculated Infiltration Rate = 30.3 in/hr
(Safety Factor Not Applied)

Geotechnologies, Inc.

Test Date: 13-Apr-22
File No. 22257
File Name : Lincoln Property Company

Percolation Rate Calculation for Boring - Porchet Method

Boring Number	8	
Boring Diameter	8	inches
Boring Radius	4	inches
Depth of Boring	15	feet
Length of Casing (dc)	15	feet
Pre-soak Time	2	hours
Measured By	H.C.	

Terms
Δt = Time Interval
Do = Initial Depth to Water
Df = Final Depth to Water
Dt = Total Depth of Test Hole

Reading Number	Clock Time	Elapsed Time	Water Measurement (Do) and (D_f)	Initial Height of Water	Final Height of Water	Change in Height	Average Head	Infiltration Rate Calculation - Porchet Equation
				(Ho)	(Hf)	(ΔH)	Havg	If = [(ΔH*60*r)/(Δt(r + 2Havg)]
		Min	feet	in	in	in	in	in/hour
1	1:15		10.00	60.00	2.40	57.60	31.2	41.6
	1:20	5	14.80					
2	1:30		10.00	60.00	3.60	56.40	31.8	40.0
	1:35	5	14.70					
3	1:42		10.00	60.00	6.00	54.00	33	37.0
	1:47	5	14.50					
4	1:55		10.00	60.00	6.00	54.00	33	37.0
	2:00	5	14.50					
5	2:10		10.00	60.00	6.00	54.00	33	37.0
	2:15	5	14.50					

Lowest Calculated Infiltration Rate = 37.0 in/hr
(Safety Factor Not Applied)

Attachment F – Educational Materials

The Ocean Begins at Your Front Door



Follow these simple steps to help reduce water pollution:

Household Activities

- Do not rinse spills with water. Use dry cleanup methods such as applying cat litter or another absorbent material, sweep and dispose of in the trash. Take items such as used or excess batteries, oven cleaners, automotive fluids, painting products and cathode ray tubes, like TVs and computer monitors, to a Household Hazardous Waste Collection Center (HHWCC).
- For a HHWCC near you call (714) 834-6752 or visit www.oclandfills.com.
- Do not hose down your driveway, sidewalk or patio to the street, gutter or storm drain. Sweep up debris and dispose of it in the trash.

Automotive

- Take your vehicle to a commercial car wash whenever possible. If you wash your vehicle at home, choose soaps, cleaners, or detergents labeled non-toxic, phosphate- free or biodegradable. Vegetable and citrus-based products are typically safest for the environment.
- Do not allow washwater from vehicle washing to drain into the street, gutter or storm drain. Excess washwater should be disposed of in the sanitary sewer (through a sink or toilet) or onto an absorbent surface like your lawn.
- Monitor your vehicles for leaks and place a pan under leaks. Keep your vehicles well maintained to stop and prevent leaks.
- Never pour oil or antifreeze in the street, gutter or storm drain. Recycle these substances at a service station, a waste oil collection center or used oil recycling center. For the nearest Used Oil Collection Center call 1-800-CLEANUP or visit www.1800cleanup.org.

Pool Maintenance

- Pool and spa water must be dechlorinated and free of excess acid, alkali or color to be allowed in the street, gutter or storm drain.
- When it is not raining, drain dechlorinated pool and spa water directly into the sanitary sewer.
- Some cities may have ordinances that do not allow pool water to be disposed of in the storm drain. Check with your city.

Landscape and Gardening

- Do not over-water. Water your lawn and garden by hand to control the amount of water you use or set irrigation systems to reflect seasonal water needs. If water flows off your yard onto your driveway or sidewalk, your system is over-watering. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of waste by composting, hauling it to a permitted landfill, or as green waste through your city's recycling program.
- Follow directions on pesticides and fertilizer, (measure, do not estimate amounts) and do not use if rain is predicted within 48 hours.
- Take unwanted pesticides to a HHWCC to be recycled. For locations and hours of HHWCC, call (714) 834-6752 or visit www.oclandfills.com.

Trash

- Place trash and litter that cannot be recycled in securely covered trash cans.
- Whenever possible, buy recycled products.
- Remember: Reduce, Reuse, Recycle.

Pet Care

- Always pick up after your pet. Flush waste down the toilet or dispose of it in the trash. Pet waste, if left outdoors, can wash into the street, gutter or storm drain.
- If possible, bathe your pets indoors. If you must bathe your pet outside, wash it on your lawn or another absorbent/permeable surface to keep the washwater from entering the street, gutter or storm drain.
- Follow directions for use of pet care products and dispose of any unused products at a HHWCC.

Common Pollutants

Home Maintenance

- Detergents, cleaners and solvents
- Oil and latex paint
- Swimming pool chemicals
- Outdoor trash and litter

Lawn and Garden

- Pet and animal waste
- Pesticides
- Clippings, leaves and soil
- Fertilizer

Automobile

- Oil and grease
- Radiator fluids and antifreeze
- Cleaning chemicals
- Brake pad dust

The Ocean Begins at Your Front Door



Never allow pollutants to enter the street, gutter or storm drain!

Did You Know?

- Most people believe that the largest source of water pollution in urban areas comes from specific sources such as factories and sewage treatment plants. In fact, the largest source of water pollution comes from city streets, neighborhoods, construction sites and parking lots. This type of pollution is sometimes called “non-point source” pollution.
- There are two types of non-point source pollution: stormwater and urban runoff pollution.
- Stormwater runoff results from rainfall. When rainstorms cause large volumes of water to rinse the urban landscape, picking up pollutants along the way.
- Urban runoff can happen any time of the year when excessive water use from irrigation, vehicle washing and other sources carries trash, lawn clippings and other urban pollutants into storm drains.

Where Does It Go?

- Anything we use outside homes, vehicles and businesses – like motor oil, paint, pesticides, fertilizers and cleaners – can be blown or washed into storm drains.
- A little water from a garden hose or rain can also send materials into storm drains.
- Storm drains are separate from our sanitary sewer systems; unlike water in sanitary sewers (from sinks or toilets), water in storm drains is not treated before entering our waterways.

Sources of Non-Point Source Pollution

- Automotive leaks and spills.
- Improper disposal of used oil and other engine fluids.
- Metals found in vehicle exhaust, weathered paint, rust, metal plating and tires.
- Pesticides and fertilizers from lawns, gardens and farms.
- Improper disposal of cleaners, paint and paint removers.
- Soil erosion and dust debris from landscape and construction activities.
- Litter, lawn clippings, animal waste, and other organic matter.
- Oil stains on parking lots and paved surfaces.



The Effect on the Ocean



Non-point source pollution can have a serious impact on water quality in Orange County. Pollutants from the storm drain system can harm marine life as well as coastal and wetland habitats. They can also degrade recreation areas such as beaches, harbors and bays.

Stormwater quality management programs have been developed throughout Orange County to educate and encourage the public to protect water quality, monitor runoff in the storm drain system, investigate illegal dumping and maintain storm drains.

Support from Orange County residents and businesses is needed to improve water quality and reduce urban runoff pollution. Proper use and disposal of materials will help stop pollution before it reaches the storm drain and the ocean.



For More Information

Orange County Stormwater Program

California Environmental Protection Agency
www.calepa.ca.gov

- **Air Resources Board**
  www.arb.ca.gov
- **Department of Pesticide Regulation**
  www.cdpr.ca.gov
- **Department of Toxic Substances Control**
  www.dtsc.ca.gov
- **Integrated Waste Management Board**
  www.ciwmb.ca.gov
- **Office of Environmental Health Hazard Assessment**
  www.oehha.ca.gov
- **State Water Resources Control Board**
  www.waterboards.ca.gov

Earth 911 - Community-Specific Environmental Information 1-800-cleanup or visit www.1800cleanup.org

Health Care Agency's Ocean and Bay Water Closure and Posting Hotline
(714) 433-6400 or visit www.ocbeachinfo.com

Integrated Waste Management Dept. of Orange County (714) 834-6752 or visit www.oclandfills.com for information on household hazardous waste collection centers, recycling centers and solid waste collection

O.C. Agriculture Commissioner
(714) 447-7100 or visit www.ocagcomm.com

Stormwater Best Management Practice Handbook
Visit www.cabmphandbooks.com

UC Master Gardener Hotline
(714) 708-1646 or visit www.uccemg.com

The Orange County Stormwater Program has created and moderates an electronic mailing list to facilitate communications, take questions and exchange ideas among its users about issues and topics related to stormwater and urban runoff and the implementation of program elements. To join the list, please send an email to ocstormwaterinfo-join@list.ocwatersheds.com

Aliso Viejo	(949)	425-2535
Anaheim Public Works Operations	(714)	765-6860
Brea Engineering	(714)	990-7666
Buena Park Public Works	(714)	562-3655
Costa Mesa Public Services	(714)	754-5323
Cypress Public Works	(714)	229-6740
Dana Point Public Works	(949)	248-3584
Fountain Valley Public Works	(714)	593-4441
Fullerton Engineering Dept.	(714)	738-6853
Garden Grove Public Works	(714)	741-5956
Huntington Beach Public Works	(714)	536-5431
Irvine Public Works	(949)	724-6315
La Habra Public Services	(562)	905-9792
La Palma Public Works	(714)	690-3310
Laguna Beach Water Quality	(949)	497-0378
Laguna Hills Public Services	(949)	707-2650
Laguna Niguel Public Works	(949)	362-4337
Laguna Woods Public Works	(949)	639-0500
Lake Forest Public Works	(949)	461-3480
Los Alamitos Community Dev.	(562)	431-3538
Mission Viejo Public Works	(949)	470-3056
Newport Beach, Code & Water Quality Enforcement	(949)	644-3215
Orange Public Works	(714)	532-6480
Placentia Public Works	(714)	993-8245
Rancho Santa Margarita	(949)	635-1800
San Clemente Environmental Programs	(949)	361-6143
San Juan Capistrano Engineering	(949)	234-4413
Santa Ana Public Works	(714)	647-3380
Seal Beach Engineering	(562)	431-2527 x317
Stanton Public Works	(714)	379-9222 x204
Tustin Public Works/Engineering	(714)	573-3150
Villa Park Engineering	(714)	998-1500
Westminster Public Works/Engineering	(714)	898-3311 x446
Yorba Linda Engineering	(714)	961-7138
Orange County Stormwater Program	(877)	897-7455

Orange County 24-Hour
Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455)

On-line Water Pollution Problem Reporting Form
www.ocwatersheds.com

Printed on Recycled Paper



Preventing water pollution at your commercial/industrial site

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many landscape and building maintenance activities can lead to water pollution if you're not careful. Paint, chemicals, plant clippings and other materials can be blown or washed into storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour soap or fertilizers into the ocean, so why would you let them enter the storm drains? Follow these easy tips to help prevent water pollution.

Some types of industrial facilities are required to obtain coverage under the State General Industrial Permit. For more information visit: **www.swrcb.ca.gov/stormwater/industrial.html**

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

RECYCLE USED OIL

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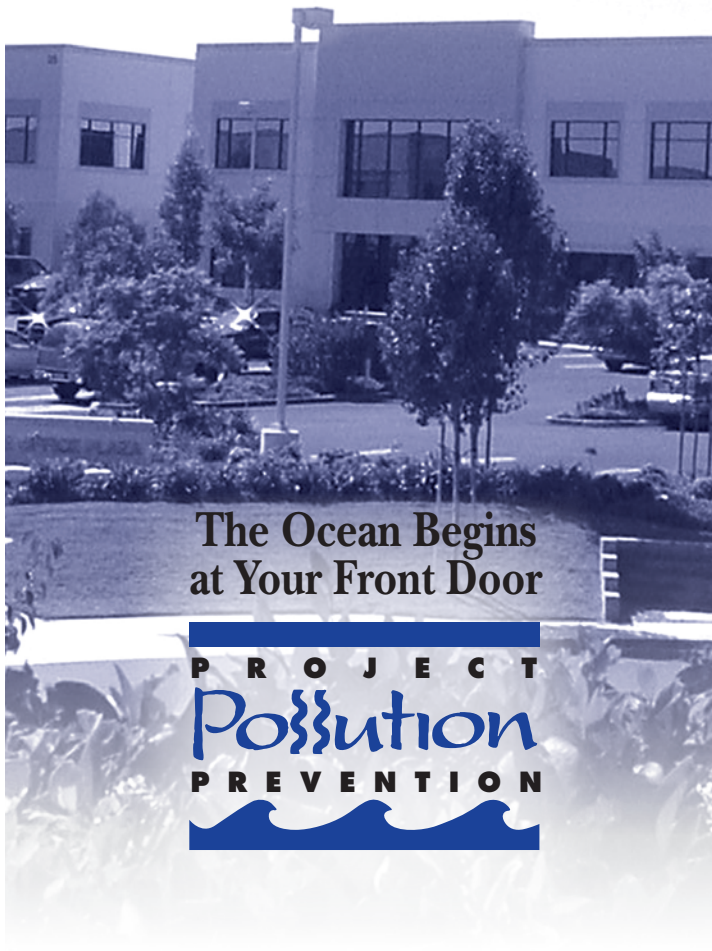
Help Prevent Ocean Pollution:

Proper Maintenance Practices for Your Business



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Proper Maintenance Practices for your Business

Landscape Maintenance

- Compost grass clippings, leaves, sticks and other vegetation, or dispose of it at a permitted landfill or in green waste containers. Do not dispose of these materials in the street, gutter or storm drain.
- Irrigate slowly and inspect the system for leaks, overspraying and runoff. Adjust automatic timers to avoid overwatering.
- Follow label directions for the use and disposal of fertilizers and pesticides.
- Do not apply pesticides or fertilizers if rain is expected within 48 hours or if wind speeds are above 5 mph.
- Do not spray pesticides within 100 feet of waterways.
- Fertilizers should be worked into the soil rather than dumped onto the surface.
- If fertilizer is spilled on the pavement or sidewalk, sweep it up immediately and place it back in the container.

Building Maintenance

- Never allow washwater, sweepings or sediment to enter the storm drain.
- Sweep up dry spills and use cat litter, towels or similar materials to absorb wet spills. Dispose of it in the trash.
- If you wash your building, sidewalk or parking lot, you **must** contain the water. Use a shop vac to collect the water and contact your city or sanitation agency for proper disposal information. Do not let water enter the street, gutter or storm drain.
- Use drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of materials in the trash.
- Use a ground cloth or oversized tub for mixing paint and cleaning tools.
- Use a damp mop or broom to clean floors.
- Cover dumpsters to keep insects, animals, rainwater and sand from entering. Keep the area around the dumpster clear of trash and debris. Do not overfill the dumpster.
- Call your trash hauler to replace leaking dumpsters.
- Do not dump any toxic substance or liquid waste on the pavement, the ground, or near a storm drain. Even materials that seem harmless such as latex paint or biodegradable cleaners can damage the environment.

Never Dispose of Anything in the Storm Drain.

- Recycle paints, solvents and other materials. For more information about recycling and collection centers, visit **www.oclandfills.com**.
- Store materials indoors or under cover and away from storm drains.
- Use a construction and demolition recycling company to recycle lumber, paper, cardboard, metals, masonry, carpet, plastic, pipes, drywall, rocks, dirt, and green waste. For a listing of construction and demolition recycling locations in your area, visit **www.ciwmb.ca.gov/recycle.**
- Properly label materials. Familiarize employees with Material Safety Data Sheets.

PROJECT Pollution PREVENTION



Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Fertilizers, pesticides and other chemicals that are left on yards or driveways can be blown or washed into storm drains that flow to the ocean. Overwatering lawns can also send materials into storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour gardening products into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

UCCE Master Gardener Hotline:
(714) 708-1646

To report a spill,
call the
Orange County 24-Hour
Water Pollution Problem
Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while landscaping or gardening. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

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Help Prevent Ocean Pollution:

Tips for Landscape & Gardening



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Landscape & Gardening

Never allow gardening products or polluted water to enter the street, gutter or storm drain.

General Landscaping Tips

- Protect stockpiles and materials from wind and rain by storing them under tarps or secured plastic sheeting.
- Prevent erosion of slopes by planting fast-growing, dense ground covering plants. These will shield and bind the soil.
- Plant native vegetation to reduce the amount of water, fertilizers, and pesticide applied to the landscape.



- Never apply pesticides or fertilizers when rain is predicted within the next 48 hours.

Garden & Lawn Maintenance

- Do not overwater. Use irrigation practices such as drip irrigation, soaker hoses or micro spray systems. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of green waste by composting, hauling it to a permitted landfill, or recycling it through your city's program.



- Use slow-release fertilizers to minimize leaching, and use organic fertilizers.
- Read labels and use only as directed. Do not over-apply pesticides or fertilizers. Apply to spots as needed, rather than blanketing an entire area.
- Store pesticides, fertilizers and other chemicals in a dry covered area to prevent exposure that may result in the deterioration of containers and packaging.



- Rinse empty pesticide containers and re-use rinse water as you would use the product. Do not dump rinse water down storm drains. Dispose of empty containers in the trash.
- When available, use non-toxic alternatives to traditional pesticides, and use pesticides specifically designed to control the pest you are targeting. For more information, visit **www.ipm.ucdavis.edu**.
- If fertilizer is spilled, sweep up the spill before irrigating. If the spill is liquid, apply an absorbent material such as cat litter, and then sweep it up and dispose of it in the trash.
- Take unwanted pesticides to a Household Hazardous Waste Collection Center to be recycled. Locations are provided below.

Household Hazardous Waste Collection Centers

Anaheim:	1071 N. Blue Gum St.
Huntington Beach:	17121 Nichols St.
Irvine:	6411 Oak Canyon
San Juan Capistrano:	32250 La Pata Ave.

For more information, call (714) 834-6752 or visit www.oclandfills.com



Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities such as pest control can lead to water pollution if you're not careful. Pesticide treatments must be planned and applied properly to ensure that pesticides do not enter the street, gutter or storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never dump pesticides into the ocean, so don't let it enter the storm drains. Pesticides can cause significant damage to our environment if used improperly. If you are thinking of using a pesticide to control a pest, there are some important things to consider.

For more information,
please call
University of California Cooperative
Extension Master Gardeners at
(714) 708-1646
or visit these Web sites:
www.uccemg.org
www.ipm.ucdavis.edu

For instructions on collecting a specimen sample visit the Orange County Agriculture Commissioner's website at:
http://www.ocagcomm.com/ser_lab.asp

To report a spill, call the
Orange County 24-Hour
Water Pollution Problem
Reporting Hotline
at 1-877-89-SPILL (1-877-897-7455).

For emergencies, dial 911.

Information From:
Cheryl Wilen, Area IPM Advisor; Darren Haver, Watershed Management Advisor; Mary Louise Flint, IPM Education and Publication Director; Pamela M. Geisel, Environmental Horticulture Advisor; Carolyn L. Unruh, University of California Cooperative Extension staff writer. Photos courtesy of the UC Statewide IPM Program and Darren Haver.

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Printed on Recycled Paper

Help Prevent Ocean Pollution:

Responsible Pest Control



CONTECH®
ENGINEERED SOLUTIONS

CDS® Inspection and Maintenance Guide

CDS TECHNOLOGIES

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allows both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine weather the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes.



CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y^3	m^3
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.3	3.0	0.9	1.3	1.0
CDS2020	5	1.3	3.5	1.1	1.3	1.0
CDS2025	5	1.3	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities



Support

- Drawings and specifications are available at www.contechstormwater.com.
- Site-specific design support is available from our engineers.

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CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.**

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

- Types and quantities (in some cases) of wastes
- Patterns in time of occurrence (time of day/night, month, or year)
- Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
- Responsible parties

One of the keys to success of reducing or eliminating illegal dumping is increasing the number of people at the facility who are aware of the problem and who have the tools to at least identify the incident, if not correct it. Therefore, train field staff to recognize and report the incidents.

What constitutes a "non-stormwater" discharge?

- Non-stormwater discharges to the stormwater collection system may include any water used directly in the manufacturing process (process wastewater), air conditioning condensate and coolant, non-contact cooling water, cooling equipment condensate, outdoor secondary containment water, vehicle and equipment wash water, sink and drinking fountain wastewater, sanitary wastes, or other wastewaters.

Permit Requirements

- Facilities subject to stormwater permit requirements must include a certification that the stormwater collection system has been tested or evaluated for the presence of non-stormwater discharges. The State's General Industrial Stormwater Permit requires that non-stormwater discharges be eliminated prior to implementation of the facility's SWPPP.

Performance Evaluation

- Review annually internal investigation results; assess whether goals were met and what changes or improvements are necessary.
- Obtain feedback from personnel assigned to respond to, or inspect for, illicit connections and illegal dumping incidents.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Outdoor Loading/Unloading SC-30



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

The loading/unloading of materials usually takes place outside on docks or terminals; therefore, materials spilled, leaked, or lost during loading/unloading may collect in the soil or on other surfaces and have the potential to be carried away by stormwater runoff or when the area is cleaned. Additionally, rainfall may wash pollutants from machinery used to unload or move materials. Implementation of the following protocols will prevent or reduce the discharge of pollutants to stormwater from outdoor loading/unloading of materials.

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Keep accurate maintenance logs to evaluate materials removed and improvements made.
- Park tank trucks or delivery vehicles in designated areas so that spills or leaks can be contained.
- Limit exposure of material to rainfall whenever possible.
- Prevent stormwater run-on.
- Check equipment regularly for leaks.

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Suggested Protocols

Loading and Unloading – General Guidelines

- Develop an operations plan that describes procedures for loading and/or unloading.
- Conduct loading and unloading in dry weather if possible.
- Cover designated loading/unloading areas to reduce exposure of materials to rain.
- Consider placing a seal or door skirt between delivery vehicles and building to prevent exposure to rain.
- Design loading/unloading area to prevent stormwater run-on, which would include grading or berming the area, and position roof downspouts so they direct stormwater away from the loading/unloading areas.
- Have employees load and unload all materials and equipment in covered areas such as building overhangs at loading docks if feasible.
- Load/unload only at designated loading areas.
- Use drip pans underneath hose and pipe connections and other leak-prone spots during liquid transfer operations, and when making and breaking connections. Several drip pans should be stored in a covered location near the liquid transfer area so that they are always available, yet protected from precipitation when not in use. Drip pans can be made specifically for railroad tracks. Drip pans must be cleaned periodically, and drip collected materials must be disposed of properly.
- Pave loading areas with concrete instead of asphalt.
- Avoid placing storm drains in the area.
- Grade and/or berm the loading/unloading area to a drain that is connected to a deadend.

Inspection

- Check loading and unloading equipment regularly for leaks, including valves, pumps, flanges and connections.
- Look for dust or fumes during loading or unloading operations.

Training

- Train employees (e.g., fork lift operators) and contractors on proper spill containment and cleanup.
- Have employees trained in spill containment and cleanup present during loading/unloading.
- Train employees in proper handling techniques during liquid transfers to avoid spills.
- Make sure forklift operators are properly trained on loading and unloading procedures.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Contain leaks during transfer.
- Store and maintain appropriate spill cleanup materials in a location that is readily accessible and known to all and ensure that employees are familiar with the site's spill control plan and proper spill cleanup procedures.
- Have an emergency spill cleanup plan readily available.
- Use drip pans or comparable devices when transferring oils, solvents, and paints.

Other Considerations (Limitations and Regulations)

- Space and time limitations may preclude all transfers from being performed indoors or under cover.
- It may not be possible to conduct transfers only during dry weather.

Requirements

Costs

Costs should be low except when covering a large loading/unloading area.

Maintenance

- Conduct regular inspections and make repairs as necessary. The frequency of repairs will depend on the age of the facility.
- Check loading and unloading equipment regularly for leaks.
- Conduct regular broom dry-sweeping of area.

Supplemental Information

Further Detail of the BMP

Special Circumstances for Indoor Loading/Unloading of Materials

Loading or unloading of liquids should occur in the manufacturing building so that any spills that are not completely retained can be discharged to the sanitary sewer, treatment plant, or treated in a manner consistent with local sewer authorities and permit requirements.

- For loading and unloading tank trucks to above and below ground storage tanks, the following procedures should be used:
  - The area where the transfer takes place should be paved. If the liquid is reactive with the asphalt, Portland cement should be used to pave the area.
  - The transfer area should be designed to prevent run-on of stormwater from adjacent areas. Sloping the pad and using a curb, like a speed bump, around the uphill side of the transfer area should reduce run-on.

- The transfer area should be designed to prevent runoff of spilled liquids from the area. Sloping the area to a drain should prevent runoff. The drain should be connected to a dead-end sump or to the sanitary sewer. A positive control valve should be installed on the drain.

- For transfer from rail cars to storage tanks that must occur outside, use the following procedures:

  - Drip pans should be placed at locations where spillage may occur, such as hose connections, hose reels, and filler nozzles. Use drip pans when making and breaking connections.

  - Drip pan systems should be installed between the rails to collect spillage from tank cars.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Waste Handling & Disposal SC-34



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Improper storage and handling of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff. The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction, reuse, and recycling; and preventing run-on and runoff.

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Approach

Pollution Prevention

- Accomplish reduction in the amount of waste generated using the following source controls:
  - Production planning and sequencing
  - Process or equipment modification
  - Raw material substitution or elimination
  - Loss prevention and housekeeping
  - Waste segregation and separation
  - Close loop recycling
- Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.
- Recycle materials whenever possible.

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Suggested Protocols

General

- Cover storage containers with leak proof lids or some other means. If waste is not in containers, cover all waste piles (plastic tarps are acceptable coverage) and prevent stormwater run-on and runoff with a berm. The waste containers or piles must be covered except when in use.
- Use drip pans or absorbent materials whenever grease containers are emptied by vacuum trucks or other means. Grease cannot be left on the ground. Collected grease must be properly disposed of as garbage.
- Check storage containers weekly for leaks and to ensure that lids are on tightly. Replace any that are leaking, corroded, or otherwise deteriorating.
- Sweep and clean the storage area regularly. If it is paved, do not hose down the area to a storm drain.
- Dispose of rinse and wash water from cleaning waste containers into a sanitary sewer if allowed by the local sewer authority. Do not discharge wash water to the street or storm drain.
- Transfer waste from damaged containers into safe containers.
- Take special care when loading or unloading wastes to minimize losses. Loading systems can be used to minimize spills and fugitive emission losses such as dust or mist. Vacuum transfer systems can minimize waste loss.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide a sufficient number of litter receptacles for the facility.
- Clean out and cover litter receptacles frequently to prevent spillage.

Waste Collection

- Keep waste collection areas clean.
- Inspect solid waste containers for structural damage regularly. Repair or replace damaged containers as necessary.
- Secure solid waste containers; containers must be closed tightly when not in use.
- Do not fill waste containers with washout water or any other liquid.
- Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc., may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).

- Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.

Good Housekeeping

- Use all of the product before disposing of the container.
- Keep the waste management area clean at all times by sweeping and cleaning up spills immediately.
- Use dry methods when possible (e.g., sweeping, use of absorbents) when cleaning around restaurant/food handling dumpster areas. If water must be used after sweeping/using absorbents, collect water and discharge through grease interceptor to the sewer.

Chemical/Hazardous Wastes

- Select designated hazardous waste collection areas on-site.
- Store hazardous materials and wastes in covered containers and protect them from vandalism.
- Place hazardous waste containers in secondary containment.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Stencil or demarcate storm drains on the facility's property with prohibitive message regarding waste disposal.

Run-on/Runoff Prevention

- Prevent stormwater run-on from entering the waste management area by enclosing the area or building a berm around the area.
- Prevent waste materials from directly contacting rain.
- Cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropyleneor hypalon.
- Cover the area with a permanent roof if feasible.
- Cover dumpsters to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.
- Move the activity indoor after ensuring all safety concerns such as fire hazard and ventilation are addressed.

Inspection

- Inspect and replace faulty pumps or hoses regularly to minimize the potential of releases and spills.
- Check waste management areas for leaking containers or spills.

- Repair leaking equipment including valves, lines, seals, or pumps promptly.

Training

- Train staff in pollution prevention measures and proper disposal methods.
- Train employees and contractors in proper spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur.
- Train employees and subcontractors in proper hazardous waste management.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Have an emergency plan, equipment and trained personnel ready at all times to deal immediately with major spills
- Collect all spilled liquids and properly dispose of them.
- Store and maintain appropriate spill cleanup materials in a location known to all near the designated wash area.
- Ensure that vehicles transporting waste have spill prevention equipment that can prevent spills during transport. Spill prevention equipment includes:
  - Vehicles equipped with baffles for liquid waste
  - Trucks with sealed gates and spill guards for solid waste

Other Considerations (Limitations and Regulations)

Hazardous waste cannot be reused or recycled; it must be disposed of by a licensed hazardous waste hauler.

Requirements

Costs

Capital and O&M costs for these programs will vary substantially depending on the size of the facility and the types of waste handled. Costs should be low if there is an inventory program in place.

Maintenance

- None except for maintaining equipment for material tracking program.

Supplemental Information

Further Detail of the BMP

Land Treatment System

Minimize runoff of polluted stormwater from land application by:

- Choosing a site where slopes are under 6%, the soil is permeable, there is a low water table, it is located away from wetlands or marshes, and there is a closed drainage system

- Avoiding application of waste to the site when it is raining or when the ground is saturated with water
- Growing vegetation on land disposal areas to stabilize soils and reduce the volume of surface water runoff from the site
- Maintaining adequate barriers between the land application site and the receiving waters (planted strips are particularly good)
- Using erosion control techniques such as mulching and matting, filter fences, straw bales, diversion terracing, and sediment basins
- Performing routine maintenance to ensure the erosion control or site stabilization measures are working

Examples

The port of Long Beach has a state-of-the-art database for identifying potential pollutant sources, documenting facility management practices, and tracking pollutants.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

Solid Waste Container Best Management Practices – Fact Sheet On-Line Resources – Environmental Health and Safety. Harvard University. 2002.

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA). http://www.basmaa.org

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Building & Grounds Maintenance SC-41



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	
Organics	

Description

Stormwater runoff from building and grounds maintenance activities can be contaminated with toxic hydrocarbons in solvents, fertilizers and pesticides, suspended solids, heavy metals, abnormal pH, and oils and greases. Utilizing the protocols in this fact sheet will prevent or reduce the discharge of pollutants to stormwater from building and grounds maintenance activities by washing and cleaning up with as little water as possible, following good landscape management practices, preventing and cleaning up spills immediately, keeping debris from entering the storm drains, and maintaining the stormwater collection system.

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Switch to non-toxic chemicals for maintenance when possible.
- Choose cleaning agents that can be recycled.
- Encourage proper lawn management and landscaping, including use of native vegetation.

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- Encourage use of Integrated Pest Management techniques for pest control.
- Encourage proper onsite recycling of yard trimmings.
- Recycle residual paints, solvents, lumber, and other material as much as possible.

Suggested Protocols

Pressure Washing of Buildings, Rooftops, and Other Large Objects

- In situations where soaps or detergents are used and the surrounding area is paved, pressure washers must use a water collection device that enables collection of wash water and associated solids. A sump pump, wet vacuum or similarly effective device must be used to collect the runoff and loose materials. The collected runoff and solids must be disposed of properly.
- If soaps or detergents are not used, and the surrounding area is paved, wash runoff does not have to be collected but must be screened. Pressure washers must use filter fabric or some other type of screen on the ground and/or in the catch basin to trap the particles in wash water runoff.
- If you are pressure washing on a grassed area (with or without soap), runoff must be dispersed as sheet flow as much as possible, rather than as a concentrated stream. The wash runoff must remain on the grass and not drain to pavement.

Landscaping Activities

- Dispose of grass clippings, leaves, sticks, or other collected vegetation as garbage, or by composting. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Use mulch or other erosion control measures on exposed soils.

Building Repair, Remodeling, and Construction

- Do not dump any toxic substance or liquid waste on the pavement, the ground, or toward a storm drain.
- Use ground or drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of collected material daily.
- Use a ground cloth or oversized tub for activities such as paint mixing and tool cleaning.
- Clean paintbrushes and tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can be dumped into a sanitary sewer drain. Brushes and tools covered with non-water-based paints, finishes, or other materials must be cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal.
- Use a storm drain cover, filter fabric, or similarly effective runoff control mechanism if dust, grit, wash water, or other pollutants may escape the work area and enter a catch basin. This is particularly necessary on rainy days. The containment device(s) must be in place at the beginning of the work day, and accumulated dirty runoff and solids must be collected and disposed of before removing the containment device(s) at the end of the work day.

- If you need to de-water an excavation site, you may need to filter the water before discharging to a catch basin or off-site. If directed off-site, you should direct the water through hay bales and filter fabric or use other sediment filters or traps.
- Store toxic material under cover during precipitation events and when not in use. A cover would include tarps or other temporary cover material.

Mowing, Trimming, and Planting

- Dispose of leaves, sticks, or other collected vegetation as garbage, by composting or at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Use mulch or other erosion control measures when soils are exposed.
- Place temporarily stockpiled material away from watercourses and drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Consider an alternative approach when bailing out muddy water: do not put it in the storm drain; pour over landscaped areas.
- Use hand weeding where practical.

Fertilizer and Pesticide Management

- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.
- Use less toxic pesticides that will do the job when applicable. Avoid use of copper-based pesticides if possible.
- Do not use pesticides if rain is expected.
- Do not mix or prepare pesticides for application near storm drains.
- Use the minimum amount needed for the job.
- Calibrate fertilizer distributors to avoid excessive application.
- Employ techniques to minimize off-target application (e.g., spray drift) of pesticides, including consideration of alternative application techniques.
- Apply pesticides only when wind speeds are low.
- Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
- Irrigate slowly to prevent runoff and then only as much as is needed.
- Clean pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Dispose of empty pesticide containers according to the instructions on the container label.

- Use up the pesticides. Rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Implement storage requirements for pesticide products with guidance from the local fire department and County Agricultural Commissioner. Provide secondary containment for pesticides.

Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering and repair leaks in the irrigation system as soon as they are observed.

Training

- Educate and train employees on pesticide use and in pesticide application techniques to prevent pollution.
- Train employees and contractors in proper techniques for spill containment and cleanup.
- Be sure the frequency of training takes into account the complexity of the operations and the nature of the staff.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Place a stockpile of spill cleanup materials, such as brooms, dustpans, and vacuum sweepers (if desired) near the storage area where it will be readily accessible.
- Have employees trained in spill containment and cleanup present during the loading/unloading of dangerous wastes, liquid chemicals, or other materials.
- Familiarize employees with the Spill Prevention Control and Countermeasure Plan.
- Clean up spills immediately.

Other Considerations

Alternative pest/weed controls may not be available, suitable, or effective in many cases.

Requirements

Costs

- Cost will vary depending on the type and size of facility.
- Overall costs should be low in comparison to other BMPs.

Maintenance

Sweep paved areas regularly to collect loose particles. Wipe up spills with rags and other absorbent material immediately, do not hose down the area to a storm drain.

Supplemental Information

Further Detail of the BMP

Fire Sprinkler Line Flushing

Building fire sprinkler line flushing may be a source of non-stormwater runoff pollution. The water entering the system is usually potable water, though in some areas it may be non-potable reclaimed wastewater. There are subsequent factors that may drastically reduce the quality of the water in such systems. Black iron pipe is usually used since it is cheaper than potable piping, but it is subject to rusting and results in lower quality water. Initially, the black iron pipe has an oil coating to protect it from rusting between manufacture and installation; this will contaminate the water from the first flush but not from subsequent flushes. Nitrates, poly-phosphates and other corrosion inhibitors, as well as fire suppressants and antifreeze may be added to the sprinkler water system. Water generally remains in the sprinkler system a long time (typically a year) and between flushes may accumulate iron, manganese, lead, copper, nickel, and zinc. The water generally becomes anoxic and contains living and dead bacteria and breakdown products from chlorination. This may result in a significant BOD problem and the water often smells. Consequently dispose fire sprinkler line flush water into the sanitary sewer. Do not allow discharge to storm drain or infiltration due to potential high levels of pollutants in fire sprinkler line water.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

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Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Parking/Storage Area Maintenance SC-43



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	✓
Nutrients	
Trash	✓
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Description

Parking lots and storage areas can contribute a number of substances, such as trash, suspended solids, hydrocarbons, oil and grease, and heavy metals that can enter receiving waters through stormwater runoff or non-stormwater discharges. The protocols in this fact sheet are intended to prevent or reduce the discharge of pollutants from parking/storage areas and include using good housekeeping practices, following appropriate cleaning BMPs, and training employees.

Approach

The goal of this program is to ensure stormwater pollution prevention practices are considered when conducting activities on or around parking areas and storage areas to reduce potential for pollutant discharge to receiving waters. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Encourage alternative designs and maintenance strategies for impervious parking lots. (See New Development and Redevelopment BMP Handbook)
- Keep accurate maintenance logs to evaluate BMP implementation.

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Suggested Protocols

General

- Keep the parking and storage areas clean and orderly. Remove debris in a timely fashion.
- Allow sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low quantities.
- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.
- Discharge soapy water remaining in mop or wash buckets to the sanitary sewer through a sink, toilet, clean-out, or wash area with drain.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide an adequate number of litter receptacles.
- Clean out and cover litter receptacles frequently to prevent spillage.
- Provide trash receptacles in parking lots to discourage litter.
- Routinely sweep, shovel, and dispose of litter in the trash.

Surface Cleaning

- Use dry cleaning methods (e.g., sweeping, vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system if possible.
- Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- Sweep all parking lots at least once before the onset of the wet season.
- Follow the procedures below if water is used to clean surfaces:
  - Block the storm drain or contain runoff.
  - Collect and pump wash water to the sanitary sewer or discharge to a pervious surface. Do not allow wash water to enter storm drains.
  - Dispose of parking lot sweeping debris and dirt at a landfill.
- Follow the procedures below when cleaning heavy oily deposits:
  - Clean oily spots with absorbent materials.
  - Use a screen or filter fabric over inlet, then wash surfaces.

- Do not allow discharges to the storm drain.
- Vacuum/pump discharges to a tank or discharge to sanitary sewer.
- Appropriately dispose of spilled materials and absorbents.

Surface Repair

- Preheat, transfer or load hot bituminous material away from storm drain inlets.
- Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff.
- Cover and seal nearby storm drain inlets where applicable (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal.
- Use only as much water as necessary for dust control, to avoid runoff.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Inspection

- Have designated personnel conduct inspections of parking facilities and stormwater conveyance systems associated with parking facilities on a regular basis.
- Inspect cleaning equipment/sweepers for leaks on a regular basis.

Training

- Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
- Train employees and contractors in proper techniques for spill containment and cleanup.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Place a stockpile of spill cleanup materials where it will be readily accessible or at a central location.
- Clean up fluid spills immediately with absorbent rags or material.
- Dispose of spilled material and absorbents properly.

Other Considerations

Limitations related to sweeping activities at large parking facilities may include high equipment costs, the need for sweeper operator training, and the inability of current sweeper technology to remove oil and grease.

SC-43 Parking/Storage Area Maintenance

Requirements

Costs

Cleaning/sweeping costs can be quite large. Construction and maintenance of stormwater structural controls can be quite expensive as well.

Maintenance

- Sweep parking lot regularly to minimize cleaning with water.
- Clean out oil/water/sand separators regularly, especially after heavy storms.
- Clean parking facilities regularly to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions.

Supplemental Information

Further Detail of the BMP

Surface Repair

Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff. Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal. Only use only as much water as is necessary for dust control to avoid runoff.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

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Drainage System Maintenance SC-44



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize

Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff and stormwater that may contain certain pollutants. The protocols in this fact sheet are intended to reduce pollutants reaching receiving waters through proper conveyance system operation and maintenance.

Targeted Constituents

Sediment	✓
Nutrients	
Trash	✓
Metals	
Bacteria	✓
Oil and Grease	
Organics	

Approach

Pollution Prevention

Maintain catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis to remove pollutants, reduce high pollutant concentrations during the first flush of storms, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

Suggested Protocols

Catch Basins/Inlet Structures

- Staff should regularly inspect facilities to ensure compliance with the following:
  - Immediate repair of any deterioration threatening structural integrity.
  - Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.
  - Stenciling of catch basins and inlets (see SC34 Waste Handling and Disposal).

- Clean catch basins, storm drain inlets, and other conveyance structures before the wet season to remove sediments and debris accumulated during the summer.
- Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed.
- Keep accurate logs of the number of catch basins cleaned.
- Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes if necessary with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be pumped or vacuumed to a tank and properly disposed. Do not dewater near a storm drain or stream.

Storm Drain Conveyance System

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect and pump flushed effluent to the sanitary sewer for treatment whenever possible.

Pump Stations

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do not allow discharge to reach the storm drain system when cleaning a storm drain pump station or other facility.
- Conduct routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.

Open Channel

- Modify storm channel characteristics to improve channel hydraulics, increase pollutant removals, and enhance channel/creek aesthetic and habitat value.
- Conduct channel modification/improvement in accordance with existing laws. Any person, government agency, or public utility proposing an activity that will change the natural (emphasis added) state of any river, stream, or lake in California, must enter into a Steam or Lake Alteration Agreement with the Department of Fish and Game. The developer-applicant should also contact local governments (city, county, special districts), other state agencies (SWRCB, RWQCB, Department of Forestry, Department of Water Resources), and Federal Corps of Engineers and USFWS.

Illicit Connections and Discharges

- Look for evidence of illegal discharges or illicit connections during routine maintenance of conveyance system and drainage structures:
  - Is there evidence of spills such as paints, discoloring, etc?

- Are there any odors associated with the drainage system?
- Record locations of apparent illegal discharges/illicit connections?
- Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of upgradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
- Eliminate the discharge once the origin of flow is established.

- Stencil or demarcate storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Illegal Dumping

- Inspect and clean up hot spots and other storm drainage areas regularly where illegal dumping and disposal occurs.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots
  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)
  - Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
  - Responsible parties
- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Allow only properly trained individuals to handle hazardous materials/wastes.
- Have staff involved in detection and removal of illicit connections trained in the following:
  - OSHA-required Health and Safety Training (29 CFR 1910.120) plus annual refresher training (as needed).

- OSHA Confined Space Entry training (Cal-OSHA Confined Space, Title 8 and Federal OSHA 29 CFR 1910.146).

- Procedural training (field screening, sampling, smoke/dye testing, TV inspection).

Spill Response and Prevention

- Investigate all reports of spills, leaks, and/or illegal dumping promptly.
- Clean up all spills and leaks using "dry" methods (with absorbent materials and/or rags) or dig up, remove, and properly dispose of contaminated soil.
- Refer to fact sheet SC-11 Spill Prevention, Control, and Cleanup.

Other Considerations (Limitations and Regulations)

- Clean-up activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.
- Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, liquid/sediment disposal, and prohibition against disposal of flushed effluent to sanitary sewer in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Local municipal codes may include sections prohibiting discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.

Requirements

Costs

- An aggressive catch basin cleaning program could require a significant capital and O&M budget.
- The elimination of illegal dumping is dependent on the availability, convenience, and cost of alternative means of disposal. The primary cost is for staff time. Cost depends on how aggressively a program is implemented. Other cost considerations for an illegal dumping program include:

  - Purchase and installation of signs.

  - Rental of vehicle(s) to haul illegally-disposed items and material to landfills.

  - Rental of heavy equipment to remove larger items (e.g., car bodies) from channels.

  - Purchase of landfill space to dispose of illegally-dumped items and material.

- Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary.

Maintenance

- Two-person teams may be required to clean catch basins with vactor trucks.
- Teams of at least two people plus administrative personnel are required to identify illicit discharges, depending on the complexity of the storm sewer system.
- Arrangements must be made for proper disposal of collected wastes.
- Technical staff are required to detect and investigate illegal dumping violations.

Supplemental Information

Further Detail of the BMP

Storm Drain Flushing

Flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in storm drainage systems. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as an open channel, another point where flushing will be initiated, or the sanitary sewer and the treatment facilities, thus preventing resuspension and overflow of a portion of the solids during storm events. Flushing prevents "plug flow" discharges of concentrated pollutant loadings and sediments. Deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, thereby releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce impacts of stormwater pollution, a second inflatable device placed well downstream may be used to recollect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to recollect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75% for organics and 55-65% for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used or that fire hydrant line flushing coincide with storm sewer flushing.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
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Road and Street Maintenance SC-70



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Description

Streets, roads, and highways are significant sources of pollutants in stormwater discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. Stormwater pollution from roadway and bridge maintenance should be addressed on a site-specific basis. Use of the procedures outlined below, that address street sweeping and repair, bridge and structure maintenance, and unpaved roads will reduce pollutants in stormwater.

Approach

Pollution Prevention

- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal)
- Recycle paint and other materials whenever possible.
- Enlist the help of citizens to keep yard waste, used oil, and other wastes out of the gutter.

Suggested Protocols

Street Sweeping and Cleaning

- Maintain a consistent sweeping schedule. Provide minimum monthly sweeping of curbed streets.
- Perform street cleaning during dry weather if possible.

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- Avoid wet cleaning or flushing of street, and utilize dry methods where possible.
- Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water courses, etc. For example:
  - Increase the sweeping frequency for streets with high pollutant loadings, especially in high traffic and industrial areas.
  - Increase the sweeping frequency just before the wet season to remove sediments accumulated during the summer.
  - Increase the sweeping frequency for streets in special problem areas such as special events, high litter or erosion zones.
- Maintain cleaning equipment in good working condition and purchase replacement equipment as needed. Old sweepers should be replaced with new technologically advanced sweepers (preferably regenerative air sweepers) that maximize pollutant removal.
- Operate sweepers at manufacturer requested optimal speed levels to increase effectiveness.
- To increase sweeping effectiveness consider the following:
  - Institute a parking policy to restrict parking in problematic areas during periods of street sweeping.
  - Post permanent street sweeping signs in problematic areas; use temporary signs if installation of permanent signs is not possible.
  - Develop and distribute flyers notifying residents of street sweeping schedules.
- Regularly inspect vehicles and equipment for leaks, and repair immediately.
- If available use vacuum or regenerative air sweepers in the high sediment and trash areas (typically industrial/commercial).
- Keep accurate logs of the number of curb-miles swept and the amount of waste collected.
- Dispose of street sweeping debris and dirt at a landfill.
- Do not store swept material along the side of the street or near a storm drain inlet.
- Keep debris storage to a minimum during the wet season or make sure debris piles are contained (e.g. by berming the area) or covered (e.g. with tarps or permanent covers).

Street Repair and Maintenance

Pavement marking

- Schedule pavement marking activities for dry weather.

- Develop paint handling procedures for proper use, storage, and disposal of paints.
- Transfer and load paint and hot thermoplastic away from storm drain inlets.
- Provide drop cloths and drip pans in paint mixing areas.
- Properly maintain application equipment.
- Street sweep thermoplastic grindings. Yellow thermoplastic grindings may require special handling as they may contain lead.
- Paints containing lead or tributyltin are considered a hazardous waste and must be disposed of properly.
- Use water based paints whenever possible. If using water based paints, clean the application equipment in a sink that is connected to the sanitary sewer.
- Properly store leftover paints if they are to be kept for the next job, or dispose of properly.

Concrete installation and repair

- Schedule asphalt and concrete activities for dry weather.
- Take measures to protect any nearby storm drain inlets and adjacent watercourses, prior to breaking up asphalt or concrete (e.g. place san bags around inlets or work areas).
- Limit the amount of fresh concrete or cement mortar mixed, mix only what is needed for the job.
- Store concrete materials under cover, away from drainage areas. Secure bags of cement after they are open. Be sure to keep wind-blown cement powder away from streets, gutters, storm drains, rainfall, and runoff.
- Return leftover materials to the transit mixer. Dispose of small amounts of hardened excess concrete, grout, and mortar in the trash.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
- When making saw cuts in pavement, use as little water as possible and perform during dry weather. Cover each storm drain inlet completely with filter fabric or plastic during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site. Alternatively, a small onsite vacuum may be used to pick up the slurry as this will prohibit slurry from reaching storm drain inlets.
- Wash concrete trucks off site or in designated areas on site designed to preclude discharge of wash water to drainage system.

Patching, resurfacing, and surface sealing

- Schedule patching, resurfacing and surface sealing for dry weather.
- Stockpile materials away from streets, gutter areas, storm drain inlets or watercourses. During wet weather, cover stockpiles with plastic tarps or berm around them if necessary to prevent transport of materials in runoff.
- Pre-heat, transfer or load hot bituminous material away from drainage systems or watercourses.
- Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and maintenance holes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from covered maintenance holes and storm drain inlets when the job is complete.
- Prevent excess material from exposed aggregate concrete or similar treatments from entering streets or storm drain inlets. Designate an area for clean up and proper disposal of excess materials.
- Use only as much water as necessary for dust control, to avoid runoff.
- Sweep, never hose down streets to clean up tracked dirt. Use a street sweeper or vacuum truck. Do not dump vacuumed liquid in storm drains.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Equipment cleaning maintenance and storage

- Inspect equipment daily and repair any leaks. Place drip pans or absorbent materials under heavy equipment when not in use.
- Perform major equipment repairs at the corporation yard, when practical.
- If refueling or repairing vehicles and equipment must be done onsite, use a location away from storm drain inlets and watercourses.
- Clean equipment including sprayers, sprayer paint supply lines, patch and paving equipment, and mud jacking equipment at the end of each day. Clean in a sink or other area (e.g. vehicle wash area) that is connected to the sanitary sewer.

Bridge and Structure Maintenance

Paint and Paint Removal

- Transport paint and materials to and from job sites in containers with secure lids and tied down to the transport vehicle.
- Do not transfer or load paint near storm drain inlets or watercourses.

- Test and inspect spray equipment prior to starting to paint. Tighten all hoses and connections and do not overfill paint container.
- Plug nearby storm drain inlets prior to starting painting where there is significant risk of a spill reaching storm drains. Remove plugs when job is completed.
- If sand blasting is used to remove paint, cover nearby storm drain inlets prior to starting work.
- Perform work on a maintenance traveler or platform, or use suspended netting or tarps to capture paint, rust, paint removing agents, or other materials, to prevent discharge of materials to surface waters if the bridge crosses a watercourse. If sanding, use a sander with a vacuum filter bag.
- Capture all clean-up water, and dispose of properly.
- Recycle paint when possible (e.g. paint may be used for graffiti removal activities). Dispose of unused paint at an appropriate household hazardous waste facility.

Graffiti Removal

- Schedule graffiti removal activities for dry weather.
- Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.
- When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal above.
- Direct runoff from sand blasting and high pressure washing (with no cleaning agents) into a landscaped or dirt area. If such an area is not available, filter runoff through an appropriate filtering device (e.g. filter fabric) to keep sand, particles, and debris out of storm drains.
- If a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound), plug nearby storm drains and vacuum/pump wash water to the sanitary sewer.
- Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

Repair Work

- Prevent concrete, steel, wood, metal parts, tools, or other work materials from entering storm drains or watercourses.
- Thoroughly clean up the job site when the repair work is completed.
- When cleaning guardrails or fences follow the appropriate surface cleaning methods (depending on the type of surface) outlined in SC-71 Plaza & Sidewalk Cleaning fact sheet.

- If painting is conducted, follow the painting and paint removal procedures above.
- If graffiti removal is conducted, follow the graffiti removal procedures above.
- If construction takes place, see the Construction Activity BMP Handbook.
- Recycle materials whenever possible.

Unpaved Roads and Trails

- Stabilize exposed soil areas to prevent soil from eroding during rain events. This is particularly important on steep slopes.
- For roadside areas with exposed soils, the most cost-effective choice is to vegetate the area, preferably with a mulch or binder that will hold the soils in place while the vegetation is establishing. Native vegetation should be used if possible.
- If vegetation cannot be established immediately, apply temporary erosion control mats/blankets; a comma straw, or gravel as appropriate.
- If sediment is already eroded and mobilized in roadside areas, temporary controls should be installed. These may include: sediment control fences, fabric-covered triangular dikes, gravel-filled burlap bags, biobags, or hay bales staked in place.

Non-Stormwater Discharges

Field crews should be aware of non-stormwater discharges as part of their ongoing street maintenance efforts.

- Refer to SC-10 Non-Stormwater Discharges
- Identify location, time and estimated quantity of discharges.
- Notify appropriate personnel.

Training

- Train employees regarding proper street sweeping operation and street repair and maintenance.
- Instruct employees and subcontractors to ensure that measures to reduce the stormwater impacts of roadway/bridge maintenance are being followed.
- Require engineering staff and/or consulting A/E firms to address stormwater quality in new bridge designs or existing bridge retrofits.
- Use a training log or similar method to document training.
- Train employees on proper spill containment and clean up, and in identifying non-stormwater discharges.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Densely populated areas or heavily used streets may require parking regulations to clear streets for cleaning.
- No currently available conventional sweeper is effective at removing oil and grease. Mechanical sweepers are not effective at removing finer sediments.
- Limitations may arise in the location of new bridges. The availability and cost of land and other economic and political factors may dictate where the placement of a new bridge will occur. Better design of the bridge to control runoff is required if it is being placed near sensitive waters.

Requirements

Costs

- The maintenance of local roads and bridges is already a consideration of most community public works or transportation departments. Therefore, the cost of pollutant reducing management practices will involve the training and equipment required to implement these new practices.
- The largest expenditures for street sweeping programs are in staffing and equipment. The capital cost for a conventional street sweeper is between $60,000 and $120,000. Newer technologies might have prices approaching $180,000. The average useful life of a conventional sweeper is about four years, and programs must budget for equipment replacement. Sweeping frequencies will determine equipment life, so programs that sweep more often should expect to have a higher cost of replacement.
- A street sweeping program may require the following.
  - Sweeper operators, maintenance, supervisory, and administrative personnel are required.
  - Traffic control officers may be required to enforce parking restrictions.
  - Skillful design of cleaning routes is required for program to be productive.
  - Arrangements must be made for disposal of collected wastes.

- If investing in newer technologies, training for operators must be included in operation and maintenance budgets. Costs for public education are small, and mostly deal with the need to obey parking restrictions and litter control. Parking tickets are an effective reminder to obey parking rules, as well as being a source of revenue.

Maintenance

- Not applicable

Supplemental Information

Further Detail of the BMP

Street sweeping

There are advantages and disadvantages to the two common types of sweepers. The best choice depends on your specific conditions. Many communities find it useful to have a compliment of both types in their fleet.

Mechanical Broom Sweepers - More effective at picking up large debris and cleaning wet streets. Less costly to purchase and operate. Create more airborne dust.

Vacuum Sweepers - More effective at removing fine particles and associated heavy metals. Ineffective at cleaning wet streets. Noisier than mechanical broom sweepers which may restrict areas or times of operation. May require an advance vehicle to remove large debris.

Street Flushers - Not affected by biggest interference to cleaning, parked cars. May remove finer sediments, moving them toward the gutter and stormwater inlets. For this reason, flushing fell out of favor and is now used primarily after sweeping. Flushing may be effective for combined sewer systems. Presently street flushing is not allowed under most NPDES permits.

Cross-Media Transfer of Pollutants

The California Air Resources Board (ARB) has established state ambient air quality standards including a standard for respirable particulate matter (less than or equal to 10 microns in diameter, symbolized as PM10). In the effort to sweep up finer sediments to remove attached heavy metals, municipalities should be aware that fine dust, that cannot be captured by the sweeping equipment and becomes airborne, could lead to issues of worker and public safety.

Bridges

Bridges that carry vehicular traffic generate some of the more direct discharges of runoff to surface waters. Bridge scupper drains cause a direct discharge of stormwater into receiving waters and have been shown to carry relatively high concentrations of pollutants. Bridge maintenance also generates wastes that may be either directly deposited to the water below or carried to the receiving water by stormwater. The following steps will help reduce the stormwater impacts of bridge maintenance:

- Site new bridges so that significant adverse impacts to wetlands, sensitive areas, critical habitat, and riparian vegetation are minimized.

- Design new bridges to avoid the use of scupper drains and route runoff to land for treatment control. Existing scupper drains should be cleaned on a regular basis to avoid sediment/debris accumulation.
- Reduce the discharge of pollutants to surface waters during maintenance by using suspended traps, vacuums, or booms in the water to capture paint, rust, and paint removing agents. Many of these wastes may be hazardous. Properly dispose of this waste by referring to CA21 (Hazardous Waste Management) in the Construction Handbook.
- Train employees and subcontractors to reduce the discharge of wastes during bridge maintenance.

De-icing

- Do not over-apply deicing salt and sand, and routinely calibrate spreaders.
- Near reservoirs, restrict the application of deicing salt and redirect any runoff away from reservoirs.
- Consider using alternative deicing agents (less toxic, biodegradable, etc.).

References and Resources

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

Orange County Stormwater Program
http://www.ocwatersheds.com/stormwater/swp_introduction.asp

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 2001. Fresh Concrete and Mortar Application Best Management Practices for the Construction Industry. June.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 2001. Roadwork and Paving Best Management Practices for the Construction Industry. June.

United States Environmental Protection Agency (USEPA). 2002. Pollution Prevention/Good Housekeeping for Municipal Operations Roadway and Bridge Maintenance. On-line
http://www.epa.gov/npdes/menuofbmps/poll_13.htm

Site Design & Landscape Planning SD-10



Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- ☑ Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.

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Designing New Installations

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.
- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Conserve Natural Areas during Landscape Planning

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands.

Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.
- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and

regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

Protection of Slopes and Channels during Landscape Design

- Convey runoff safely from the tops of slopes.
- Avoid disturbing steep or unstable slopes.
- Avoid disturbing natural channels.
- Stabilize disturbed slopes as quickly as possible.
- Vegetate slopes with native or drought tolerant vegetation.
- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.
- Consider other design principles that are comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “ redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Efficient Irrigation SD-12



Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Designing New Installations

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.

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- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.
- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:
  - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff
  - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect
  - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible
  - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth
- Employ other comparable, equally effective methods to reduce irrigation water runoff.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Storm Drain Signage SD-13



Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- ☑ Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Waste materials dumped into storm drain inlets can have severe impacts on receiving and ground waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

Approach

The stencil or affixed sign contains a brief statement that prohibits dumping of improper materials into the urban runoff conveyance system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

Suitable Applications

Stencils and signs alert the public to the destination of pollutants discharged to the storm drain. Signs are appropriate in residential, commercial, and industrial areas, as well as any other area where contributions or dumping to storm drains is likely.

Design Considerations

Storm drain message markers or placards are recommended at all storm drain inlets within the boundary of a development project. The marker should be placed in clear sight facing toward anyone approaching the inlet from either side. All storm drain inlet locations should be identified on the development site map.

Designing New Installations

The following methods should be considered for inclusion in the project design and show on project plans:

- Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language. Examples include “NO DUMPING

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– DRAINS TO OCEAN" and/or other graphical icons to discourage illegal dumping.

- Post signs with prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.

Note - Some local agencies have approved specific signage and/or storm drain message placards for use. Consult local agency stormwater staff to determine specific requirements for placard types and methods of application.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. If the project meets the definition of "redevelopment", then the requirements stated under " designing new installations" above should be included in all project design plans.

Additional Information

Maintenance Considerations

- Legibility of markers and signs should be maintained. If required by the agency with jurisdiction over the project, the owner/operator or homeowner's association should enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards or signs.

Placement

- Signage on top of curbs tends to weather and fade.

- Signage on face of curbs tends to be worn by contact with vehicle tires and sweeper brooms.

Supplemental Information

Examples

- Most MS4 programs have storm drain signage programs. Some MS4 programs will provide stencils, or arrange for volunteers to stencil storm drains as part of their outreach program.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Trash Storage Areas SD-32

Description

Trash storage areas are areas where a trash receptacle (s) are located for use as a repository for solid wastes. Stormwater runoff from areas where trash is stored or disposed of can be polluted. In addition, loose trash and debris can be easily transported by water or wind into nearby storm drain inlets, channels, and/or creeks. Waste handling operations that may be sources of stormwater pollution include dumpsters, litter control, and waste piles.

Approach

This fact sheet contains details on the specific measures required to prevent or reduce pollutants in stormwater runoff associated with trash storage and handling. Preventative measures including enclosures, containment structures, and impervious pavements to mitigate spills, should be used to reduce the likelihood of contamination.

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- Collect and Convey

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Design requirements for waste handling areas are governed by Building and Fire Codes, and by current local agency ordinances and zoning requirements. The design criteria described in this fact sheet are meant to enhance and be consistent with these code and ordinance requirements. Hazardous waste should be handled in accordance with legal requirements established in Title 22, California Code of Regulation.

Wastes from commercial and industrial sites are typically hauled by either public or commercial carriers that may have design or access requirements for waste storage areas. The design criteria in this fact sheet are recommendations and are not intended to be in conflict with requirements established by the waste hauler. The waste hauler should be contacted prior to the design of your site trash collection areas. Conflicts or issues should be discussed with the local agency.

Designing New Installations

Trash storage areas should be designed to consider the following structural or treatment control BMPs:

- Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on. This might include berming or grading the waste handling area to prevent run-on of stormwater.
- Make sure trash container areas are screened or walled to prevent off-site transport of trash.

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- Use lined bins or dumpsters to reduce leaking of liquid waste.
- Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers.
- Pave trash storage areas with an impervious surface to mitigate spills.
- Do not locate storm drains in immediate vicinity of the trash storage area.
- Post signs on all dumpsters informing users that hazardous materials are not to be disposed of therein.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Additional Information

Maintenance Considerations

The integrity of structural elements that are subject to damage (i.e., screens, covers, and signs) must be maintained by the owner/operator. Maintenance agreements between the local agency and the owner/operator may be required. Some agencies will require maintenance deed restrictions to be recorded of the property title. If required by the local agency, maintenance agreements or deed restrictions must be executed by the owner/operator before improvement plans are approved.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Vortex Separator MP-51

Description

Vortex separators: (alternatively, swirl concentrators) are gravity separators, and in principle are essentially wet vaults. The difference from wet vaults, however, is that the vortex separator is round, rather than rectangular, and the water moves in a centrifugal fashion before exiting. By having the water move in a circular fashion, rather than a straight line as is the case with a standard wet vault, it is possible to obtain significant removal of suspended sediments and attached pollutants with less space. Vortex separators were originally developed for combined sewer overflows (CSOs), where it is used primarily to remove coarse inorganic solids. Vortex separation has been adapted to stormwater treatment by several manufacturers.

California Experience

There are currently about 100 installations in California.

Advantages

- May provide the desired performance in less space and therefore less cost.
- May be more cost-effective pre-treatment devices than traditional wet or dry basins.
- Mosquito control may be less of an issue than with traditional wet basins.

Limitations

- As some of the systems have standing water that remains between storms, there is concern about mosquito breeding.
- It is likely that vortex separators are not as effective as wet vaults at removing fine sediments, on the order 50 to 100 microns in diameter and less.
- The area served is limited by the capacity of the largest models.
- As the products come in standard sizes, the facilities will be oversized in many cases relative to the design treatment storm, increasing the cost.
- The non-steady flows of stormwater decreases the efficiency of vortex separators from what may be estimated or determined from testing under constant flow.
- Do not remove dissolved pollutants.
- A loss of dissolved pollutants may occur as accumulated organic

Design Considerations

- Service Area
- Settling Velocity
- Appropriate Sizing
- Inlet Pipe Diameter

Targeted Constituents

✓	Sediment	▲
✓	Nutrients	●
✓	Trash	
✓	Metals	●
	Bacteria	
✓	Oil and Grease	
✓	Organics	

Legend ***(Removal Effectiveness)***

● Low ■ High

▲ Medium

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matter (e.g., leaves) decomposes in the units.

Design and Sizing Guidelines

The stormwater enters, typically below the effluent line, tangentially into the basin, thereby imparting a circular motion in the system. Due to centrifugal forces created by the circular motion, the suspended particles move to the center of the device where they settle to the bottom. There are two general types of vortex separation: free vortex and dampened (or impeded) vortex. Free vortex separation becomes dampened vortex separation by the placement of radial baffles on the weir-plate that impede the free vortex-flow pattern

It has been stated with respect to CSOs that the practical lower limit of vortex separation is a particle with a settling velocity of 12 to 16.5 feet per hour (0.10 to 0.14 cm/s). As such, the focus for vortex separation in CSOs has been with settleable solids generally 200 microns and larger, given the presence of the lighter organic solids. For inorganic sediment, the above settling velocity range represents a particle diameter of 50 to 100 microns. Head loss is a function of the size of the target particle. At 200 microns it is normally minor but increases significantly if the goal is to remove smaller particles.

The commercial separators applied to stormwater treatment vary considerably with respect to geometry, and the inclusion of radial baffles and internal circular chambers. At one extreme is the inclusion of a chamber within the round concentrator. Water flows initially around the perimeter between the inner and outer chambers, and then into the inner chamber, giving rise to a sudden change in velocity that purportedly enhances removal efficiency. The opposite extreme is to introduce the water tangentially into a round manhole with no internal parts of any kind except for an outlet hood. Whether the inclusion of chambers and baffles gives better performance is unknown. Some contend that free vortex, also identified as swirl concentration, creates less turbulence thereby increasing removal efficiency. One product is unique in that it includes a static separator screen.

- Sized is based on the peak flow of the design treatment event as specified by local government.
- If an in-line facility, the design peak flow is four times the peak of the design treatment event.
- If an off-line facility, the design peak flow is equal to the peak of the design treatment event.
- Headloss differs with the product and the model but is generally on the order of one foot or less in most cases.

Construction/Inspection Considerations

No special considerations.

Performance

Manufacturer's differ with respect to performance claims, but a general statement is that the manufacturer's design and rated capacity (cfs) for each model is based on and believed to achieve an aggregate reduction of 90% of all particles with a specific gravity of 2.65 (glacial sand) down to 150 microns, and to capture the floatables, and oil and grease. Laboratory tests of two products support this claim. The stated performance expectation therefore implies that a

lesser removal efficiency is obtained with particles less than 150 microns, and the lighter, organic settleables. Laboratory tests of one of the products found about 60% removal of 50 micron sand at the expected average operating flow rate

Experience with the use of vortex separators for treating combined sewer overflows (CSOs), the original application of this technology, suggests that the lower practical limit for particle removal are particles with a settling velocity of 12 feet per hour (Sullivan, 1982), which represents a particle diameter of 100 to 200 microns, depending on the specific gravity of the particle. The CSO experience therefore seems consistent with the limited experience with treating stormwater, summarized above

Traditional treatment technologies such as wet ponds and extended detention basins are generally believed to be more effective at removing very small particles, down to the range of 10 to 20 microns. Hence, it is intuitively expected that vortex separators do not perform as well as the traditional wet and dry basins, and filters. Whether this matters depends on the particle size distribution of the sediments in stormwater. If the distribution leans towards small material, there should be a marked difference between vortex separators and, say, traditional wet vaults. There are little data to support this conjecture

In comparison to other treatment technologies, such as wet ponds and grass swales, there are few studies of vortex separators. Only two of manufactured products currently available have been field tested. Two field studies have been conducted. Both achieved in excess of 80% removal of TSS. However, the test was conducted in the Northeast (New York state and Maine) where it is possible the stormwater contained significant quantities of deicing sand. Consequently, the influent TSS concentrations and particle size are both likely considerably higher than is found in California stormwater. These data suggest that if the stormwater particles are for the most part fine (i.e., less than 50 microns), vortex separators will not be as efficient as traditional treatment BMPs such as wet ponds and swales, if the latter are sized according to the recommendations of this handbook.

There are no equations that provide a straightforward determination of efficiency as a function of unit configuration and size. Design specifications of commercial separators are derived from empirical equations that are unique and proprietary to each manufacturer. However, some general relationships between performance and the geometry of a separator have been developed. CSO studies have found that the primary determinants of performance of vortex separators are the diameters of the inlet pipe and chamber with all other geometry proportional to these two.

Sullivan et al. (1982) found that performance is related to the ratios of chamber to inlet diameters, D2/D1, and height between the inlet and outlet and the inlet diameter, H1/D1, shown in Figure 3. The relationships are: as D2/D1 approaches one, the efficiency decreases; and, as the H1/D1 ratio decreases, the efficiency decreases. These relationships may allow qualitative comparisons of the alternative designs of manufacturers. Engineers who wish to apply these concepts should review relevant publications presented in the References.

Siting Criteria

There are no particularly unique siting criteria. The size of the drainage area that can be served by vortex separators is directly related to the capacities of the largest models.

Additional Design Guidelines

Vortex separators have two capacities if positioned as in-line facilities, a treatment capacity and a hydraulic capacity. Failure to recognize the difference between the two may lead to significant under sizing; i.e., too small a model is selected. This observation is relevant to three of the five products. These three technologies all are designed to experience a unit flow rate of about 24 gallons/square foot of separator footprint at the peak of the design treatment event. This is the horizontal area of the separator zone within the container, not the total footprint of the unit. At this unit flow rate, laboratory tests by these manufacturers have established that the performance will meet the general claims previously described. However, the units are sized to handle 100 gallons/square foot at the peak of the hydraulic event. Hence, in selecting a particular model the design engineer must be certain to match the peak flow of the design event to the stated treatment capacity, not the hydraulic capacity. The former is one-fourth the latter. If the unit is positioned as an off-line facility, the model selected is based on the capacity equal to the peak of the design treatment event.

Maintenance

Maintenance consists of the removal of accumulated material with an eductor truck. It may be necessary to remove and dispose the floatables separately due to the presence of petroleum product.

Maintenance Requirements

Remove all accumulated sediment, and litter and other floatables, annually, unless experience indicates the need for more or less frequent maintenance.

Cost

Manufacturers provide costs for the units including delivery. Installation costs are generally on the order of 50 to 100 % of the manufacturer's cost. For most sites the units are cleaned annually.

Cost Considerations

The different geometry of the several manufactured separators suggests that when comparing the costs of these systems to each other, that local conditions (e.g., groundwater levels) may affect the relative cost-effectiveness.

References and Sources of Additional Information

Field, R., 1972, The swirl concentrator as a combined sewer overflow regulator facility, EPA/R2-72-008, U.S. Environmental Protection Agency, Washington, D.C.

Field, R., D. Averill, T.P. O'Connor, and P. Steel, 1997, Vortex separation technology, Water Qual. Res. J. Canada, 32, 1, 185

Manufacturers technical materials

Sullivan, R.H., et al., 1982, Design manual – swirl and helical bend pollution control devices, EPA-600/8-82/013, U.S. Environmental Protection Agency, Washington, D.C.

Sullivan, R.H., M.M. Cohn, J.E. Ure, F.F. Parkinson, and G. Caliana, 1974, Relationship between diameter and height for the design of a swirl concentrator as a combined sewer overflow regulator, EPA 670/2-74-039, U.S. Environmental Protection Agency, Washington, D.C.

Sullivan, R.H., M.M. Cohn, J.E. Ure, F.F. Parkinson, and G. Caliana, 1974, The swirl concentrator as a grit separator device, EPA670/2-74-026, U.S. Environmental Protection Agency, Washington, D.C.

Sullivan, R.H., M.M. Cohn, J.E. Ure, F.F. Parkinson, and G. Caliana, 1978, Swirl primary separator device and pilot demonstration, EPA600/2-78-126, U.S. Environmental Protection Agency, Washington, D.C.

Attachment G – 303d List

2010 California 303(d) List of Water Quality Limited Segments*

Water quality limited segments requiring a TMDL(5A), being addressed by TMDL(5B), and/or being addressed by an action other than TMDL(5C).

REGION	REGION NAME	WATER BODY NAME	WBID	WATER BODY TYPE	UNIT	POLLUTANT	POLLUTANT CATEGORY	FINAL LISTING DECISION	POTENTIAL SOURCES	SOURCE CATEGORY
8	Regional Board 8 - Santa Ana Region	Santa Ana River, Reach 2	CAR801130001999101413043 8	River & Stream	Miles	Indicator Bacteria	Pathogens	List on 303(d) list (TMDL required list)	Source Unknown	Source Unknown
8	Regional Board 8 - Santa Ana Region	Santa Ana River, Reach 3	CAR801210001999021114035 3	River & Stream	Miles	Copper	Metals/Metalloids	List on 303(d) list (TMDL required list)	Source Unknown	Source Unknown
8	Regional Board 8 - Santa Ana Region	Santa Ana River, Reach 3	CAR801210001999021114035 3	River & Stream	Miles	Lead	Metals/Metalloids	List on 303(d) list (TMDL required list)	Source Unknown	Source Unknown
8	Regional Board 8 - Santa Ana Region	Santa Ana River, Reach 3	CAR801210001999021114035 3	River & Stream	Miles	Pathogens	Pathogens	List on 303(d) list (being addressed by USEPA approved TMDL)	Dairies	Agriculture
8	Regional Board 8 - Santa Ana Region	Santa Ana River, Reach 4	CAR801270001999021114213 0	River & Stream	Miles	Pathogens	Pathogens	List on 303(d) list (TMDL required list)	Nonpoint Source	Unspecified Nonpoint Source

Appendix H
Preliminary Drainage Report

PRELIMINARY DRAINAGE REPORT

160 N Cactus

APN: 0128-141-72-0000; 0128-141-70-0000; 0128-141-63-0000; 0128-141-49-0000

February 2023

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KHA Project # 099766003

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_____

Danh Duong, PE Date

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Hydrology Manual. San Bernardino County, August 1986.

Section 100

100.0 Introduction

Kimley-Horn and Associates has been retained to prepare a preliminary Drainage Study for the proposed Industrial Development on 160 N Cactus Avenue. The 7.96-acre site is located northwest of the intersection of W Rialto Avenue and N Cactus Avenue in the City of Rialto, San Bernardino County. The project site's tract number is 11886. The APNs for the project site are 0128-141-72-0000;0128-141-70-0000; 0128-141-63-0000; 0128-141-49-0000. Appendix A contains an aerial photograph that depicts the project location.

The project site development will consist of the construction of one new industrial facility:

- The new development will consist of the proposed 163,730 square feet industrial building, with associated landscaping, concrete hardscape, asphalt parking for both trailers and automobiles. The proposed landscaping will be approximately 24,171 square feet (7.2% pervious).
- The project site will not be phased.

The intent of this report is to comply with the requirements of the San Bernardino County Hydrology Manual to assist in the development of the proposed site. AES software was used to calculate the appropriate time of concentration and rational peak for each subarea. The San Bernardino Hydrology Manual was utilized to determine runoff coefficients for each drainage area based on land use type, hydrologic soil group, and Antecedent Moisture Condition (AMC).

Per San Bernardino County Stormwater Mapping Tool, the site consists of Type A soil which has a low potential for runoff and a high infiltration capacity. Based on the Geotechnical Engineering Investigation Report prepared by Geotechnologies, Inc. on May 24, 2022, the site exhibits an infiltration rate of approximately 37 in/hr. The B-8 boring location is 200 ft closer to the proposed BMP location than the B-7 boring reading, making this measured infiltration rate the more accurate reading of the two. Refer to Appendix C for the full geotechnical report.

The purpose of this report is to provide information regarding the Storm Water Management System (SWMS) design for the proposed development. This investigation was conducted to evaluate the hydrologic conditions in the existing and proposed conditions of the site.

Due to the nature of the project, this report will be accompanied by a WQMP. The project proposes to install one underground infiltration system for the proposed development, following the current NPDES General Permit. The post-development drainage complies with the hydromodification requirements due to stormwater up to the 100-year storm being fully infiltrated and detained on-site, making it a zero-discharge site. There is no expected runoff generated by the site, which complies to the 110% matching requirement of the 2 year 24-hour post-development peak flow to the pre-development peak flow. This site also adequately attenuates the 100-year post-development peak flows to the 100-year pre-development peak flows as in the post-development condition, there is no expected discharge generated by the site. There is no impact to downstream channels.

The off-site drainage in DMA-B from the existing flood control basin, adjacent to the eastern property line, is bypassed underneath the site. The San Bernardino County is responsible for transformation of the offsite open channel into a closed channel and culvert. Due to these improvements done to the adjacent channel by the County, the project site will be phased. DMA-B will not be touched during Phase 1, whereas the County will be implementing the offsite transformation of the open channel into the closed channel with culvert. During Phase 2, DA-16 will be developed with associated parking, landscape, and drive aisle once County improvements to the existing channel are implemented. These channel modifications do not affect the project's hydrologic analysis as the site is a zero-discharge site, fully infiltrating stormwater up to the 100-year storm and does not tie into any neighboring channels or waterbodies.

100.1 Project Description

The proposed project consists of the proposed industrial buildings with associated landscaping, concrete hardscape, and asphalt parking for both trailers and automobiles. The proposed landscaping will consist of trees, shrubs and drought tolerant native ground cover.

Operations at the proposed site will include drop off and pick up of items at the industrial bldgs., warehouse activities, office space and landscaping. Trash enclosures will also be provided for the proposed development. Expected wastes will include food waste, trash, and debris. The existing site is approximately 54% impervious. Once the site is developed, it will be approximately 92% impervious.

100.2 Location

The site is located on the northwest corner of the intersection of W Rialto Avenue and N Cactus Avenue in the City of Rialto, San Bernardino County. The project is bound by N Cactus Avenue to the east, W Rialto Avenue to the South, existing single-family residential dwellings to the north, and an existing Community school to the west.

For reference, see **Appendix A**, *Vicinity Map.*

100.3 Methodology

This Hydrology Report is intended to comply with the requirements of the San Bernardino County Hydrology Manual to assist in the proposed development of the existing site into the proposed industrial building. The report includes existing and proposed condition hydrologic analysis to determine if the proposed development's run-off will have any impact on downstream properties.

A rational method analysis for the 100-year event in accordance with the San Bernardino Hydrology Manual (SBC, 1986) and the 2010 Addendum was completed to calculate the peak discharges for the existing and proposed project conditions. The combination of the soil and coverage type was used as the basis for selecting the appropriate curve numbers used to calculate the soil loss rate. See Appendix F Figure C-2 and C-3 for curve numbers based on hydrologic soil conditions for pervious areas.

Per the 2010 San Bernardino County Hydrology Manual Addendum, arid regions within San Bernardino County should use NOAA Atlas 14 rainfall atlas and the associated data base (NOAA, 2006) or other local rainfall gauge data for hydrology studies. After review

of available data, the NOAA Atlas 14 rainfall data was chosen for this. NOAA Atlas 14 also provides information for the various peak durations required to complete the hydrology analysis for the current study. Appendix F contains the site-specific tabular output from NOAA Atlas 14.

The type of soil and soil conditions are major factors affecting infiltration/detention and resultant storm water runoff. The hydrologic soil group is based on properties that influence runoff, such as water infiltration rate, texture, natural discharge and moisture condition. The runoff potential is based on the amount of runoff at the end of a long duration storm that occurs after wetting and swelling of the soil not protected by vegetation. Using the Stormwater Facility Mapping online tool for San Bernardino County, it was determined the hydrologic soil group classification is A. Soil group A is defined as soils having good infiltration rates (low runoff potential). These soils have a good rate of water transmission. See Appendix C for the Geotechnical Report.

In addition, antecedent moisture condition (AMC) III was used to calculate the 100-year peak flows based on the AMC map (Figure ADD-1) published with the 2010 addendum. The land use for the drainage area was selected based on the percent pervious that represents the area for the proposed conditions, as shown on Appendix F Figure C-4. The Advance Engineering Software (AES) Hydrosoft package was used to complete the rational method analysis. The results of the rational method analysis are included in Appendix D and E.

100.4 Drainage Characteristics

The site is located in Zone X per the Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map (FIRM) panel 06071C8659H, dated August 28, 2008. Flood Zone X is defined by FEMA as the area determined to be outside the 500-year flood. No portion of the site is located within the special flood hazard area inundated by the 100-year flood.

For reference, see **Appendix B**, *FIRM Map.*

100.4.1 Pre-development Condition

The existing condition of the project site is an Indoor Warehousing and Storage. The current zoning is a Light Manufacturing Zone. Currently, there is an existing earth lined trapezoidal channel on the northwest corner of the site which receives runoff from upstream areas. The open channel transitions to an underground storm drain pipe running along the eastern perimeter of the site. For reference, see **Appendix G,** *for Storm Drain Plans.*

In the existing condition the project site generally sheet flows in a southeast direction towards N Cactus Avenue. Drainage then flows to the public right-of-way where it is collected by curb drainage inlet located near the southeast corner of the site along N Cactus Ave. Drainage is then routed into the existing storm drain system until it reaches the Santa Ana River. See **Appendix D**, for *Existing Hydrology Map*.

Table 1 shows a summary of the Rational Method pre-development flows for the 100-year storm event.

Table 1: Existing Hydrology Results

Sub-basin ID	Drainage Area (AC)	Q_{100} (cfs)
DMA-A	7.60	18.13
DMA-B	0.19	0.74
DMA-C	*0.15*	*0.53*
Total	*7.94*	*19.40*

See **Appendix D**, *Existing Hydrology Exhibit and Calculations.*

100.4.2 Post-development Condition

The proposed development includes the construction of one industrial building, curb cuts, upgrade to existing curb ramp, and two additional driveways along Cactus Ave. Storm water for the site will be routed to one underground infiltration system for storm water mitigation. Project will be phased. Phase 1 improvements consist of The San Bernardino Flood Control District undergrounding the existing channel, located on the northeast corner of the site, and modifying it to a culvert with underground pipes. The open channel area is undisturbed by the owner during Phase 1. Phase 2 begins once the system is underground. In Phase 2, the owner will be allowed to pave over the Flood Control District improvements and treat the paved over area. Existing drainage patterns are preserved. See Appendix E for proposed underground infiltration system location.

The Phase 1 post-development drainage area is comprised of 19 major drainage areas. Drainage from DA 1-11, 13-15, and 19 sheet flows through the site making its way into inlets located at low points. All drainage collected at said low points will then be conveyed via storm drain pipes into a hydrodynamic separator and then, the underground infiltration system. Drainage from DA 1-8 will be collected by roof drains. Drainage from DA 17-18, and 20 will sheet flow through the proposed landscape on site and self-mitigate, while drainage from DA 12 will sheet flow to a local storm drain inlet.

The Phase 2 post-project conditions will be the same as Phase 1, with the exception that DA 16 will also be collected by the detention system.

Table 2 shows a summary of the Rational Method post-development flows for the 100-year storm event following the completion of Phase 2. When comparing the peak flows from the proposed condition to the existing condition, the proposed condition is expected to increase the peak flows under the 100-year storm event. The 100-year storm event will be fully retained by the proposed underground infiltration system.

Table 2 shows a summary of the Rational Method post-development flows for 100-year storm event. See **Appendix E**, *Proposed Drainage Exhibit and Calculations.*

Table 2: Proposed Hydrology Results

Sub-basin ID	Drainage Area (AC)	Q_{100} (cfs)
DA 1-11, 13-16, 19	7.32	23.47
DA 12	0.18	0.74
DA 17	0.17	0.64
DA 18	0.06	0.22
DA 20	0.23	0.80
Total	*7.96*	*25.87*

100.5 Storm Water Mitigation

The proposed development is proposing one underground infiltration system for storm water mitigation. The proposed underground infiltration system was sized to treat the design capture the volume (DCV), as outlined in the WQMP, and to retain the storm water volume required to not create any adverse impacts downstream. The required DCV for the entire site is 34,763.

A small area unit hydrograph was analyzed to determine required detention volume to attenuate proposed peak flow rates. The time of concentration, peak flow, and the percent imperviousness from the AES rational method were used to create this small area unit hydrograph, which was imported to Bentley's to route the hydrograph to the proposed infiltration system. The effective area of 7.32 acres (DA 1-11, 13-16, 19) includes only the drainage areas that drain to the underground infiltration system. Basin storage calculations are included in Appendix E for reference. The site's design infiltration rate of 12.33 in/hr was calculated based off the measured infiltration rate of 37 in/hr with a factor of safety of 3 applied to that. This design infiltration rate was included in the model to account for the runoff losses due to infiltration. The model shows that the 100-year storm event is fully retained within the proposed infiltration system, thus making the site a no-discharge site. Emergency overflow beyond the 100-year storm event will be provided via curb drains. Table 3 shows a summary of the detention basin and attenuated peak flow rates for the 100-year storm event.

Table 3: Detention Summary

Sub-basin ID	Attenuated Q100 (cfs)	Maximum 100-year storage (cf)	Maximum 100-year Water Depth (ft)
DA 1-11, 13-16, 19	0	25,691	3.61
Total	*0*	*25,691*	-

See **Appendix E**, *Proposed Drainage Exhibit and Calculations.*

The proposed underground infiltration system has enough capacity to satisfy the volume requirement for both water quality and storm water mitigation. The proposed development will not increase peak flows currently exiting the site under the 100-year storm event due to the infiltration system being able to fully detain stormwater up to the 100-year storm. The project site is a zero-discharge site, and thus having no adverse impacts to downstream waterbodies.

100.5.1 Hydraulic Capacity of Proposed On Site Storm Drain Inlets

Each proposed catch basin has been sized using Bentley's FlowMaster to convey the 100-year peak flow from the rational method calculations. Each inlet size was selected to maintain the 100-year ponding depth below 6-inches and below finished floor elevation assuming a 50% clogging factor. Capacity calculations for each grate inlet are included in Appendix E.

100.5.2 Hydraulic Capacity of Proposed On Site Storm Drain Conduits

Hydraulic calculations for storm drainpipes were completed using Manning's equation in FlowMaster. Each proposed storm drain lateral has been sized to convey the 100-year peak flow from the rational method calculations. Capacity calculations for each pipe are included in Appendix E.

100.5.3 Hydraulic Capacity of Pre-Treatment Devices

Hydraulic calculations for pre-treatment device, Hydrodynamic Separator, were completed per CASQA BMP#MP-51 sizing calculation for treatment flow at <24 gal/min/1 sq ft of swirl chamber footprint area. The pre-treatment device has been sized to convey the 2-year 1-hour intensity treatment and 100-year peak flow rate using the rational method. Capacity calculations and detail for the pre-treatment device are included in Appendix E.

100.6 Conclusion

The development of the existing site into the new proposed industrial building will not create any adverse impacts downstream by not increasing the storm water peak flow rates discharging from the site under existing conditions. Instead, the site will fully retain the 100-year proposed storm event through the addition of one underground infiltration system (zero-discharge site). Under the proposed development, the storm water will be routed to the proposed underground infiltration system to attenuate peak flows, detain storm water volumes, and provide water quality treatment.

Appendix A

Vicinity Map

160 N Cactus Ave
July 2022

Vicinity Map



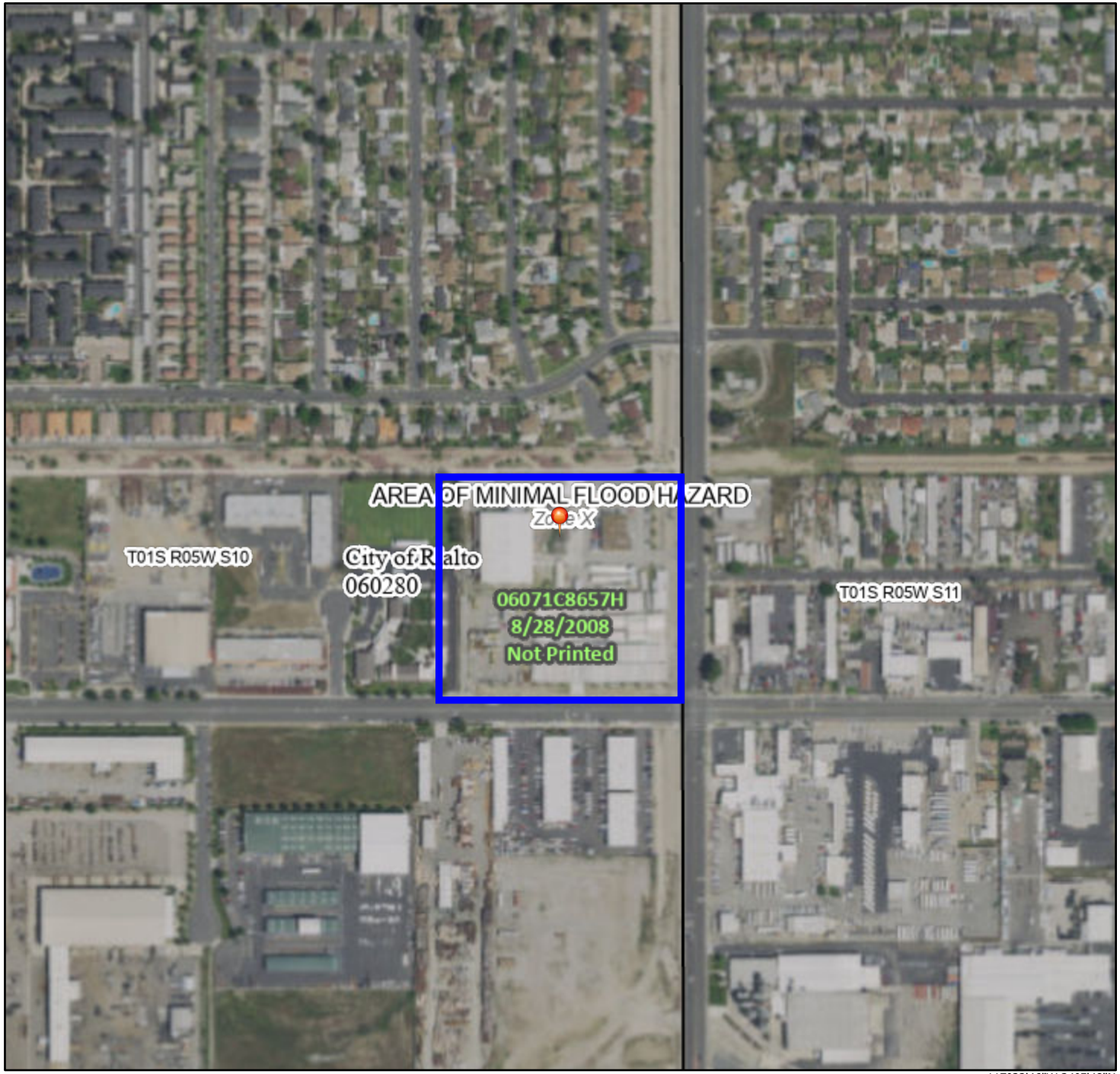
Appendix B

FEMA Map

National Flood Hazard Layer FIRMette

FEMA

117°23'24"W 34°6'18"N



117°22'46"W 34°5'48"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/7/2022 at 10:46 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix C

Geotechnical Investigation and Percolation Test Results

Geotechnologies, Inc.
Consulting Geotechnical Engineers
439 Western Avenue
Glendale, California 91201-2837
818.240.9600 • Fax 818.240.9675

Celebrating 50 YEARS OF SERVICE 1971-2021

May 24, 2022
Updated May 25, 2022
File Number 22257

Lincoln Property Company
915 Wilshire Boulevard, Suite 2050
Los Angeles, California 90017

Attention: Grant Kuhlmann

Subject: Geotechnical Engineering Investigation
Proposed Industrial Development
160 North Cactus Avenue, Rialto, California

Dear Mr. Kuhlmann:

This letter transmits the Geotechnical Engineering Investigation for the subject property prepared by Geotechnologies, Inc. This report provides geotechnical recommendations for the development of the site, including earthwork, seismic design, retaining walls, excavations and foundation design. Engineering for the proposed project should not begin until approval of the geotechnical investigation is granted by the local building official. Significant changes in the geotechnical recommendations may result due to the building department review process.

The validity of the recommendations presented herein is dependent upon review of the geotechnical aspects of the project during construction by this firm. The subsurface conditions described herein have been projected from limited subsurface exploration and laboratory testing. The exploration and testing presented in this report should in no way be construed to reflect any variations which may occur between the exploration locations or which may result from changes in subsurface conditions.

Should you have any questions please contact this office.

Respectfully submitted,
GEOTECHNOLOGIES, INC.

REGISTERED PROFESSIONAL ENGINEER
GREGORIO VARELA
No. 81201
Exp. 9/30/23
CIVIL
STATE OF CALIFORNIA

GREGORIO VARELA
R.C.E. 81201

GV:km

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GEOTECHNICAL ENGINEERING INVESTIGATION
PROPOSED INDUSTRIAL DEVELOPMENT
160 NORTH CACTUS AVENUE
RIALTO, CALIFORNIA

INTRODUCTION

This report presents the results of the geotechnical engineering investigation performed on the subject site. The purpose of this investigation was to identify the distribution and engineering properties of the geologic materials underlying the site, and to provide geotechnical recommendations for the design of the proposed development.

This investigation included eight exploratory excavations, collection of representative samples, laboratory testing, engineering analysis, review of published geologic data, review of available geotechnical engineering information and the preparation of this report. The exploratory excavation locations are shown on the enclosed Plot Plan. The results of the exploration and the laboratory testing are presented in the Appendix of this report.

PROPOSED DEVELOPMENT

Information concerning the proposed development was furnished by the client. In addition, the Conceptual Site Plan prepared by Ware Malcomb, dated May 23, 2022 was reviewed for the preparation of this report. The proposed project consists of construction of an industrial development. The development will consist of a single-story 163,730 square feet industrial building. This building will be built at-, or near the existing site grade, and will have an interior clearance height of approximately 36 feet. A loading dock is proposed within the south side of the building. Surface parking and driving aisles will surround the proposed building. The location and alignment of the proposed development is shown in the enclosed Plot Plan.

Column loads are estimated to be between 50 and 300 kips. Wall loads are estimated to be between 2 and 12 kips per lineal foot. These loads reflect the dead plus live load. Grading will consist of excavations on the order of 5 feet in depth for the recommended removal and recompaction of existing unsuitable soils.

Any changes in the design of the project or location of any structure, as outlined in this report, should be reviewed by this office. The recommendations contained in this report should not be considered valid until reviewed and modified or reaffirmed, in writing, subsequent to such review.

SITE CONDITIONS

The site is located at 160 North Cactus Avenue, in the City of Rialto, California. The site is square in shape, and just over 8 acres in area. The site is bounded by a bike trail to the north, a stormwater channel followed by North Cactus Avenue to the east, West Rialto Avenue to the south, and the Bob Murphy Community School Campus to the west. The site is shown relative to nearby topographic features in the enclosed Vicinity Map.

The site grade is relatively level, with no pronounced highs or lows. At the time of our exploration, the western portion of the site was vacant, as the previous development had been demolished. The eastern portion of the site was observed to be developed with a single-story office building, a single-story warehouse building, and adjoining paved parking.

Vegetation at the site is non-existent. Drainage across the site appears to be by sheetflow to the City streets.

GEOTECHNICAL EXPLORATION

FIELD EXPLORATION

The site was explored on April 12 and 13, 2022 by drilling eight borings. The borings were drilled to depths between 15 and 50 feet below the existing excavating grade, with the aid of a truck-mounted drilling machine using 8-inch diameter hollowstem augers. The exploration locations are shown on the Plot Plan and the geologic materials encountered are logged on Plates A-1 through A-8.

The location of exploratory excavations was determined from hardscaped features shown in the enclosed Plot Plan. The location of the borings should be considered accurate only to the degree implied by the method used.

Geologic Materials

Fill materials were encountered in all eight exploratory borings, to depths ranging between 3 and 5 feet below the existing site grade. The fill consists of a mixture of silty sand, and sand, which is yellowish brown to dark brown in color, moist, medium dense, and fine grained, with few cobbles.

The fill is in turn underlain by native alluvial soils, consisting primarily of sands and silty sands. The native soils range from yellowish brown to dark brown in color, and are moist, medium dense to very dense, and fine to coarse grained, with layers containing various amounts of pebbles, gravel and cobbles.

More detailed descriptions of the earth materials encountered may be obtained from individual logs of the subsurface excavations.

Groundwater

Groundwater was not encountered during exploration, conducted to a maximum depth of 50 feet below the existing site grade. According to Plate 4B, Generalized Depth to Groundwater (1960) for the Southwestern San Bernardino, Special Report 113 published by CDMG (1974), the depth to groundwater on the subject site is approximately 300 feet below the ground surface. A copy of this map is included in the Appendix of this report.

Fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors not evident at the time of the measurements reported herein. Fluctuations also may occur across the site. High groundwater levels can result in changed conditions.

Caving

Caving could not be directly observed during exploration due to the type of excavation equipment utilized. Based on the experience of this firm, large diameter excavations, excavations that encounter granular, cohesionless soils may experience caving.

SEISMIC EVALUATION

REGIONAL GEOLOGIC SETTING

The subject property is located within the Peninsular Ranges Geomorphic Province. The Peninsular Ranges are characterized by northwest-trending blocks of mountain ridges and sediment-floored valleys. The dominant geologic structural features are northwest trending fault zones that either die out to the northwest or terminate at east-trending reverse faults that form the southern margin of the Transverse Ranges.

The subject property is located south of the Transverse Ranges Geomorphic Province. The Transverse Ranges are characterized by roughly east-west trending mountains and the northern and southern boundaries are formed by reverse fault scarps. The convergent deformational features of the Transverse Ranges are a result of north-south shortening due to plate tectonics. This has resulted in local folding and uplift of the mountains along with the propagation of thrust faults (including blind thrusts). The intervening valleys have been filled with sediments derived from the bordering mountains.

REGIONAL FAULTING

Based on criteria established by the California Division of Mines and Geology (CDMG) now called California Geologic Survey (CGS), Faults may be categorized as Holocene-active, Pre-Holocene faults, and Age-undetermined faults. Holocene-active faults are those which show evidence of surface displacement within the last 11,700 years. Pre-Holocene faults are those that have not moved in the past 11,700 years. Age-undetermined faults are faults where the recency of fault movement has not been determined.

Buried thrust faults are faults without a surface expression but are a significant source of seismic activity. They are typically broadly defined based on the analysis of seismic wave recordings of hundreds of small and large earthquakes in the southern California area. Due to the buried nature of these thrust faults, their existence is usually not known until they produce an earthquake. The risk for surface rupture potential of these buried thrust faults is inferred to be low (Leighton, 1990). However, the seismic risk of these buried structures in terms of recurrence and maximum potential magnitude is not well established. Therefore, the potential for surface rupture on these surface-verging splays at magnitudes higher than 6.0 cannot be precluded.

Rialto-Colton Fault

Based on review of the Fault Activity Map of California (CGS, 2010), and Exhibit 5.1 of the City of Rialto General Plan (December 2010), the inferred location of the Rialto-Colton Fault terminates approximately ⅓-mile to the southeast of the site. Copies of these two maps have been enclosed in the Appendix of this report as the "Fault Activity Map" and the "City of Rialto Fault Map".

The Rialto-Colton Fault is categorized by the California Geologic Survey as a "Late Quaternary" Fault, which last displacement may have occurred within the past 700,000 years. The location of this fault is poorly constrained. No Special Studies Zones have been delineated by the State of California along any part of the Rialto-Colton Fault.

It should be noted that the City of Rialto shows that the groundwater barrier caused by the Rialto-Colton Fault extends beyond the fault trace, and transverses the subject site. This is illustrated in the enclosed City of Rialto Fault Map.

SEISMIC HAZARDS AND DESIGN CONSIDERATIONS

The primary geologic hazard at the site is moderate to strong ground motion (acceleration) caused by an earthquake on any of the local or regional faults. The potential for other earthquake-induced hazards was also evaluated including surface rupture, liquefaction, dynamic settlement, inundation and landsliding.

Surface Rupture

In 1972, the Alquist-Priolo Special Studies Zones Act (now known as the Alquist-Priolo Earthquake Fault Zoning Act) was passed into law. As revised in 2018, The Act defines "Holocene-active" Faults utilizing the same aging criteria as that used by California Geological

Survey (CGS). However, established state policy has been to zone only those faults which have direct evidence of movement within the last 11,700 years. It is this recency of fault movement that the CGS considers as a characteristic for faults that have a relatively high potential for ground rupture in the future.

CGS policy is to delineate a boundary from 200 to 500 feet wide on each side of the Holocene-Active fault trace based on the location precision, the complexity, or the regional significance of the fault. If a site lies within an Earthquake Fault Zone, a geologic fault rupture investigation must be performed that demonstrates that the proposed building site is not threatened by surface displacement from the fault before development permits may be issued.

Ground rupture is defined as surface displacement which occurs along the surface trace of the causative fault during an earthquake. Based on research of available literature and results of site reconnaissance, no known Holocene-active or Pre-Holocene faults underlie the subject site. In addition, the subject site is not located within an Alquist-Priolo Earthquake Fault Zone. Based on these considerations, the potential for surface ground rupture at the subject site is considered low.

Liquefaction

Liquefaction is a phenomenon in which saturated silty to cohesionless soils below the groundwater table are subject to a temporary loss of strength due to the buildup of excess pore pressure during cyclic loading conditions such as those induced by an earthquake. Liquefaction-related effects include loss of bearing strength, amplified ground oscillations, lateral spreading, and flow failures.

Based on the historical highest groundwater level provided in Plate 4B, Generalized Depth to Groundwater (1960) for the Southwestern San Bernardino, Special Report 113 published by CDMG (1974), the depth to groundwater on the subject site is approximately 300 feet below the

ground surface. No groundwater was encountered during exploration, excavated to a maximum depth of 50 feet below existing ground surface.

Due to the depth to the historical highest groundwater level, and the density of the native soils, the soils underlying the site are not considered susceptible to liquefaction during the ground motion expected during the design basis earthquake.

Dynamic Dry Settlement

Seismically-induced settlement or compaction of dry or moist, cohesionless soils can be an effect related to earthquake ground motion. Such settlements are typically most damaging when the settlements are differential in nature across the length of structures.

Some seismically-induced settlement of the proposed structures should be expected as a result of strong ground-shaking, however, due to the uniform nature of the underlying geologic materials, and the density of these materials, excessive differential settlements are not expected to occur.

Tsunamis, Seiches and Flooding

The subject site is far and/or high enough from the ocean or lakes such that it would not be prone to hazards of a tsunami, seiche, or flooding from a breached upgradient reservoir.

Based on review of Exhibit 5.2 of the City of Rialto General Plan (December 2010), the site is located in an area considered outside the 500-year flood plain.

Landsliding

The probability of seismically-induced landslides occurring on the site is considered to be low due to the general lack of elevation difference across or adjacent to the site.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the exploration, laboratory testing, and research, it is the finding of Geotechnologies, Inc. that construction of the proposed development is considered feasible from a geotechnical engineering standpoint provided the advice and recommendations presented herein are followed and implemented during construction.

During exploration, fill materials were observed to extend to depths ranging between 3 and 5 feet below the existing grade. The existing fill materials are not suitable for support of the proposed foundations and interior slabs-on-grade, but may be reused for the preparation of a compacted fill pad. The fill is in turn underlain by native alluvial soils, consisting primarily of interlayered mixtures of sand and silty sand. Groundwater was not encountered during exploration, conducted to a maximum depth of 50 feet below the existing site grade.

The proposed industrial building may be supported by conventional foundations bearing in a uniform compacted fill pad. For the construction of a uniform compacted fill pad, all existing fill materials and upper alluvial soils shall be removed and recompacted to a minimum depth of 5 feet below the proposed grade, or of 3 feet below the bottom of the proposed foundations, whichever is deeper. In addition, the compacted fill should extend horizontally a minimum of 3 feet beyond the edge of foundations or for a distance equal to the depth of fill below the foundation, whichever is greater.

Foundations for small outlying structures that will not be connected to the proposed structure, such as planter walls, screen walls, and trash enclosures, may be supported on conventional foundations bearing in properly placed compacted fill and/or undisturbed native alluvial soils.

Complete removal and recompaction of all existing fill soils is not necessary beneath paving sections or outdoor concrete flatwork such as walkways or patio areas. In order to provide uniform support it is recommended that a minimum of 12 inches of the exposed subgrade beneath the flatwork or paving sections be scarified and recompacted.

The validity of the conclusions and design recommendations presented herein is dependent upon review of the geotechnical aspects of the proposed construction by this firm. The subsurface conditions described herein have been projected from excavations on the site as indicated and should in no way be construed to reflect any variations which may occur between these excavations or which may result from changes in subsurface conditions. Any changes in the design, as outlined in this report, should be reviewed by this office. The recommendations contained herein should not be considered valid until reviewed and modified or reaffirmed subsequent to such review.

SEISMIC DESIGN CONSIDERATIONS

California Building Code Seismic Parameters

Based on information derived from the subsurface investigation, the subject site is classified as Site Class D, which corresponds to a “Stiff Soil” Profile, according to Table 20.3-1 of ASCE 7-16. This information and the site coordinates were input into the OSHPD seismic utility program in order to calculate ground motion parameters for the site.

CALIFORNIA BUILDING CODE SEISMIC PARAMETERS	
California Building Code	2019
ASCE Design Standard	7-16
Site Class	D
Mapped Spectral Acceleration at Short Periods (S_S)	1.924g
Site Coefficient (F_a)	1.0
Maximum Considered Earthquake Spectral Response for Short Periods (S_{MS})	1.924g
Five-Percent Damped Design Spectral Response Acceleration at Short Periods (S_{DS})	1.283g
Mapped Spectral Acceleration at One-Second Period (S_1)	0.759g
Site Coefficient (F_v)	1.7*
Maximum Considered Earthquake Spectral Response for One-Second Period (S_{M1})	1.290g*
Five-Percent Damped Design Spectral Response Acceleration for One-Second Period (S_{D1})	0.860g*

* *According to ASCE 7-16, a Long Period Site Coefficient (F_v) of 1.7 may be utilized provided that the value of the Seismic Response Coefficient (C_s) is determined by Equation 12.8-2 for values of $T \leq 1.5T_s$ and taken as equal to 1.5 times the value computed in accordance with either Equation 12.8-3 for $T_L \geq T > 1.5T_s$ or equation 12.8-4 for $T > T_L$. Alternatively, a site-specific ground motion hazard analysis may be performed in accordance with ASCE 7-16 Section 21.1 and/or a ground motion hazard analysis in accordance with ASCE 7-16 Section 21.2 to determine ground motions for any structure.*

EXPANSIVE SOILS

The onsite geologic materials are in the very low expansion range. The Expansion Index was found to be 2 and 3 for bulk samples representative of the on-site soils.

WATER-SOLUBLE SULFATES

The Portland cement portion of concrete is subject to attack when exposed to water-soluble sulfates. Usually the two most common sources of exposure are from soil and marine environments.

The sources of natural sulfate minerals in soils include the sulfates of calcium, magnesium, sodium, and potassium. When these minerals interact and dissolve in subsurface water, a sulfate concentration is created, which will react with exposed concrete. Over time sulfate attack will destroy improperly proportioned concrete well before the end of its intended service life.

The water-soluble sulfate content of the onsite geologic materials was tested by California Test 417. The water-soluble sulfate content was determined to be less than 0.1% percentage by weight for the soils tested. Based on the most recent revision to American Concrete Institute (ACI) Standard 318, the sulfate exposure is considered to be negligible for geologic materials with less than 0.1% and Type I cement may be utilized for concrete foundations in contact with the site soils.

GRADING GUIDELINES

Site Preparation

- A thorough search should be made for possible underground utilities and/or structures. Any existing or abandoned utilities or structures located within the footprint of the proposed grading should be removed or relocated as appropriate.

- All vegetation, existing fill, and soft or disturbed geologic materials should be removed from the areas to receive controlled fill. All existing fill materials and any disturbed geologic materials resulting from grading operations shall be completely removed and properly recompacted prior to foundation excavation.

- Any vegetation or associated root system located within the footprint of the proposed structures should be removed during grading.

- Subsequent to the indicated removals, the exposed grade shall be scarified to a depth of six inches, moistened to optimum moisture content, and recompacted in excess of the minimum required comparative density.

- The excavated areas shall be observed by the geotechnical engineer prior to placing compacted fill.

Recommended Overexcavation

Within the proposed building area, all fill and upper native alluvial soils shall be excavated to a minimum depth of 5 feet below the bottom of the proposed grade, or 3 feet below the bottom of the proposed foundations, whichever is greater. The excavation shall extend at least 3 feet beyond the edge of foundations, or for a distance equal to the depth of fill below the foundations, whichever is greater. It is very important that the position of the proposed structure is accurately located so that the limits of the graded area are accurate, and the grading operation proceeds efficiently.

Compaction

All fill should be mechanically compacted in layers not more than 8 inches thick. All fill shall be compacted to at least 90 percent of the maximum laboratory density for the materials used. The maximum density shall be determined by the laboratory operated by Geotechnologies, Inc. using the test method described in the most recent revision of ASTM D 1557.

Field observation and testing shall be performed by a representative of the geotechnical engineer during grading to assist the contractor in obtaining the required degree of compaction and the proper moisture content. Where compaction is less than required, additional compactive effort shall be made with adjustment of the moisture content, as necessary, until a minimum of 90 percent compaction is obtained.

Acceptable Materials

The excavated onsite geologic materials are considered satisfactory for reuse in compacted fills as long as any oversize material, debris and/or organic matter is removed. Cobbles should be expected to be present in the on-site materials. Cobbles exceeding 6 inches in dimension shall not be utilized in compacted fills.

Any imported soil shall be observed and tested by the representative of the geotechnical engineer prior to use in fill areas. Imported materials should contain sufficient fines so as to be relatively impermeable and result in a stable subgrade when compacted. Any required import soil should have an expansion index less than 40. The water-soluble sulfate content of the import materials should be less than 0.1% percentage by weight.

Imported soil should be free from chemical or organic substances which could affect the proposed development. A competent professional should be retained in order to test imported materials and address environmental issues and organic substances which might affect the proposed development.

Utility Trench Backfill

Utility trenches should be backfilled with controlled fill. The utility should be bedded with clean sands at least one foot over the crown. The remainder of the backfill may be onsite soil compacted to 90 percent of the laboratory maximum density. Utility trench backfill should be tested by representatives of this firm in general accordance with the most recent revision of ASTM D 1557.

Shrinkage

Shrinkage results when a volume of soil removed at one density is compacted to a higher density. A shrinkage factor between 2 and 12 percent should be anticipated when excavating and recompacting the existing fill and underlying native geologic materials on the site to an average comparative compaction of 92 percent.

Weather Related Grading Considerations

When rain is forecast all fill that has been spread and awaits compaction shall be properly compacted prior to stopping work for the day or prior to stopping due to inclement weather. These fills, once compacted, shall have the surface sloped to drain to an area where water can be removed.

Temporary drainage devices should be installed to collect and transfer excess water to the street in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope.

Work may start again, after a period of rainfall, once the site has been reviewed by a representative of this office. Any soils saturated by the rain shall be removed and aerated so that the moisture content will fall within three percent of the optimum moisture content.

Surface materials previously compacted before the rain shall be scarified, brought to the proper moisture content and recompacted prior to placing additional fill, if considered necessary by a representative of this firm.

Abandoned Seepage Pits

No abandoned seepage pits were encountered during exploration and none are known to exist on the site. However, should such a structure be encountered during grading, options to permanently abandon seepage pits include complete removal and backfill of the excavation with compacted fill, or drilling out the loose materials and backfilling to within a few feet of grade with slurry, followed by a compacted fill cap.

If the subsurface structures are to be removed by grading, the entire structure should be demolished. The resulting void may be refilled with compacted soil. Concrete and brick generated during the seepage pit removal may be reused in the fill as long as all fragments are less than 6 inches in longest dimension and the debris comprises less than 15 percent of the fill by volume. All grading should comply with the recommendations of this report.

Where the seepage pit structure is to be left in place, the seepage pits should cleaned of all soil and debris. This may be accomplished by drilling. The pits should be filled with minimum 1-1/2 sack concrete slurry to within 5 feet of the bottom of the proposed foundations. In order to provide a more uniform foundation condition, the remainder of the void should be filled with controlled fill.

Geotechnical Observations and Testing During Grading

Geotechnical observations and testing during grading are considered to be a continuation of the geotechnical investigation. It is critical that the geotechnical aspects of the project be reviewed by representatives of Geotechnologies, Inc. during the construction process. Compliance with the design concepts, specifications or recommendations during construction requires review by this firm during the course of construction. Any fill which is placed should be observed, tested, and

verified if used for engineered purposes. Please advise this office at least twenty-four hours prior to any required site visit.

Proper compaction is necessary to reduce settlement of overlying improvements. Some settlement of compacted fill should be anticipated. Any utilities supported therein should be designed to accept differential settlement. Differential settlement should also be considered at the points of entry to the structure.

LEED Considerations

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System encourages adoption of sustainable green building and development practices. Credit for LEED Certification can be assigned for reuse of construction waste and diversion of materials from landfills in new construction.

In an effort to provide the design team with a viable option in this regard, demolition debris could be crushed onsite in order to use it in the ongoing grading operations. The environmental ramifications of this option, if any, should be considered by the team.

The demolition debris should be limited to concrete, asphalt and other non-deleterious materials. All deleterious materials should be removed including, but not limited to, paper, garbage, ceramic materials and wood.

For structural fill applications, the materials should be crushed to 2 inches in maximum dimension or smaller. The crushed materials should be thoroughly blended and mixed with onsite soils prior to placement as compacted fill. The amount of crushed material should not exceed 20 percent. The blended and mixed materials should be tested by this office prior to placement to insure it is suitable for compaction purposes. The blended and mixed materials

should be tested by Geotechnologies, Inc. during placement to ensure that it has been compacted in a suitable manner.

FOUNDATION DESIGN

Conventional

The proposed industrial building may be supported by conventional foundations bearing in a properly compacted fill pad. Continuous foundations may be designed for a bearing capacity of 2,750 pounds per square foot, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended compacted fill pad.

Column foundations may be designed for a bearing capacity of 3,250 pounds per square foot, and should be a minimum of 24 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended compacted fill pad.

The bearing capacity increase for each additional foot of width is 150 pounds per square foot. The bearing capacity increase for each additional foot of depth is 500 pounds per square foot. The maximum recommended bearing capacity is 6,000 pounds per square foot.

The bearing capacities indicated above are for the total of dead and frequently applied live loads, and may be increased by one third for short duration loading, which includes the effects of wind or seismic forces.

Miscellaneous Foundations

Conventional foundations for structures such as privacy walls or trash enclosures which will not be rigidly connected to the proposed structure may bear in properly compacted fill, or may be deepened through any existing fill to bear in undisturbed alluvial soils. Miscellaneous continuous

foundations may be designed for a bearing capacity of 2,000 pounds per square foot, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 18 inches into the recommended bearing material. No bearing capacity increases are recommended. Since the recommended bearing capacity is a net value, the weight of concrete in the foundations may be taken as 50 pounds per cubic foot and the weight of the soil backfill may be neglected when determining the downward load on the foundations.

Foundation Reinforcement

All continuous foundations should be reinforced with a minimum of two #4 steel bars. One should be placed near the top of the foundation, and one should be placed near the bottom.

Lateral Design

Resistance to lateral loading may be provided by friction acting at the base of foundations and by passive earth pressure. An allowable coefficient of friction of 0.35 may be used with the dead load forces.

Passive geologic pressure for the sides of foundations poured against undisturbed or recompacted soil may be computed as an equivalent fluid having a density of 300 pounds per cubic foot with a maximum earth pressure of 1,500 pounds per square foot.

The passive and friction components may be combined for lateral resistance without reduction. A one-third increase in the passive value may be used for short duration loading such as wind or seismic forces.

Foundation Settlement

Settlement of the foundation system is expected to occur on initial application of loading. The maximum settlement is not expected to exceed ½-inch and occur below the heaviest loaded columns. Differential settlement is not expected to exceed ¼-inch.

Foundation Observations

It is critical that all foundation excavations are observed by a representative of this firm to verify penetration into the recommended bearing materials. The observation should be performed prior to the placement of reinforcement. Foundations should be deepened to extend into satisfactory geologic materials, if necessary.

Foundation excavations should be cleaned of all loose soils prior to placing steel and concrete. Any required foundation backfill should be mechanically compacted, flooding is not permitted.

RETAINING WALL DESIGN

Miscellaneous Cantilever Retaining Walls

The proposed building will be built near the existing site grade. Therefore, the only retaining walls anticipated would be associated with the construction of loading docks.

Miscellaneous retaining walls supporting a level backslope may be designed utilizing a triangular distribution of pressure. Cantilever retaining walls may be designed for 30 pounds per cubic foot for walls retaining up to 6 feet of earth.

For this equivalent fluid pressure to be valid, walls which are to be restrained at the top should be backfilled prior to the upper connection being made. Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures.

Dynamic (Seismic) Earth Pressure

Based on the 2019 California Building Code, retaining walls exceeding 6 feet in height shall be designed to resist the additional earth pressure caused by seismic ground shaking. Miscellaneous retaining walls anticipated for the proposed project are not expected to exceed 6 feet in height. Therefore the dynamic earth pressure may be omitted.

Retaining Wall Drainage

Retaining walls should be provided with a subdrain. Subdrains may consist of 4-inch diameter perforated pipes, places with perforated facing down. The pipe shall be encased in at least one foot of gravel around the pipe. The gravel shall be wrapped in filter fabric. The gravel may consist of three-quarter inch to one-inch crushed rock.

As an alternative to the standard perforated subdrain pipe and gravel drainage system, the use of gravel pockets and weepholes is an acceptable drainage method. Weepholes shall be a minimum of 2 inches in diameter, placed at 8 feet on center along the base of the wall. Gravel pockets shall be a minimum of 1 cubic foot in dimension, and may consist of three-quarter inch to one-inch crushed rocks, wrapped in filter fabric.

Certain types of subdrain pipe are not acceptable to the various municipal agencies, it is recommended that prior to purchasing subdrainage pipe, the type and brand is cleared with the proper municipal agencies. Subdrainage pipes should outlet to an acceptable location.

The lateral earth pressures recommended above for retaining walls assume that a permanent drainage system will be installed so that external water pressure will not be developed against the walls. If a drainage system is not provided, the walls should be designed to resist an external hydrostatic pressure due to water in addition to the lateral earth pressure. In any event, it is recommended that retaining walls be waterproofed.

Sump Pump Design

The purpose of the recommended retaining wall drainage system is to relieve hydrostatic pressure for retaining walls bearing above the design-based groundwater level, where the only water which could affect the proposed retaining walls would be irrigation waters and precipitation.

Based on these considerations the retaining wall drainage system is not expected to experience an appreciable flow of water, and in particular, no groundwater will affect it. However, for the purposes of design, a flow of 5 gallons per minute may be assumed.

Waterproofing

Moisture effecting retaining walls is one of the most common post construction complaints. Poorly applied or omitted waterproofing can lead to efflorescence or standing water inside the building. Efflorescence is a process in which a powdery substance is produced on the surface of the concrete by the evaporation of water. The white powder usually consists of soluble salts such as gypsum, calcite, or common salt. Efflorescence is common to retaining walls and does not affect their strength or integrity.

It is recommended that retaining walls be waterproofed. Waterproofing design and inspection of its installation is not the responsibility of the geotechnical engineer. A qualified waterproofing

consultant should be retained in order to recommend a product or method which would provide protection to below grade walls.

Retaining Wall Backfill

Any required backfill should be mechanically compacted in layers not more than 8 inches thick, to at least 90 percent of the maximum density obtainable by the most recent revision of ASTM D 1557 method of compaction. Flooding should not be permitted. Compaction within 5 feet, measured horizontally, behind a retaining structure should be achieved by use of light weight, hand operated compaction equipment.

Proper compaction of the backfill will be necessary to reduce settlement of overlying walks and paving. Some settlement of required backfill should be anticipated, and any utilities supported therein should be designed to accept differential settlement, particularly at the points of entry to the structure.

TEMPORARY EXCAVATIONS

The on-site fill and native soils are suitable for vertical excavations up to 5 feet where not surcharged by adjacent traffic, structures or property lines. Where sufficient space is available, temporary unsurcharged embankments could be cut at a uniform 1:1 slope gradient to a maximum depth of 10 feet. A uniform sloped excavation is sloped from bottom to top and does not have a vertical component.

Where sloped embankments are utilized, the tops of the slopes should be barricaded to prevent vehicles and storage loads near the top of slope within a horizontal distance equal to the depth of the excavation. If the temporary construction embankments are to be maintained during the rainy season, berms are strongly recommended along the tops of the slopes to prevent runoff water

from entering the excavation and eroding the slope faces. Water should not be allowed to pond on top of the excavation nor to flow towards it.

Excavation Observations

It is critical that the soils exposed in the cut slopes are observed by a representative of Geotechnologies, Inc. during excavation so that modifications of the slopes can be made if variations in the geologic material conditions occur. Many building officials require that temporary excavations should be made during the continuous observations of the geotechnical engineer. All excavations should be stabilized within 30 days of initial excavation.

SLABS ON GRADE

Concrete Slabs-on Grade

Interior concrete floor slabs should be a minimum of 4 inches in thickness. Slabs-on-grade should be cast over properly compacted fill materials. Any geologic materials loosened or over-excavated should be wasted from the site or properly compacted to 90 percent of the maximum dry density.

Outdoor concrete flatwork, not subject to vehicular traffic, should be a minimum of 4 inches in thickness. Outdoor concrete flatwork should be cast over undisturbed native soils or properly compacted fill materials. Any geologic materials loosened or over-excavated should be wasted from the site or properly compacted to 90 percent of the maximum dry density.

Design of Slabs That Receive Moisture-Sensitive Floor Coverings

Geotechnologies, Inc. does not practice in the field of moisture vapor transmission evaluation and mitigation. Therefore, it is recommended that a qualified consultant be engaged to evaluate

the general and specific moisture vapor transmission paths and any impact on the proposed construction. The qualified consultant should provide recommendations for mitigation of potential adverse impacts of moisture vapor transmission on various components of the structure.

Where dampness would be objectionable, it is recommended that the floor slabs should be waterproofed. A qualified waterproofing consultant should be retained in order to recommend a product or method which would provide protection for concrete slabs-on-grade.

All concrete slabs-on-grade should be supported on vapor retarder. The design of the slab and the installation of the vapor retarder should comply with the most recent revisions of ASTM E 1643 and ASTM E 1745. The vapor retarder should comply with ASTM E 1745 Class A requirements.

Where a vapor retarder is used, a low-slump concrete should be used to minimize possible curling of the slabs. The barrier can be covered with a layer of trimable, compactible, granular fill, where it is thought to be beneficial. Where a granular fill layer is utilized, this layer should be a minimum of 2 inches in thickness. See ACI 302.2R-32, Chapter 7 for information on the placement of vapor retarders and the use of a fill layer.

Concrete Crack Control

The recommendations presented in this report are intended to reduce the potential for cracking of concrete slabs-on-grade due to settlement. However even where these recommendations have been implemented, foundations, stucco walls and concrete slabs-on-grade may display some cracking due to minor soil movement and/or concrete shrinkage. The occurrence of concrete cracking may be reduced and/or controlled by limiting the slump of the concrete used, proper concrete placement and curing, and by placement of crack control joints at reasonable intervals, in particular, where re-entrant slab corners occur.

For standard control of concrete cracking, a maximum crack control joint spacing of 15 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle points are recommended. The crack control joints should be installed as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by a structural engineer.

Complete removal of the existing fill soils beneath outdoor flatwork such as walkways or patio areas, is not required, however, due to the rigid nature of concrete, some cracking, a shorter design life and increased maintenance costs should be anticipated. In order to provide uniform support beneath the flatwork it is recommended that a minimum of 12 inches of the exposed subgrade beneath the flatwork be scarified and recompacted to 90 percent relative compaction.

Slab Reinforcing

Concrete slabs-on-grade and outdoor flatwork should be reinforced with a minimum of #3 steel bars on 24-inch centers each way.

PAVEMENTS

Prior to placing paving, the existing grade should be scarified to a depth of 12 inches, moistened as required to obtain optimum moisture content, and recompacted to 95 percent of the maximum density as determined by the most recent revision of ASTM D 1557. The client should be aware that removal of all existing fill in the area of new paving is not required. However, pavement constructed in this manner will most likely have a shorter design life and increased maintenance costs. The following pavement sections are recommended:

Service	Asphalt Pavement Thickness Inches	Base Course Inches
Passenger Cars	3	4
Medium Trucks	4	6
Heavy Trucks	5	8

Concrete paving may also be utilized for the project. For concrete paving sections to be subject to passenger cars and medium truck traffic, concrete paving shall be a minimum of 6 inches in thickness, and shall be underlain by 4 inches of aggregate base. For concrete paving sections to be subject to heavy truck traffic, concrete paving shall be a minimum of 7 inches in thickness, and shall be underlain by 4 inches of aggregate base. For standard crack control maximum expansion joint spacing of 15 feet should not be exceeded. Lesser spacings would provide greater crack control. Joints at curves and angle points are recommended. Concrete paving should be reinforced with a minimum of #3 steel bars on 24-inch centers each way.

Aggregate base should be compacted to a minimum of 95 percent of the most recent revision of ASTM D 1557 laboratory maximum dry density. Base materials should conform to Sections 200-2.2 or 200-2.4 of the "Standard Specifications for Public Works Construction", (Green Book), latest edition.

The performance of pavement is highly dependent upon providing positive surface drainage away from the edges. Ponding of water on or adjacent to pavement can result in saturation of the subgrade materials and subsequent pavement distress.

SITE DRAINAGE

Proper surface drainage is critical to the future performance of the project. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. Proper site drainage should be maintained at all times.

All site drainage, with the exception of any required to disposed of onsite by stormwater regulations, should be collected and transferred to the street in non-erosive drainage devices. The proposed structure should be provided with roof drainage. Discharge from downspouts, roof drains and scuppers should not be permitted on unprotected soils within five feet of the building perimeter. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope. Planters which are located within a distance equal to the depth of a retaining wall should be sealed to prevent moisture adversely affecting the wall. Planters which are located within five feet of a foundation should be sealed to prevent moisture affecting the earth materials supporting the foundation.

STORMWATER DISPOSAL

Introduction

Recently regulatory agencies have been requiring the disposal of a certain amount of stormwater generated on a site by infiltration into the site soils. Increasing the moisture content of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the designed engineering properties. This means that any overlying structure, including buildings, pavements and concrete flatwork, could sustain damage due to saturation of the subgrade soils. Structures serviced by subterranean levels could be adversely impacted by stormwater disposal by increasing the design fluid pressures on retaining walls and causing leaks in the walls. Proper site drainage is critical to the performance of any structure in the built environment.

The Proposed System

Due to the preliminary stage of the project, the type and location of any potential stormwater disposal system have not been specifically addressed for the proposed development. Based on

communication with the civil engineer, it is anticipated that the infiltration will be conducted at depths ranging between 10 and 15 feet below the existing site grade.

The final location and design of the proposed infiltration system shall be reviewed and approved by this office prior to construction to evaluate whether the intent of the recommendations provided by this firm are satisfied.

Percolation Testing

Percolation testing was conducted in Borings B7 and B8, following the Porchet Method. Both borings were drilled to a depth of 15 feet. At the completion of drilling, a 2-inch diameter casing was placed within the center of the borehole for the purpose of conducting percolation testing. The casing consisted of a slotted PVC pipe within the lower 5 feet of the borehole, and solid PVC pipe to the top of the borehole. A sand pack consisting of #3 Monterey Sand was poured into the annular space around the slotted portion of the casing. A 1-foot thick, hydrated bentonite seal was placed over the sand and drill cuttings were placed to the ground surface.

Prior to testing, the boreholes were filled with water for the purpose of pre-soaking for 2 hours. After presoaking, the boreholes were refilled with water, and the rate of drop in the water level was measured. The percolation test readings were recorded a minimum of 8 times or until a stabilized rate of drop was obtained, whichever occurred first.

The table below summarizes the results of the infiltration rate derived from the testing. Field readings and calculations for the percolation testing are included in the Appendix. These infiltration rates do not include a safety factor. A safety factor shall be added to this rate. The civil engineer shall determine and apply a safety factor which is adequate for the design of the proposed infiltration system.

Boring No.	Depth of Boring Below Existing Ground Surface (ft.)	Percolation Testing Conducted Between Depths (ft.)	Infiltration Rate (in./hr.)
B7	15	10 to 15	30.3
B8	15	10 to 15	37.0

At the completion of the percolation testing, the PVC casing was removed from the percolation testing well, and the resulting hole was backfilled with on-site soils to the ground surface.

Stormwater Disposal Recommendations

Based on the results of the exploration, testing and research, it is the finding of this firm that on-site stormwater infiltration disposal is feasible from a geotechnical standpoint. The potential infiltration system is not expected to impact the neighboring or proposed developments, provided the advice and recommendations presented herein are implemented during design and construction.

The native site soils encountered during the geotechnical explorations conducted by this firm consist mainly of sandy soils suitable for stormwater infiltration. The previous section of this report presents the anticipated infiltration rates of selected soil layers. These infiltration rates may be utilized by the civil engineer for the design of a stormwater infiltration system suitable for the project.

Any proposed stormwater infiltration system should be located at least 10 feet away from any building or private property line. The final location and design of the proposed infiltration system shall be reviewed and approved by this office prior to construction.

The infiltration system should permit percolation below a depth of 10 feet below grade. The alluvial deposits encountered below a depth of 10 feet should allow stormwater to percolate in a generally vertical manner. Therefore, there is no potential for creating a perched water condition.

The onsite soils are in the very low expansion range, and are not susceptible to hydroconsolidation. The site is not located in a hillside area and no slopes are nearby. The site is not located in an area considered susceptible to liquefaction.

It is recommended that the design team, including the structural engineer, waterproofing consultant, plumbing engineer, environmental engineer and landscape architect be consulted in regards to the design and construction of filtration systems. The design and construction of stormwater infiltration systems is not the responsibility of the geotechnical engineer. However, based on the experience of this firm, it is recommended that several aspects of the use of such facilities should be considered by the design and construction team:

- All infiltration devices should be provided with overflow protection. Once the device is full of water, additional water flowing to the device should be diverted to another acceptable disposal area, or disposed offsite in an acceptable manner.

- All connections associated with stormwater infiltration systems should be sealed and water-tight. Water leaking into the subgrade soils can lead to loss of strength, piping, erosion, settlement and/or expansion of the effected earth materials.

- Excavations proposed for the installation of stormwater systems should comply with the "Temporary Excavations" sections of this geotechnical engineering investigation, as well as CalOSHA Regulations where applicable.

- Caving should be expected during drilling of any potential drywells. Where caving occurs, it will be necessary to utilize casing to maintain an open shaft. Cobbles and gravel should be expected during drilling.

DESIGN REVIEW

Engineering of the proposed project should not begin until approval of the geotechnical report by the Building Official is obtained in writing. Significant changes in the geotechnical recommendations may result during the building department review process.

It is recommended that the geotechnical aspects of the project be reviewed by this firm during the design process. This review provides assistance to the design team by providing specific recommendations for particular cases, as well as review of the proposed construction to evaluate whether the intent of the recommendations presented herein are satisfied.

CONSTRUCTION MONITORING

Geotechnical observations and testing during construction are considered to be a continuation of the geotechnical investigation. It is critical that this firm review the geotechnical aspects of the project during the construction process. Compliance with the design concepts, specifications or recommendations during construction requires review by this firm during the course of construction. All foundations should be observed by a representative of this firm prior to placing concrete or steel. Any fill which is placed should be observed, tested, and verified if used for engineered purposes. Please advise Geotechnologies, Inc. at least twenty-four hours prior to any required site visit.

If conditions encountered during construction appear to differ from those disclosed herein, notify Geotechnologies, Inc. immediately so the need for modifications may be considered in a timely manner.

It is the responsibility of the contractor to ensure that all excavations and trenches are properly sloped or shored. All temporary excavations should be cut and maintained in accordance with applicable OSHA rules and regulations.

EXCAVATION CHARACTERISTICS

The exploration performed for this investigation is limited to the geotechnical excavations described. Direct exploration of the entire site would not be economically feasible. The owner, design team and contractor must understand that differing excavation and drilling conditions may be encountered based on boulders, gravel, oversize materials, groundwater and many other conditions. Fill materials, especially when they were placed without benefit of modern grading codes, regularly contain materials which could impede efficient grading and drilling. Southern California sedimentary bedrock is known to contain variable layers which reflect differences in depositional environment. Such layers may include abundant gravel, cobbles and boulders. Similarly bedrock can contain concretions. Concretions are typically lenticular and follow the bedding. They are formed by mineral deposits. Concretions can be very hard. Excavation and drilling in these areas may require full size equipment and coring capability. The contractor should be familiar with the site and the geologic materials in the vicinity.

CLOSURE AND LIMITATIONS

The purpose of this report is to aid in the design and completion of the described project. Implementation of the advice presented in this report is intended to reduce certain risks associated with construction projects. The professional opinions and geotechnical advice contained in this report are sought because of special skill in engineering and geology and were prepared in accordance with generally accepted geotechnical engineering practice. Geotechnologies, Inc. has a duty to exercise the ordinary skill and competence of members of the engineering profession. Those who hire Geotechnologies, Inc. are not justified in expecting infallibility, but can expect reasonable professional care and competence.

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the geologic conditions do not deviate from those disclosed in the investigation. If any variations are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geotechnologies, Inc. should be notified so that supplemental recommendations can be prepared.

This report is issued with the understanding that it is the responsibility of the owner, or the owner's representatives, to ensure that the information and recommendations contained herein are brought to the attention of the project architect and engineer and are incorporated into the plans. The owner is also responsible to see that the contractor and subcontractors carry out the geotechnical recommendations during construction.

The findings of this report are valid as of the date of this report. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside control of this firm. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Geotechnical observations and testing during construction is considered to be a continuation of the geotechnical investigation. It is, therefore, most prudent to employ the consultant performing the initial investigative work to provide observation and testing services during construction. This practice enables the project to flow smoothly from the planning stages through to completion.

Should another geotechnical firm be selected to provide the testing and observation services during construction, that firm should prepare a letter indicating their assumption of the responsibilities of geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for review. The letter should acknowledge the concurrence of the new geotechnical engineer with the recommendations presented in this report.

EXCLUSIONS

Geotechnologies, Inc. does not practice in the fields of methane gas, radon gas, environmental engineering, waterproofing, dewatering organic substances or the presence of corrosive soils or wetlands which could affect the proposed development including mold and toxic mold. Nothing in this report is intended to address these issues and/or their potential effect on the proposed development. A competent professional consultant should be retained in order to address environmental issues, waterproofing, organic substances and wetlands which might effect the proposed development.

GEOTECHNICAL TESTING

Classification and Sampling

The soil is continuously logged by a representative of this firm and classified by visual examination in accordance with the Unified Soil Classification system. The field classification is verified in the laboratory, also in accordance with the Unified Soil Classification System. Laboratory classification may include visual examination, Atterberg Limit Tests and grain size distribution. The final classification is shown on the excavation logs.

Samples of the geologic materials encountered in the exploratory excavations were collected and transported to the laboratory. Undisturbed samples of soil are obtained at frequent intervals. Unless noted on the excavation logs as an SPT sample, samples acquired while utilizing a

hollow-stem auger drill rig are obtained by driving a thin-walled, California Modified Sampler with successive 30-inch drops of a 140-pound automatic-trip hammer. The soil is retained in brass rings of 2.50 inches outside diameter and 1.00 inch in height. The central portion of the samples are stored in close fitting, waterproof containers for transportation to the laboratory. Samples noted on the excavation logs as SPT samples are obtained in general accordance with the most recent revision of ASTM D 1586. Samples are retained for 30 days after the date of the geotechnical report.

Moisture and Density Relationships

The field moisture content and dry unit weight are determined for each of the undisturbed soil samples, and the moisture content is determined for SPT samples in general accordance with the most recent revision of ASTM D 4959 or ASTM D 4643. This information is useful in providing a gross picture of the soil consistency between exploration locations and any local variations. The dry unit weight is determined in pounds per cubic foot and shown on the “Excavation Logs”, A-Plates. The field moisture content is determined as a percentage of the dry unit weight.

Direct Shear Testing

Shear tests are performed in general accordance with the most recent revision of ASTM D 3080 with a strain controlled, direct shear machine manufactured by Soil Test, Inc. or a Direct Shear Apparatus manufactured by GeoMatic, Inc. The rate of deformation ranges between approximately 0.005 and 0.025 inches per minute. Each sample is sheared under varying confining pressures in order to determine the Mohr-Coulomb shear strength parameters of the cohesion intercept and the angle of internal friction. Samples are generally tested in an artificially saturated condition. Depending upon the sample location and future site conditions, samples may be tested at field moisture content. The results are plotted on the "Shear Test Diagram," B-Plates.

The most recent revision of ASTM 3080 limits the particle size to 10 percent of the diameter of the direct shear test specimen. The sheared sample is inspected by the laboratory technician running the test. The inspection is performed by splitting the sample along the sheared plane and observing the soils exposed on both sides. Where oversize particles are observed in the shear plane, the results are discarded and the test run again with a fresh sample.

Consolidation Testing

Settlement predictions of the soil's behavior under load are made on the basis of the consolidation tests in general accordance with the most recent revision of ASTM D 2435. The consolidation apparatus is designed to receive a single one-inch high ring. Loads are applied in several increments in a geometric progression, and the resulting deformations are recorded at selected time intervals. Porous stones are placed in contact with the top and bottom of each specimen to permit addition and release of pore fluid. Samples are generally tested at increased moisture content to determine the effects of water on the bearing soil. The normal pressure at which the water is added is noted on the drawing. Results are plotted on the "Consolidation Test," C-Plates.

Expansion Index Testing

The expansion tests performed on the remolded samples are in accordance with the Expansion Index testing procedures, as described in the most recent revision of ASTM D 4829. The soil sample is compacted into a metal ring at a saturation degree of 50 percent. The ring sample is then placed in a consolidometer, under a vertical confining pressure of 1 lbf/square inch and inundated with distilled water. The deformation of the specimen is recorded for a period of 24 hour or until the rate of deformation becomes less than 0.0002 inches/hour, whichever occurs first. The expansion index, EI, is determined by dividing the difference between final and initial

height of the ring sample by the initial height, and multiplied by 1,000. Results are presented in Plate D of this report.

Laboratory Compaction Characteristics

The maximum dry unit weight and optimum moisture content of a soil are determined in general accordance with the most recent revision of ASTM D 1557. A soil at a selected moisture content is placed in five layers into a mold of given dimensions, with each layer compacted by 25 blows of a 10 pound hammer dropped from a distance of 18 inches subjecting the soil to a total compactive effort of about 56,000 pounds per cubic foot. The resulting dry unit weight is determined. The procedure is repeated for a sufficient number of moisture contents to establish a relationship between the dry unit weight and the water content of the soil. The data when plotted represent a curvilinear relationship known as the compaction curve. The values of optimum moisture content and modified maximum dry unit weight are determined from the compaction curve. Results are presented in Plate D of this report.

REFERENCES

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Ishihara, K. 1985, Stability of Natural Deposits During Earthquakes, Proceedings of the Eleventh International Conference on Soil Mechanics and Foundation Engineering, San Francisco, CA, Volume 1, P. 321-376, August.

Martin, G.R., and Lew, M., 1999, Co-chairs and Editors of the Implementation Committee, "Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction Hazards in California," Organized through the Southern California Earthquake Center, University of Southern California.

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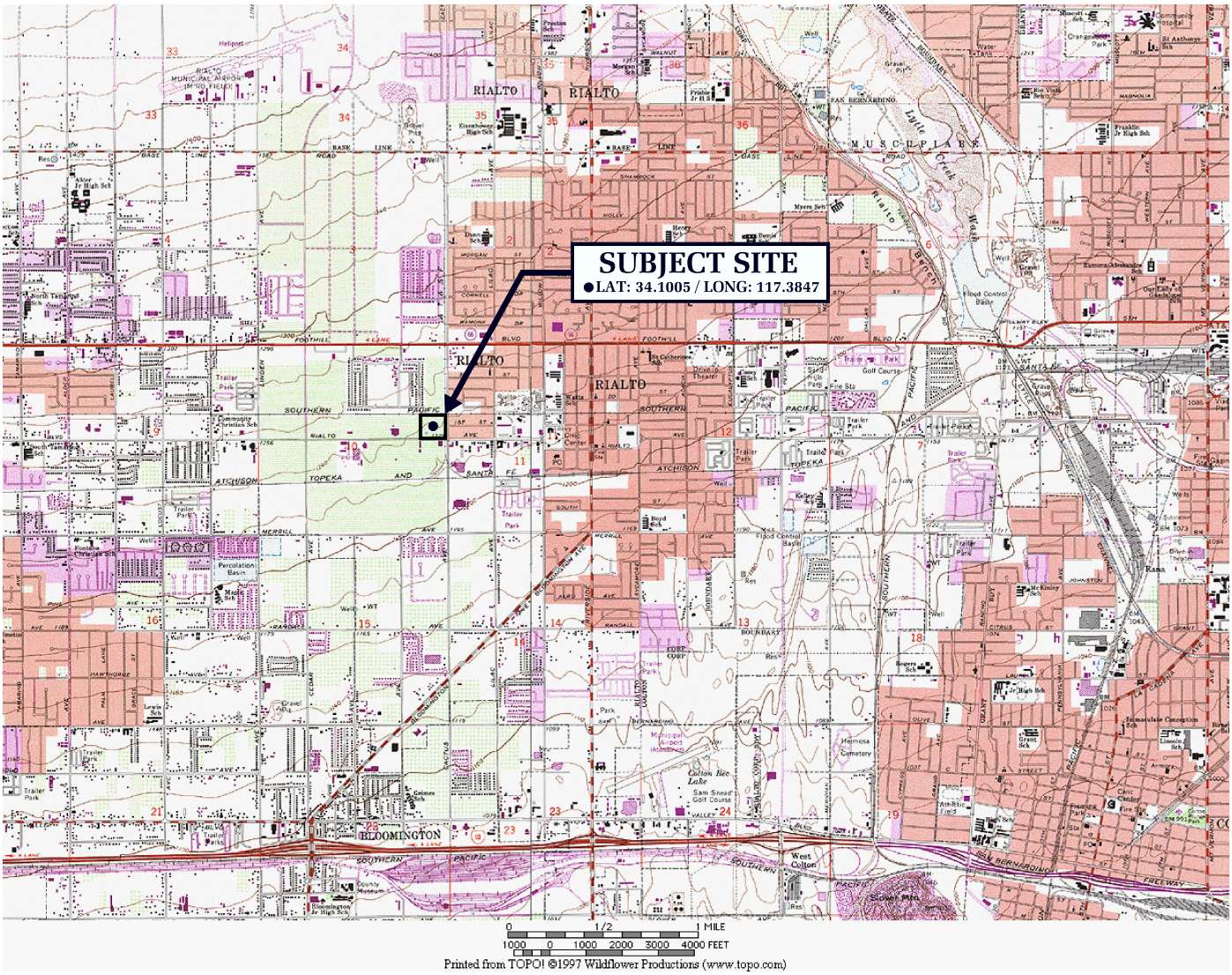


N

Geotechnologies, Inc

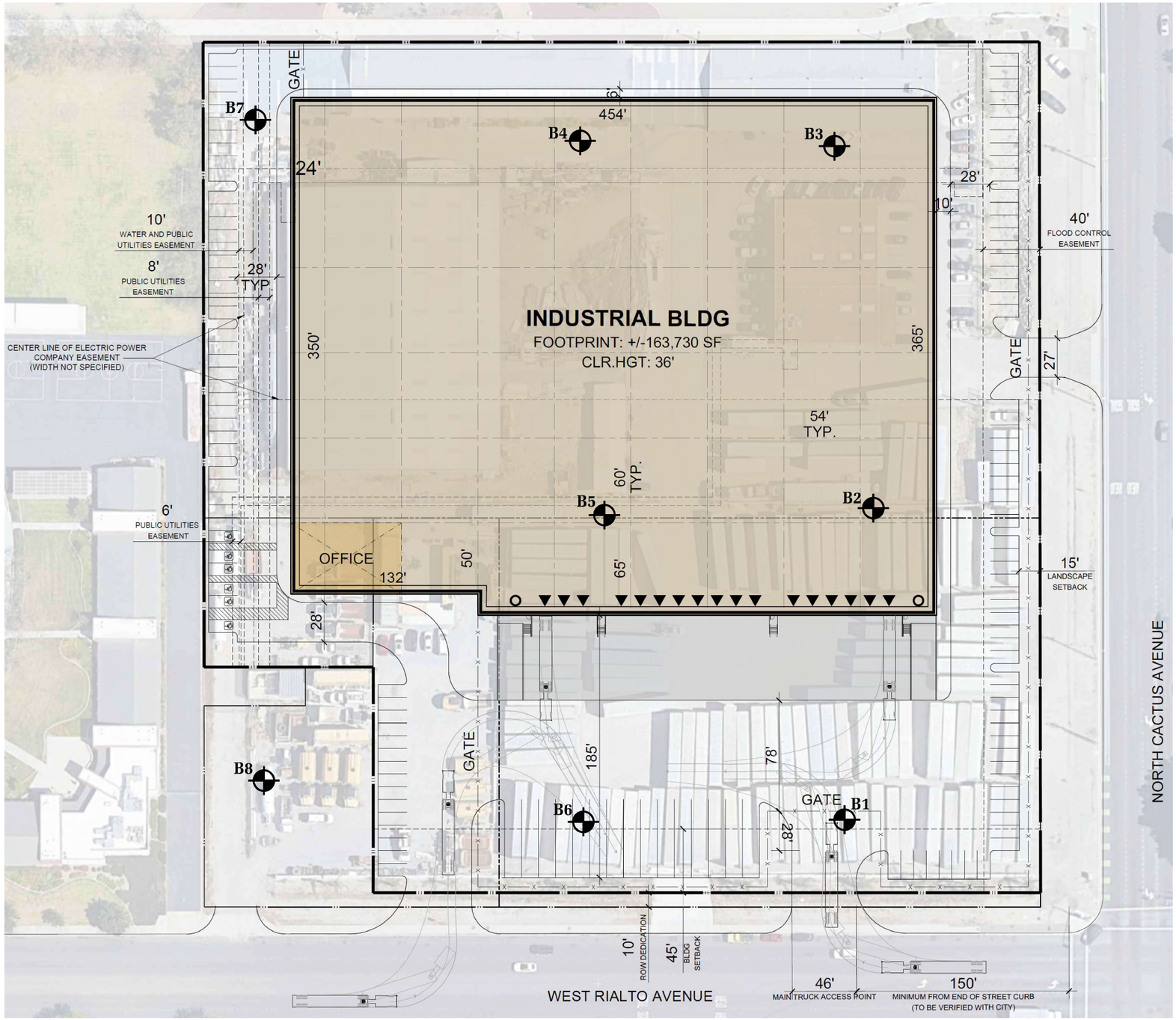
REFERENCE: U.S.G.S. TOPOGRAPHIC MAPS, 7.5 MINUTE SERIES, FONTANA, CA QUADRANGLE

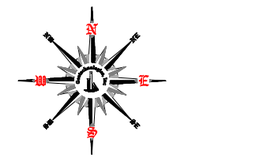
VICINITY MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257





LEGEND

B8 LOCATION & NUMBER OF BORING

REFERENCE: CONCEPTUAL SITE PLAN BY WARE MALCOMB DATED 05/23/22

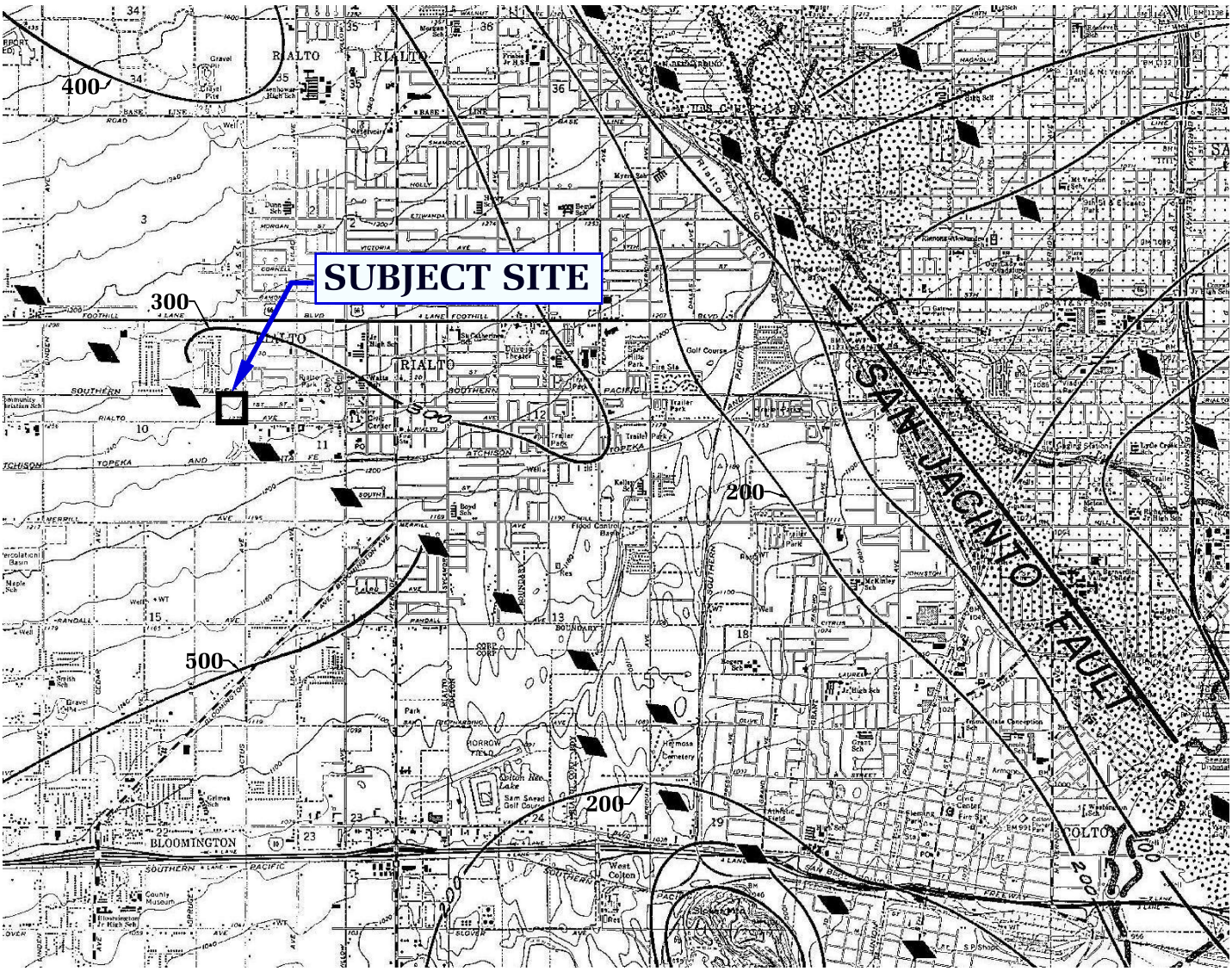
Geotechnologies, Inc.
Consulting Geotechnical Engineers

PLOT PLAN

LINCOLN PROPERTY COMPANY

File No.: 22257

Date: May 2022



SCALE IN MILES

0 1 2

300 Depth to groundwater in feet

N

REFERENCE:

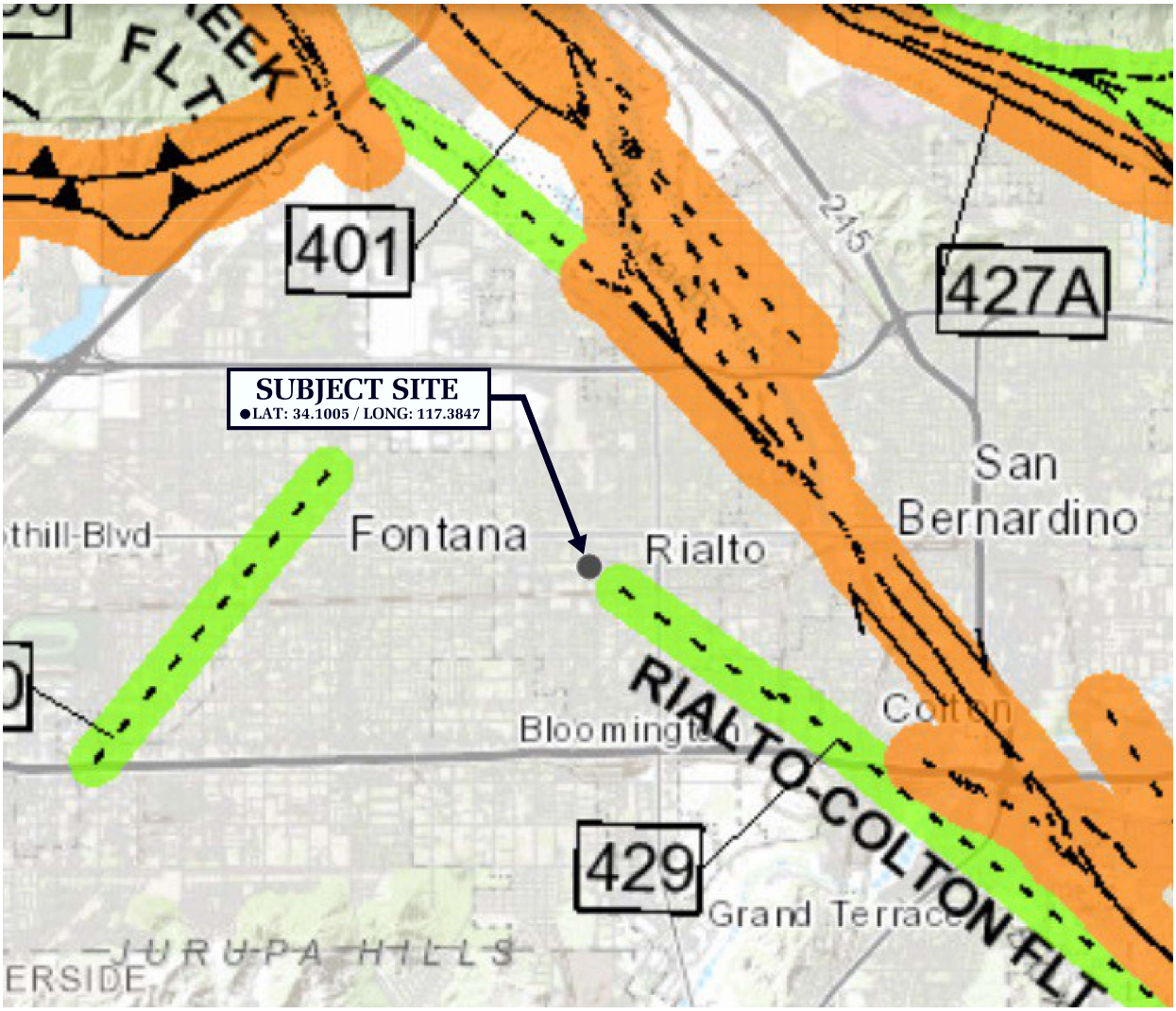
PLATE 4B, SPECIAL REPORT 113, 1974, MAP SHOWING SURFACE WATER AND MARSHES IN THE LATE 1800's, AND GENERALIZED DEPTH TO GROUNDWATER (1960), UPPER SANTA ANA VALLEY, SOUTHWESTERN SAN BERNARDINO COUNTY, CA

HISTORICALLY HIGHEST GROUNDWATER LEVELS

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE No. 22257



Holocene fault displacement (during past 11,700 years) without historic record.

Late Quaternary fault displacement (during past 700,000 years).

Quaternary fault (age undifferentiated).

Pre-Quaternary fault (older that 1.6 million years) or fault without recognized Quaternary displacement.

N

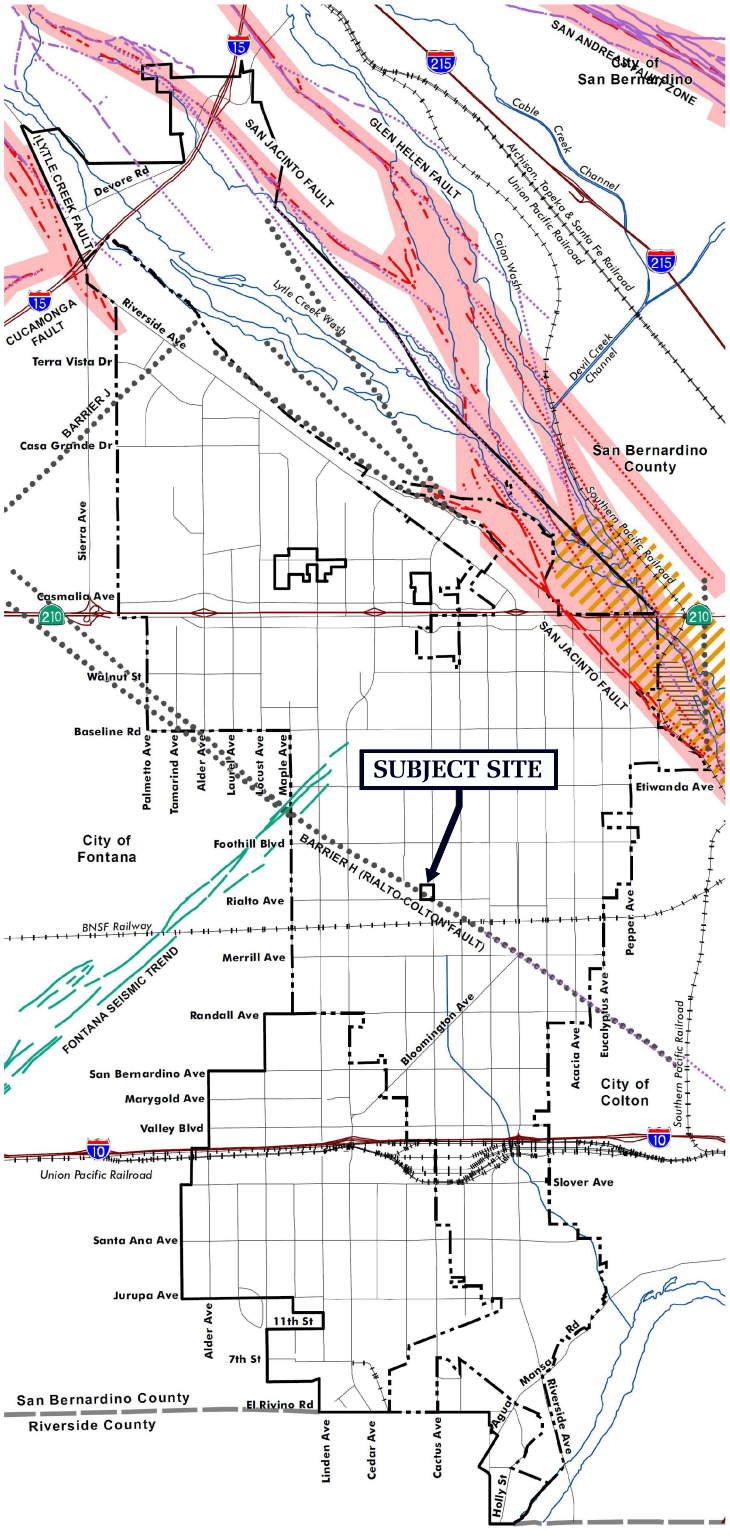
REFERENCE: FAULT ACTIVITY MAP OF CALIFORNIA (CGS, 2010)

FAULT ACTIVITY MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257



Seismic and Geologic Hazards

(Faults: Solid where location is known, dashed where approximate, dotted where inferred.)

- Fault (Morton and Miller, 2003)
- Alquist-Priolo Earthquake Fault (CGS, 2002)
- Alquist-Priolo Earthquake Fault Zone (CGS, 2002)
- Lineaments identified in aerial photos
- Groundwater barrier (Dutcher and Garrett, 1963) by F. Jordan (personal communication, 2002)
- Moderate liquefaction susceptibility. Sediment are young (less than 10,000 years old), unconsolidated, with fine-grained layers, and there has been artesian well activity historically.
- Approximate bog, swap, or marsh land area in the early 1900s

Base Map Features

- Rialto Incorporated Area
- Rialto Sphere of Influence
- County Boundary
- Freeway/Highway
- Local Road
- Railroad
- Hydrological Feature

Notes:
This map is intended for general land use planning only. Information on this map is not sufficent to serve as a substitute for detailed geologic investigations of individual sites, nor does it satisfy the evaluation requirements set forth in geologic hazard regulations.

Sources:
Earth Consultants International (ECI);
Morton and Miller (2003); Alquist-Priolo Earthquake Fault Zones in San Bernardino South (1977), San Bernardino North (1974), and Devore (1995) Quads. [reproduced with permission CGS CD-ROM 2001-05 (2002)]; Jennings (1994) [reproduced with permission CDMG, CD-ROM (2000)]; Dutcher and Garrett (1963); Jordan, F. (personal communications (2002); USGS 7.5-minute Digital Elevation Model and W.C. Mendenhall (1904)

0 0.5 1 1.5 2 Miles

REFERENCE: RIALTO GENERAL PLAN (DECEMBER, 2010)

CITY OF RIALTO FAULT MAP

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257

BORING LOG NUMBER 1

Lincoln Property Company **Date: 4/12/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
				-		
				1 --		
				-		
				2 --		
2.5	45	2.2	125.3	-		
	50/5"			3 --		
				-	SP/SW	NATIVE SOILS: Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				4 --		
				-		
5	100/9"	1.6	115.3	5 --		
				-		
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	90	4.5	121.0	10 --		
				-	SP	Sand, yellowish brown, moist, very dense, fine to medium grained, few pebbles
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	100/10"	2.7	116.5	15 --		
				-	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	100/9"	5.6	102.5	20 --		
				-		Total Depth: 20 Feet No Water Fill To 3 Feet
				21 --		
				-		
				22 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				-		
				23 --		
				-		
				24 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				25 --		
				-		

BORING LOG NUMBER 2

Lincoln Property Company **Date: 4/12/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		FILL: Silty Sand, yellowish brown, moist, medium dense, fine grained, few cobbles
				-		
				1 --		
				-		
				2 --		
2.5	5	10.1	100.1	-		
				3 --		
				-	SM	NATIVE SOILS: Silty Sand, yellowish brown, moist, medium dense, fine grained
				4 --		
				-		
5	16	6.2	SPT	5 --		
				-		
				6 --		
				-		
				7 --		
7.5	56	12.9	119.1	-		
				8 --		yellow and light brown, medium dense to dense, fine to medium grained
				-		
				9 --		
				-		
10	31	2.7	SPT	10 --		
				-	SP/SW	Sand to Gravelly Sand, dark and yellowish brown, moist, medium dense, fine to coarse grained
				11 --		
				-		
				12 --		
12.5	79	3.4	110.3	-		
				13 --		
				-		
				14 --		
				-		
15	49	3.3	SPT	15 --		
				-		dense
				16 --		
				-		
				17 --		
17.5	90	2.8	124.6	-		
				18 --		
				-		
				19 --		
				-		
20	49	2.9	SPT	20 --		
				-		
				21 --		
				-		
				22 --		
22.5	45	2.6	124.0	-		
	50/4"			23 --	SP	Cobbly Sand, grayish brown, slightly moist, very dense, fine to coarse grained
				-		
				24 --		
				-		
25	40	2.3	SPT	25 --		
	50/3"			-	SP/SW	Sand, grayish brown, moist, very dense, fine to coarse grained, some pebbles

BORING LOG NUMBER 2

Lincoln Property Company

File No. 22257

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description
				- 26 -- - 27 --		**NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.**
27.5	79	5.1	128.5	- 28 -- - 29 --		**Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted**
30	40 50/4"	3.1	SPT	- 30 -- - 31 --		**SPT=Standard Penetration Test**
32.5	100/9"	2.3	122.1	- 32 -- - 33 --		
35	88	3.4	SPT	- 34 -- - 35 --		
37.5	100/8"	2.8	116.4	- 36 -- - 37 --		
40	80	3.6	SPT	- 38 -- - 39 -- - 40 --	SP	Sand, yellow and grayish brown, moist, very dense, fine to medium grained
42.5	100/9"	2.3	118.9	- 41 -- - 42 --	SP/SW	Sand to Gravelly Sand, grayish brown, moist, very dense, fine to coarse grained
45	69 50/3"	3.5	SPT	- 43 -- - 44 -- - 45 --		
47.5	89	4.2	114.8	- 46 -- - 47 --	SP	Sand, yellowish brown, moist, very dense, fine to medium grained
50	74	3.0	SPT	- 48 -- - 49 -- - 50 --		**Total Depth: 50 Feet No Water Fill To 3 Feet**

BORING LOG NUMBER 3

Lincoln Property Company **Date: 4/12/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		3 Inch Asphalt, No Base
				-		
				1 --		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
				-		
				2 --		
2.5	81	6.5	118.2	-		
				3 --		
				-	SM/SP	NATIVE SOILS: Silty Sand to Sand, dark brown, moist, dense, fine grained, few cobbles
				4 --		
				-		
5	74	4.1	133.5	5 --		
	50/4"			-	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	88	15.4	116.6	10 --		
				-	SM/SP	Silty Sand to Sand, dark and yellowish brown, moist, dense, fine grained, few cobbles
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	42	3.6	124.8	15 --		
	50/5"			-	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	100/9"	2.7	114.8	20 --		
				-		Total Depth: 20 Feet No Water Fill To 3 Feet
				21 --		
				-		
				22 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				-		
				23 --		
				-		
				24 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				25 --		
				-		

BORING LOG NUMBER 4

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Concrete Slab
				0 --		FILL: Silty Sand to Sand, dark brown, moist, medium dense, fine grained, few cobbles
				-		
				1 --		
				-		
				2 --		
2.5	83	6.7	129.1	-		
				3 --		
				-	SM/SP	NATIVE SOILS: Silty Sand to Sand, dark and yellowish brown, moist, dense, fine grained, few cobbles
				4 --		
				-		
5	72	11.9	121.3	5 --	SM	Silty Sand, dark brown, moist, dense, fine grained, few cobbles
				-		
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	45 50/4"	3.6	118.2	10 --	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				-		
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	43 50/5"	4.1	116.8	15 --		
				-		
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	40 50/3"	3.7	116.8	20 --		Total Depth: 20 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
				25 --		
				-		

BORING LOG NUMBER 5

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		
				-		
				1 --		
				-		
				2 --		
2.5	40 50/5"	1.5	129.0	-		
				3 --	SP/SW	NATIVE SOILS: Sand with Pebbles, dark and yellowish brown, moist, very dense, fine to coarse grained
				-		
				4 --		
				-		
5	45 50/4"	7.6	115.1	5 --	SM	Silty Sand, dark brown, moist, very dense, fine grained, few cobbles
				-		
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	88	2.0	117.9	10 --	SP	Sand, dark brown, moist, very dense, fine to medium grained
				-		
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	44 50/3"	3.3	122.4	15 --	SP	Sand, dark brwon, moist, very dense, fine to medium grained
				-		
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	100/8"	3.5	107.4	20 --		Total Depth: 20 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
				25 --		
				-		

BORING LOG NUMBER 6

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		FILL: Silty Sand, dark brown, moist, medium dense, fine grained
				-		
				1 --		
				-		
				2 --		
2.5	40	1.8	129.0	-		
	50/5"			3 --		
				-	SW	NATIVE SOILS: Gravelly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				4 --		
				-		
5	89	1.5	122.2	5 --		
				-		
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	95	2.3	122.0	10 --		
				-		
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	42	2.0	113.7	15 --		
	50/5"			-	SP	Sand, dark and yellowish brown, moist, very dense, fine to medium grained
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
20	100/9"	2.2	115.1	20 --		
				-		Total Depth: 20 Feet No Water Fill To 3 Feet
				21 --		
				-		
				22 --		NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual.
				-		
				23 --		
				-		
				24 --		Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				25 --		
				-		

BORING LOG NUMBER 7

Lincoln Property Company **Date: 4/13/22**

File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Concrete Slab
				0 --		5 Inch Concrete, No Base
				-		
				1 --		FILL: Silty Sand to Sand, dark and yellowish brown, moist, medium dense, fine grained, minor cobbles
				-		
				2 --		
2.5	71	2.6	117.3	-		
				3 --		
				-	SP	NATIVE SOILS: Sand, yellowish brown, moist, dense, fine grained
				4 --		
				-		
5	40 50/5"	1.7	130.2	5 --	SP/SW	Sand to Cobbly Sand, yellowish brown, moist, very dense, fine to coarse grained
				-		
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	45 50/4"	3.0	123.3	10 --		
				-		
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		
				-		
15	100/10"	2.7	122.9	15 --		Total Depth: 15 Feet No Water Fill To 3 Feet NOTE: The stratification lines represent the approximate boundary between earth types; the transition may be gradual. Used 8-inch diameter Hollow-Stem Auger 140-lb. Automatic Hammer, 30-inch drop Modified California Sampler used unless otherwise noted
				-		
				16 --		
				-		
				17 --		
				-		
				18 --		
				-		
				19 --		
				-		
				20 --		
				-		
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
				25 --		
				-		

BORING LOG NUMBER 8

Lincoln Property Company **Date: 4/13/22**

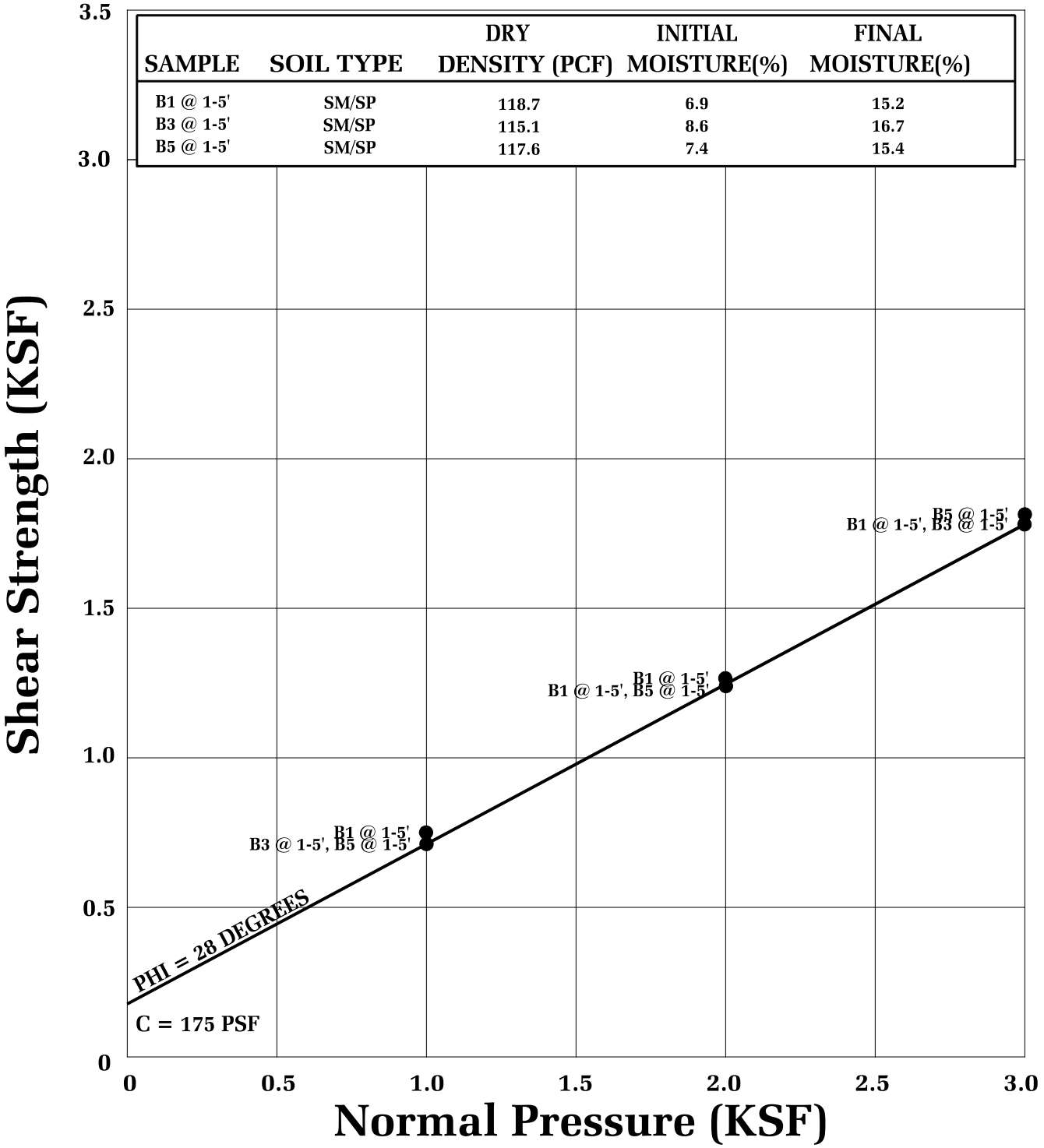
File No. 22257 **Method: 8-Inch Diameter Hollow Stem Auger**

ln

Sample Depth ft.	Blows per ft.	Moisture content %	Dry Density p.c.f.	Depth in feet	USCS Class.	Description Surface Conditions: Bare Ground
				0 --		FILL: Silty sand with Cobbles, dark brown, moist, medium dense, fine grained
				-		
				1 --		
				-		
				2 --		
2.5	100/10"	4.5	109.3	-		
				3 --		
				-		
				4 --		
				-		
5	100/8"	1.9	126.3	5 --		
				-	SW	NATIVE SOILS: Sand with Cobbles, dark and yellowish brown, moist, very dense, fine to coarse grained
				6 --		
				-		
				7 --		
				-		
				8 --		
				-		
				9 --		
				-		
10	100/9"	3.3	121.5	10 --		
				-	SP/SW	Sand to Cobbly Sand, dark and yellowish brown, moist, very dense, fine to coarse grained
				11 --		
				-		
				12 --		
				-		
				13 --		
				-		
				14 --		Sand, yellowish brown, moist, very dense, fine to medium
				-	SP	grained, few pebbles
15	42	3.1	114.1	15 --		
	50/4"			-		Total Depth: 15 Feet
				16 --		No Water
				-		Fill To 5 Feet
				17 --		
				-		NOTE: The stratification lines represent the approximate
				18 --		boundary between earth types; the transition may be gradual.
				-		
				19 --		Used 8-inch diameter Hollow-Stem Auger
				-		140-lb. Automatic Hammer, 30-inch drop
				20 --		Modified California Sampler used unless otherwise noted
				-		
				21 --		
				-		
				22 --		
				-		
				23 --		
				-		
				24 --		
				-		
				25 --		
				-		

BULK SAMPLE REMOLDED TO 90 PERCENT OF THE MAXIMUM LABORATORY DENSITY

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE(%)	FINAL MOISTURE(%)
B1 @ 1-5'	SM/SP	118.7	6.9	15.2
B3 @ 1-5'	SM/SP	115.1	8.6	16.7
B5 @ 1-5'	SM/SP	117.6	7.4	15.4



● Direct Shear, Saturated

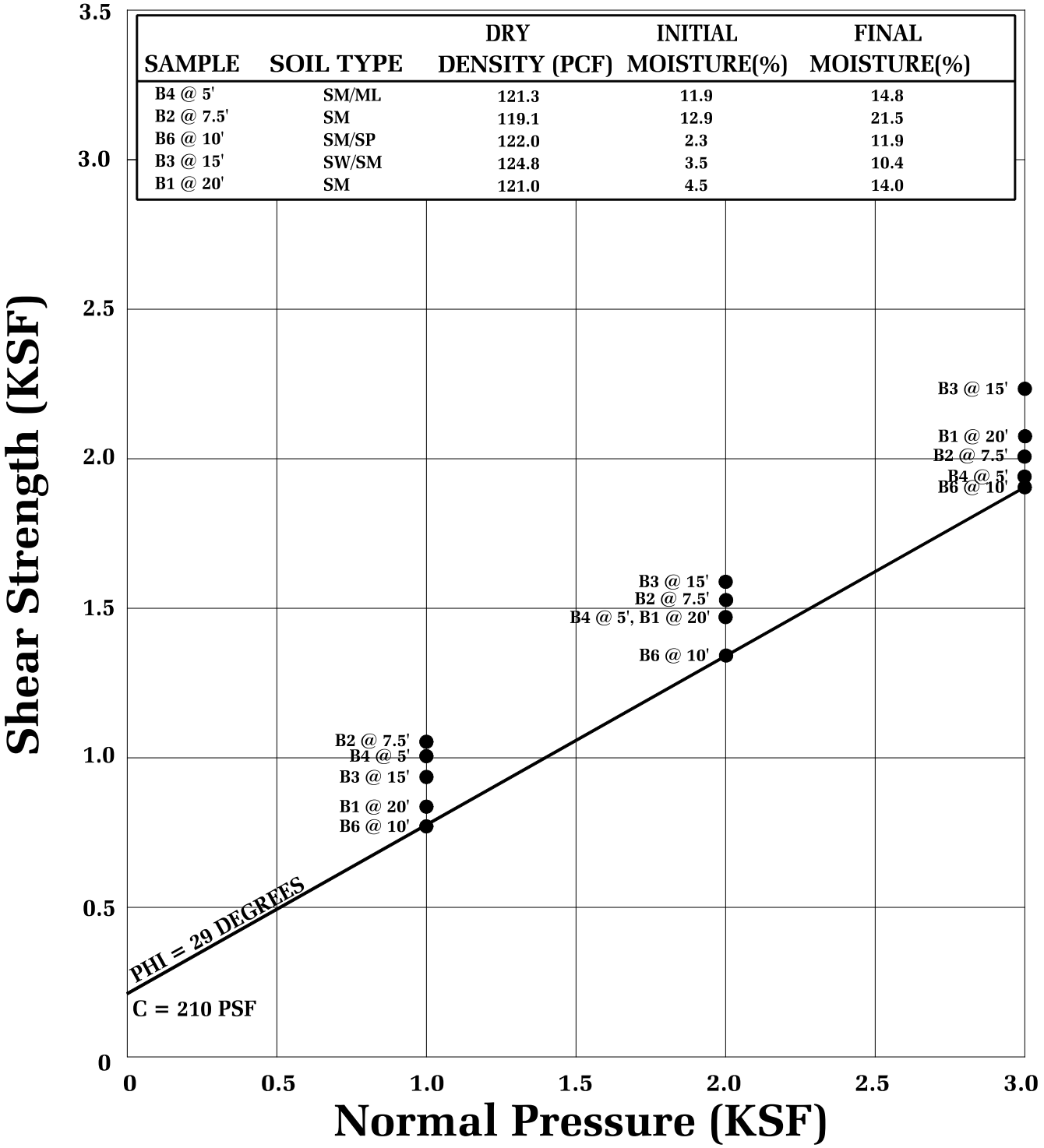
SHEAR TEST DIAGRAM

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | PLATE: B-1

SAMPLE	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE(%)	FINAL MOISTURE(%)
B4 @ 5'	SM/ML	121.3	11.9	14.8
B2 @ 7.5'	SM	119.1	12.9	21.5
B6 @ 10'	SM/SP	122.0	2.3	11.9
B3 @ 15'	SW/SM	124.8	3.5	10.4
B1 @ 20'	SM	121.0	4.5	14.0



● Direct Shear, Saturated

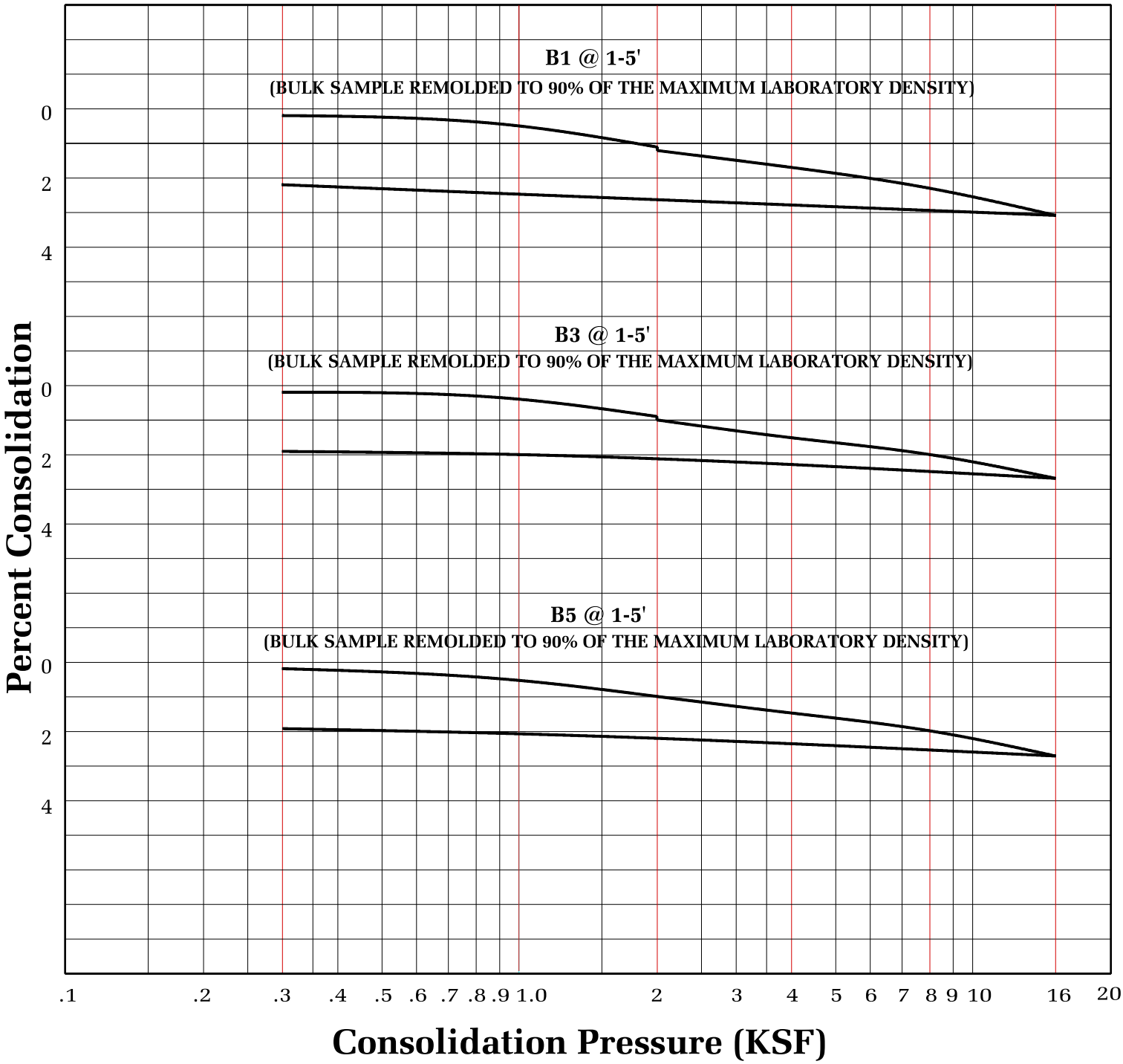
SHEAR TEST DIAGRAM

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | PLATE: B-2

WATER ADDED AT 2 KSF



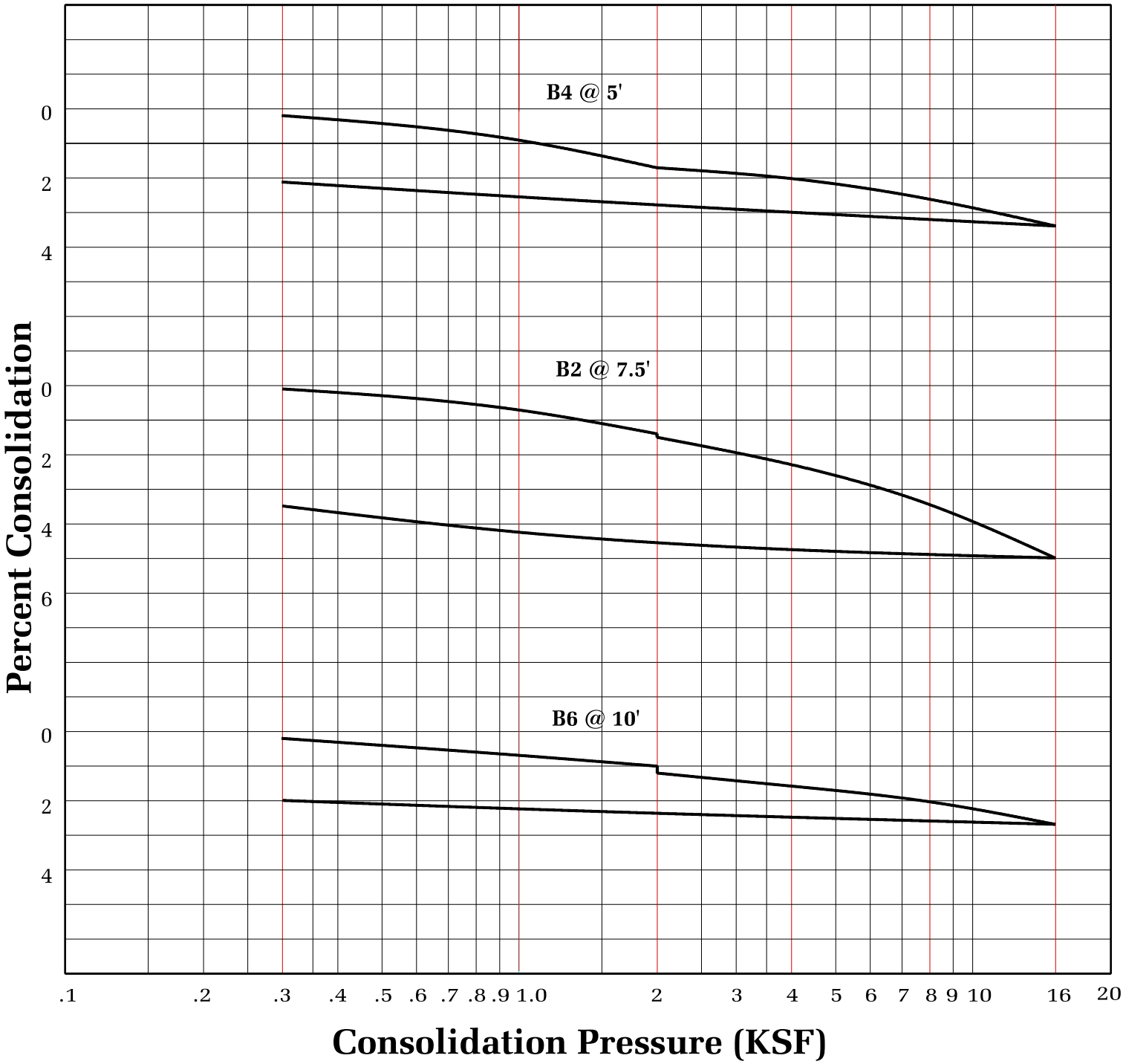
CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | **PLATE: C-1**

WATER ADDED AT 2 KSF

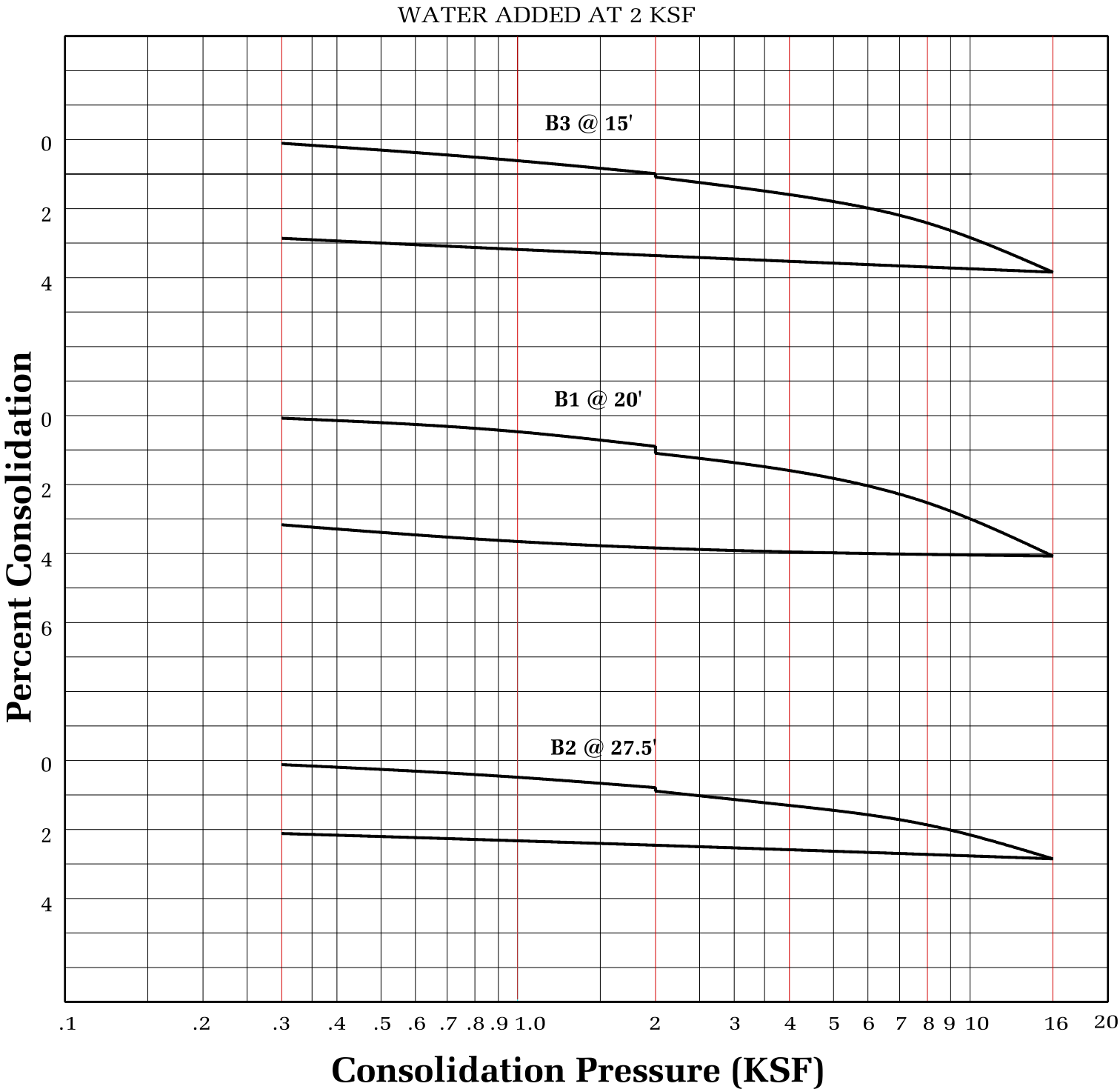


CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | **PLATE: C-2**



CONSOLIDATION TEST

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | **PLATE: C-3**

ASTM D 1557

SAMPLE	B1 @ 1- 3'	B3 @ 1-3'	B5 @ 1-3'
SOIL TYPE:	SM/SP	SM/SP	SM/SP
MAXIMUM DENSITY pcf.	131.9	127.9	130.7
OPTIMUM MOISTURE %	6.9	8.6	7.4

ASTM D 4829

SAMPLE	B1 @ 1- 5'	B3 @ 1-5'	B5 @ 1-5'
SOIL TYPE:	SM/SP	SM/SP	SM/SP
EXPANSION INDEX UBC STANDARD 18-2	3	2	3
EXPANSION CHARACTER	VERY LOW	VERY LOW	VERY LOW

SULFATE CONTENT

SAMPLE	B1 @ 1- 5'	B3 @ 1-5'	B5 @ 1-5'
SULFATE CONTENT: (percentage by weight)	< 0.10%	< 0.10%	< 0.10%

COMPACTION/EXPANSION DATA SHEET

Geotechnologies, Inc.
Consulting Geotechnical Engineers

LINCOLN PROPERTY COMPANY

FILE NO. 22257 | PLATE: D

Geotechnologies, Inc.

Test Date: 13-Apr-22
File No. 22257
File Name : Lincoln Property Company

Percolation Rate Calculation for Boring - Porchet Method

Boring Number	7	
Boring Diameter	8	inches
Boring Radius	4	inches
Depth of Boring	15	feet
Length of Casing (dc)	15	feet
Pre-soak Time	2	hours
Measured By	H.C.	

Terms
Δt = Time Interval
Do = Initial Depth to Water
Df = Final Depth to Water
Dt = Total Depth of Test Hole

Reading Number	Clock Time	Elapsed Time	Water Measurement (Do) and (D_f)	Initial Height of Water	Final Height of Water	Change in Height	Average Head	Infiltration Rate Calculation - Porchet Equation
				(Ho)	(Hf)	(ΔH)	Havg	If = [(ΔH*60*r)/(Δt(r + 2Havg)]
		Min	feet	in	in	in	in	in/hour
1	1:15		10.00	60.00	8.40	51.60	34.2	34.2
	1:20	5	14.30					
2	1:30		10.00	60.00	12.00	48.00	36	30.3
	1:35	5	14.00					
3	1:42		10.00	60.00	10.20	49.80	35.1	32.2
	1:47	5	14.15					
4	1:55		10.00	60.00	10.20	49.80	35.1	32.2
	2:00	5	14.15					
5	2:10		10.00	60.00	10.20	49.80	35.1	32.2
	2:15	5	14.15					

Lowest Calculated Infiltration Rate = 30.3 in/hr
(Safety Factor Not Applied)

Geotechnologies, Inc.

Test Date: 13-Apr-22
File No. 22257
File Name : Lincoln Property Company

Percolation Rate Calculation for Boring - Porchet Method

Boring Number	8	
Boring Diameter	8	inches
Boring Radius	4	inches
Depth of Boring	15	feet
Length of Casing (dc)	15	feet
Pre-soak Time	2	hours
Measured By	H.C.	

Terms
Δt = Time Interval
Do = Initial Depth to Water
Df = Final Depth to Water
Dt = Total Depth of Test Hole

Reading Number	Clock Time	Elapsed Time	Water Measurement (Do) and (D_f)	Initial Height of Water	Final Height of Water	Change in Height	Average Head	Infiltration Rate Calculation - Porchet Equation
				(Ho)	(Hf)	(ΔH)	Havg	If = [(ΔH*60*r)/(Δt(r + 2Havg)]
		Min	feet	in	in	in	in	in/hour
1	1:15		10.00	60.00	2.40	57.60	31.2	41.6
	1:20	5	14.80					
2	1:30		10.00	60.00	3.60	56.40	31.8	40.0
	1:35	5	14.70					
3	1:42		10.00	60.00	6.00	54.00	33	37.0
	1:47	5	14.50					
4	1:55		10.00	60.00	6.00	54.00	33	37.0
	2:00	5	14.50					
5	2:10		10.00	60.00	6.00	54.00	33	37.0
	2:15	5	14.50					

Lowest Calculated Infiltration Rate = 37.0 in/hr
(Safety Factor Not Applied)

Appendix D

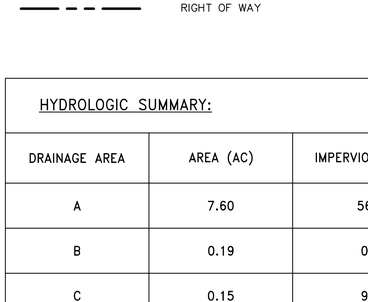
Existing Hydrology Exhibit and Calculations

LEGEND

—575—	EXISTING CONTOUR
	PROPERTY LINE
	DMA BOUNDARY
	FLOW PATH
	FLOW ARROW
NODE 10 50.00 FS	NODE ID AND ELEVATION
X XX	DA NAME DA AREA (IN ACRES)
	RIGHT OF WAY

HYDROLOGIC SUMMARY:

DRAINAGE AREA	AREA (AC)	IMPERVIOUS (%)	TIME OF CONCENTRATION (MIN)	100-YR, 24-HR FLOW (CFS)
A	7.60	56	13.71	18.13
B	0.19	0	6.32	0.74
C	0.15	9	5.80	0.53
TOTAL	7.94	54	–	19.40



VICINITY MAP
THOMAS GUIDE PAGE, 605, F1
NOT TO SCALE



```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
         (c) Copyright 1983-2011 Advanced Engineering Software (aes)
            Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:

                     Kimley-Horn and Associates, Inc.
                            765 The City Drive
                                Suite 200
                             Orange, CA 92868

 ************************* DESCRIPTION OF STUDY *************************
* 160 N Cactus Ave                                                      *
* 100 yr Existing Conditions                                            *
* Kimley-Horn                                                           *
 ************************************************************************

  FILE NAME: CACTUSE.DAT
  TIME/DATE OF STUDY: 17:13 02/22/2023
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED TABLED RAINFALL USED*
  NUMBER OF [TIME,INTENSITY] DATA PAIRS =  5
   1)    5.00;  4.790
   2)   15.00;  2.760
   3)   60.00;  1.500
   4)  120.00;  1.050
   5)  180.00;  0.858
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
```

```
 OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
*USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
 FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   872.00
 ELEVATION DATA: UPSTREAM(FEET) =   1244.10  DOWNSTREAM(FEET) =   1231.90

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   13.708
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.022
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       A        7.60      0.74     0.500    52   13.71
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
 SUBAREA RUNOFF(CFS) =     18.13
 TOTAL AREA(ACRES) =      7.60   PEAK FLOW RATE(CFS) =     18.13

****************************************************************************
 FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   141.83
 ELEVATION DATA: UPSTREAM(FEET) =   1241.40  DOWNSTREAM(FEET) =   1230.10

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.318
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.522
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "BARREN"                   A        0.19      0.18     1.000    93    6.32
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.18
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      0.74
 TOTAL AREA(ACRES) =      0.19   PEAK FLOW RATE(CFS) =      0.74

****************************************************************************
 FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

```
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
  ELEVATION DATA: UPSTREAM(FEET) =   1233.30  DOWNSTREAM(FEET) =   1232.40

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.802
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.627
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  ".4 DWELLING/ACRE"         A        0.15      0.74     0.900    52    5.80
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.900
  SUBAREA RUNOFF(CFS) =      0.53
  TOTAL AREA(ACRES) =      0.15   PEAK FLOW RATE(CFS) =      0.53
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.2  TC(MIN.) =      5.80
  EFFECTIVE AREA(ACRES) =      0.15  AREA-AVERAGED Fm(INCH/HR)=  0.67
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap = 0.900
  PEAK FLOW RATE(CFS)   =       0.53
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```



Appendix E

Proposed Hydrology Exhibit and Calculations

LEGEND

575	PROPOSED CONTOUR
	PROPERTY LINE
	DMA BOUNDARY
	FLOW PATH
	FLOW ARROW
50.00 FS NODE 10	NODE ID AND ELEVATION
A–XX / XX	DA NAME
	DA AREA (IN ACRES)
	RIGHT OF WAY
GB GB	GRADE–BREAK
SD	PROPOSED STORM DRAIN
	NEW OR REPLACED HARDSCAPE AREA
	LANDSCAPE/PLANTER AREA
	UNDERGROUND DETENTION SYSTEM. SIZE PER PLAN.

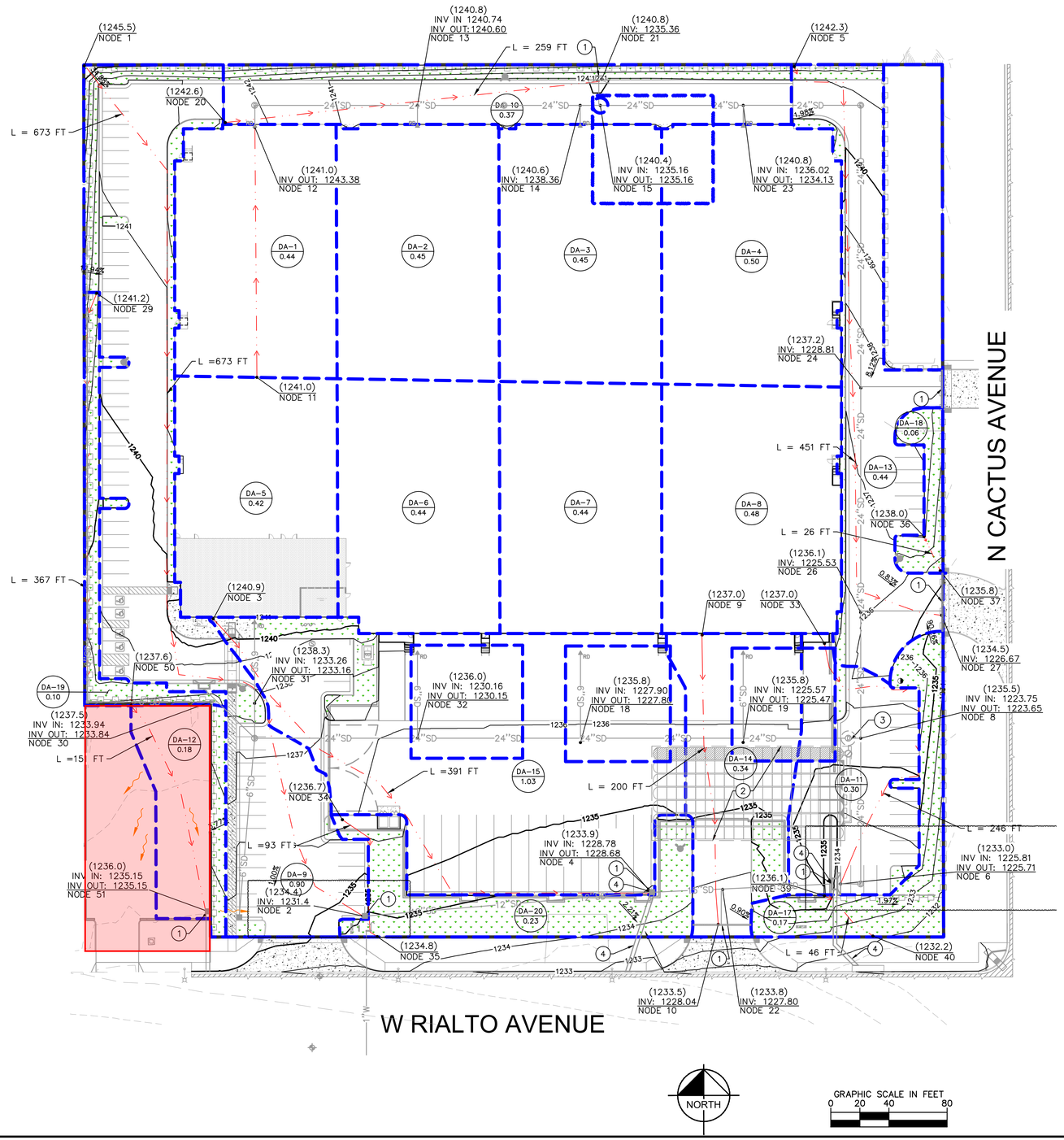
NOTES:

1. STORM DRAIN INLET.
2. STORMTECH CHAMBER SYSTEM PER CIVIL PLANS.
3. CONTECH HYDRODYNAMIC SEPARATOR PER CIVIL PLANS.
4. EMERGENCY OVERFLOW CURB DRAIN.

HYDROLOGIC SUMMARY:

DRAINAGE AREA	AREA (AC)	IMPERVIOUS (%)	100–YR, 24–HR FLOW – UNDETAINED (CFS)	100–YR, 24–HOUR FLOW– DETAINED (CFS)	100–YEAR VOLUME PROVIDED (CF)
DA 1–8	3.62	100	22.69	0	40,828
DA 9	0.90	85			
DA 10	0.37	75			
DA 11	0.30	97			
DA 13	0.44	89			
DA 14	0.34	92			
DA 15	1.03	96			
DA 19	0.10	100			
DA 12	0.18	92	0.74		
DA 17	0.17	100	0.64		
DA 18	0.06	100	0.22		
DA 20	0.23	16	0.80		
TOTAL	7.74	93	25.09	0.00	40,828

REFER TO PROJECT CONSTRUCTION DOCUMENTS FOR PROPOSED STORM DRAIN AND INVERT SIZES.



Kimley»Horn

160 N CACTUS AVE – PROPOSED DRAINAGE MAP – PHASE 1

6/26/2023

LEGEND

575	PROPOSED CONTOUR
	PROPERTY LINE
	DMA BOUNDARY
	FLOW PATH
	FLOW ARROW
50.00 FS NODE 10	NODE ID AND ELEVATION
A–XX / XX	DA NAME
	DA AREA (IN ACRES)
	RIGHT OF WAY
GB GB	GRADE–BREAK
SD	PROPOSED STORM DRAIN
	NEW OR REPLACED HARDSCAPE AREA
	LANDSCAPE/PLANTER AREA
	UNDERGROUND DETENTION SYSTEM. SIZE PER PLAN.

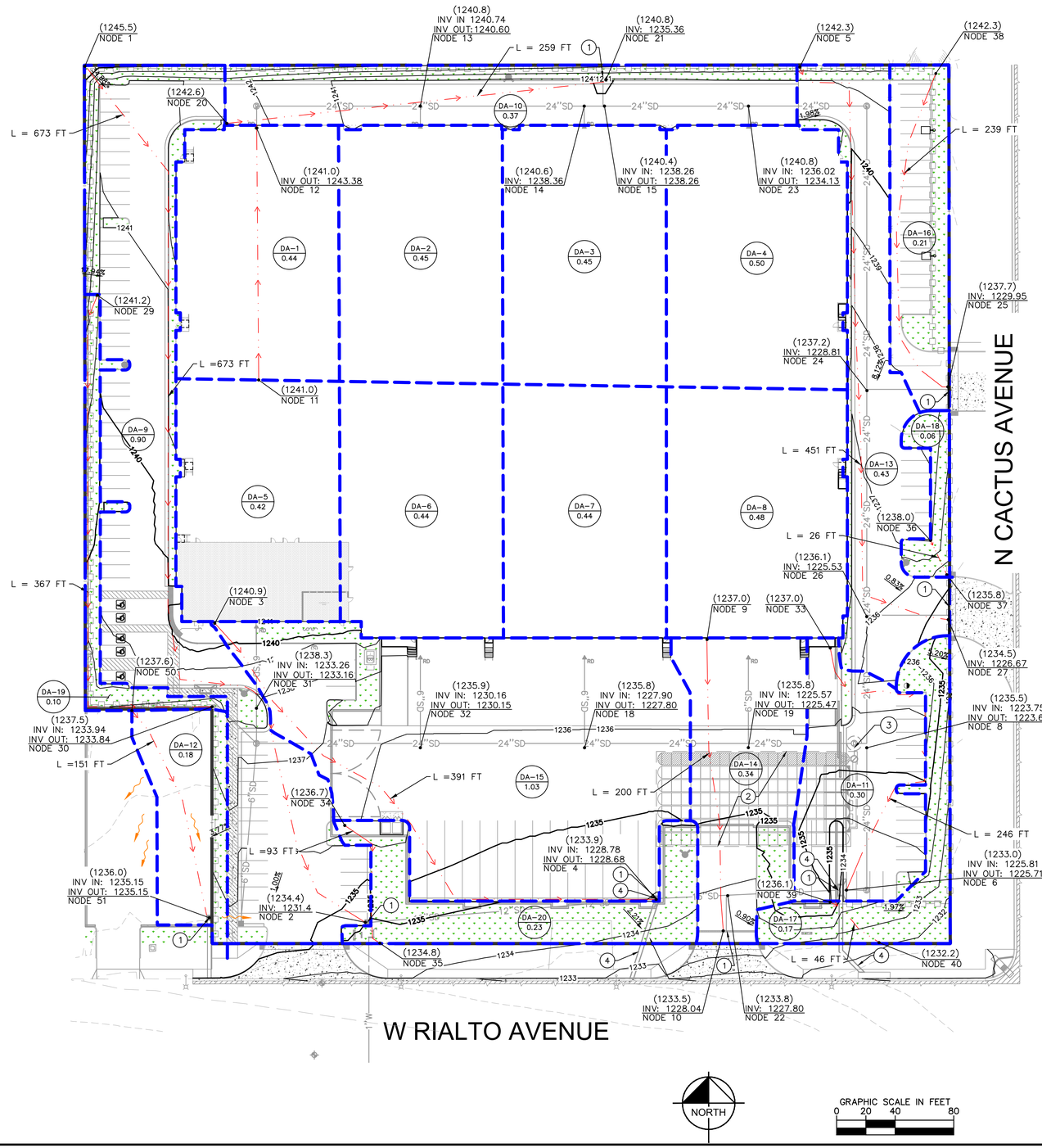
NOTES:

1. STORM DRAIN INLET.
2. STORMTECH CHAMBER SYSTEM PER CIVIL PLANS.
3. CONTECH HYDRODYNAMIC SEPARATOR PER CIVIL PLANS.
4. EMERGENCY OVERFLOW CURB DRAIN.

HYDROLOGIC SUMMARY:

DRAINAGE AREA	AREA (AC)	IMPERVIOUS (%)	100–YR, 24–HR FLOW – UNDETAINED (CFS)	100–YR, 24–HOUR FLOW– DETAINED (CFS)	100–YEAR VOLUME PROVIDED (CF)
DA 1–8	3.62	100	23.47	0	40,828
DA 9	0.90	85			
DA 10	0.37	75			
DA 11	0.30	97			
DA 13	0.44	89			
DA 14	0.34	92			
DA 15	1.03	96			
DA 16	0.21	66			
DA 19	0.10	100			
DA 12	0.18	92	0.74		
DA 17	0.17	100	0.64		
DA 18	0.06	100	0.22		
DA 20	0.23	16	0.80		
TOTAL	7.95	92	25.87	0.00	40,828

REFER TO PROJECT CONSTRUCTION DOCUMENTS FOR PROPOSED STORM DRAIN AND INVERT SIZES.



Kimley»Horn

160 N CACTUS AVE – PROPOSED DRAINAGE MAP – PHASE 2

6/26/2023

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
         (c) Copyright 1983-2011 Advanced Engineering Software (aes)
             Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:

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                             765 The City Drive
                                 Suite 200
                              Orange, CA 92868

 ************************* DESCRIPTION OF STUDY *************************
* 160 N CACTUS AVE                                                      *
* 100 yr Proposed Conditions                                            *
* Kimley-Horn                                                           *
 ************************************************************************

  FILE NAME: CACTUSP.DAT
  TIME/DATE OF STUDY: 22:31 06/22/2023
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED TABLED RAINFALL USED*
  NUMBER OF [TIME,INTENSITY] DATA PAIRS =  5
   1)    5.00;  4.790
   2)   15.00;  2.760
   3)   60.00;  1.500
   4)  120.00;  1.050
   5)  180.00;  0.858
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
```

```
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   673.00
  ELEVATION DATA: UPSTREAM(FEET) =   1245.50  DOWNSTREAM(FEET) =   1235.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.111
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.753
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  APARTMENTS                 A        0.90      0.74     0.200    52   10.11
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      2.92
  TOTAL AREA(ACRES) =      0.90   PEAK FLOW RATE(CFS) =      2.92

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      4.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1231.40  DOWNSTREAM(FEET) =  1228.78
  FLOW LENGTH(FEET) =   238.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   8.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.16
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.92
  PIPE TRAVEL TIME(MIN.) =   0.77    Tc(MIN.) =   10.88
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =     911.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.88
  RAINFALL INTENSITY(INCH/HR) =   3.60
  AREA-AVERAGED Fm(INCH/HR) =  0.15
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.20
```

```
  EFFECTIVE STREAM AREA(ACRES) =       0.90
  TOTAL STREAM AREA(ACRES) =       0.90
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.92

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   391.00
  ELEVATION DATA: UPSTREAM(FEET) =   1240.80  DOWNSTREAM(FEET) =   1233.90

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.420
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.299
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 A        1.03      0.74     0.100    52    7.42
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      3.92
  TOTAL AREA(ACRES) =      1.03   PEAK FLOW RATE(CFS) =      3.92

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.42
  RAINFALL INTENSITY(INCH/HR) =   4.30
  AREA-AVERAGED Fm(INCH/HR) =  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       1.03
  TOTAL STREAM AREA(ACRES) =       1.03
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.92

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.92   10.88    3.596  0.74( 0.15) 0.20       0.9       1.00
      2        3.92    7.42    4.299  0.74( 0.07) 0.10       1.0       3.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.
```

```
  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        6.31    7.42    4.299  0.74( 0.10) 0.14       1.6       3.00
      2        6.18   10.88    3.596  0.74( 0.11) 0.15       1.9       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       6.31    Tc(MIN.) =     7.42
  EFFECTIVE AREA(ACRES) =       1.64   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.14
  TOTAL AREA(ACRES) =        1.9
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =     911.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE     22.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1228.68  DOWNSTREAM(FEET) =  1227.80
  FLOW LENGTH(FEET) =    44.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   9.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.87
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.31
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    7.51
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE     22.00 =     955.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.51
  RAINFALL INTENSITY(INCH/HR) =   4.28
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.14
  EFFECTIVE STREAM AREA(ACRES) =       1.64
  TOTAL STREAM AREA(ACRES) =       1.93
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       6.31

****************************************************************************
  FLOW PROCESS FROM NODE      9.00 TO NODE     10.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   200.00
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   1237.00  DOWNSTREAM(FEET) =   1233.50

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.684
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.651
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 COMMERCIAL                 A        0.34      0.74     0.100    52    5.68
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA RUNOFF(CFS) =      1.40
 TOTAL AREA(ACRES) =      0.34   PEAK FLOW RATE(CFS) =      1.40

****************************************************************************
 FLOW PROCESS FROM NODE     10.00 TO NODE     22.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1228.04  DOWNSTREAM(FEET) =  1227.80
 FLOW LENGTH(FEET) =    12.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.43
 ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.40
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    5.72
 LONGEST FLOWPATH FROM NODE      9.00 TO NODE     22.00 =     212.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =    5.72
 RAINFALL INTENSITY(INCH/HR) =   4.64
 AREA-AVERAGED Fm(INCH/HR) =  0.07
 AREA-AVERAGED Fp(INCH/HR) =  0.74
 AREA-AVERAGED Ap =  0.10
 EFFECTIVE STREAM AREA(ACRES) =       0.34
 TOTAL STREAM AREA(ACRES) =       0.34
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.40

 ** CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1        6.31    7.51    4.280  0.74( 0.10) 0.14       1.6       3.00
     1        6.18   10.97    3.577  0.74( 0.11) 0.15       1.9       1.00
```

```
     2        1.40    5.72    4.644  0.74( 0.07) 0.10       0.3       9.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        6.63    5.72    4.644  0.74( 0.10) 0.13       1.6       9.00
      2        7.60    7.51    4.280  0.74( 0.10) 0.13       2.0       3.00
      3        7.26   10.97    3.577  0.74( 0.10) 0.14       2.3       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       7.60    Tc(MIN.) =     7.51
  EFFECTIVE AREA(ACRES) =       1.98   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.13
  TOTAL AREA(ACRES) =        2.3
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE     22.00 =     955.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE      6.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1227.80  DOWNSTREAM(FEET) =  1225.81
  FLOW LENGTH(FEET) =    98.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  10.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.20
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.60
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    7.71
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    1053.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.71
  RAINFALL INTENSITY(INCH/HR) =   4.24
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.13
  EFFECTIVE STREAM AREA(ACRES) =       1.98
  TOTAL STREAM AREA(ACRES) =       2.27
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       7.60

****************************************************************************
```

```
  FLOW PROCESS FROM NODE     33.00 TO NODE      6.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   246.00
  ELEVATION DATA: UPSTREAM(FEET) =   1237.00  DOWNSTREAM(FEET) =   1233.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.266
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.533
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 A        0.29      0.74     0.100    52    6.27
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.16
  TOTAL AREA(ACRES) =      0.29   PEAK FLOW RATE(CFS) =      1.16

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.27
  RAINFALL INTENSITY(INCH/HR) =   4.53
  AREA-AVERAGED Fm(INCH/HR) =  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       0.29
  TOTAL STREAM AREA(ACRES) =       0.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.16

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        6.63    5.93    4.602  0.74( 0.10) 0.13       1.6       9.00
      1        7.60    7.71    4.239  0.74( 0.10) 0.13       2.0       3.00
      1        7.26   11.17    3.537  0.74( 0.10) 0.14       2.3       1.00
      2        1.16    6.27    4.533  0.74( 0.07) 0.10       0.3      33.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
```

```
      1        7.74    5.93    4.602  0.74( 0.09) 0.13       1.9       9.00
      2        7.98    6.27    4.533  0.74( 0.09) 0.13       2.0      33.00
      3        8.69    7.71    4.239  0.74( 0.09) 0.13       2.3       3.00
      4        8.16   11.17    3.537  0.74( 0.10) 0.14       2.6       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       8.69    Tc(MIN.) =     7.71
  EFFECTIVE AREA(ACRES) =       2.27   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.13
  TOTAL AREA(ACRES) =        2.6
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    1053.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      8.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1225.71  DOWNSTREAM(FEET) =  1223.65
  FLOW LENGTH(FEET) =   108.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  12.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.08
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.69
  PIPE TRAVEL TIME(MIN.) =   0.22    Tc(MIN.) =    7.94
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      8.00 =    1161.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>>>>USE SPECIFIED Tc VALUE FOR INITIAL SUBAREA<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    98.00
  USER SPECIFIED Tc(MIN.) =    5.000
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.790
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.44      0.74     0.100    52
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.87
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.87
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1243.38  DOWNSTREAM(FEET) =  1240.74
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.14
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.87
  PIPE TRAVEL TIME(MIN.) =   0.30    Tc(MIN.) =    5.30
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =     210.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    5.30
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.728
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.45      0.74     0.100    52
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.45      SUBAREA RUNOFF(CFS) =    1.88
  EFFECTIVE AREA(ACRES) =      0.89   AREA-AVERAGED Fm(INCH/HR) =  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        0.9       PEAK FLOW RATE(CFS) =       3.73

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1240.60  DOWNSTREAM(FEET) =  1238.36
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.87
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.73
  PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =    5.58
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     14.00 =     322.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    5.58
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.673
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.45      0.74     0.100    52
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.45      SUBAREA RUNOFF(CFS) =    1.86
  EFFECTIVE AREA(ACRES) =      1.34   AREA-AVERAGED Fm(INCH/HR) =  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        1.3       PEAK FLOW RATE(CFS) =       5.55

****************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1238.66  DOWNSTREAM(FEET) =  1238.26
  FLOW LENGTH(FEET) =    13.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   9.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.79
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.55
  PIPE TRAVEL TIME(MIN.) =   0.02    Tc(MIN.) =    5.60
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     15.00 =     335.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     15.00 TO NODE     15.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.60
  RAINFALL INTENSITY(INCH/HR) =   4.67
  AREA-AVERAGED Fm(INCH/HR) =  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       1.34
  TOTAL STREAM AREA(ACRES) =       1.34
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       5.55

****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   259.00
  ELEVATION DATA: UPSTREAM(FEET) =   1242.60  DOWNSTREAM(FEET) =   1240.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.380
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.104
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.37      0.74     0.250    52    8.38
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.30
  TOTAL AREA(ACRES) =      0.37   PEAK FLOW RATE(CFS) =      1.30

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     15.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1235.36  DOWNSTREAM(FEET) =  1235.16
  FLOW LENGTH(FEET) =    17.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.34
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.30
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    8.45
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     15.00 =     276.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     15.00 TO NODE     15.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
==============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.45
  RAINFALL INTENSITY(INCH/HR) =   4.09
  AREA-AVERAGED Fm(INCH/HR) =  0.19
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.37
  TOTAL STREAM AREA(ACRES) =       0.37
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.30

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
```

```
     1        5.55    5.60    4.668  0.74( 0.07) 0.10       1.3      11.00
     2        1.30    8.45    4.091  0.74( 0.19) 0.25       0.4      20.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        6.54    5.60    4.668  0.74( 0.09) 0.12       1.6      11.00
      2        6.15    8.45    4.091  0.74( 0.10) 0.13       1.7      20.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       6.54    Tc(MIN.) =     5.60
  EFFECTIVE AREA(ACRES) =       1.59   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.12
  TOTAL AREA(ACRES) =        1.7
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     15.00 =     335.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     15.00 TO NODE     23.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1238.26  DOWNSTREAM(FEET) =  1236.02
  FLOW LENGTH(FEET) =    98.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   9.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.36
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.54
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    5.80
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     23.00 =     433.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     23.00 TO NODE     23.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    5.80
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.629
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.50      0.74     0.100    52
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.50      SUBAREA RUNOFF(CFS) =    2.05
  EFFECTIVE AREA(ACRES) =      2.09   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.12
  TOTAL AREA(ACRES) =        2.2       PEAK FLOW RATE(CFS) =       8.52
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     23.00 TO NODE     24.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1236.02  DOWNSTREAM(FEET) =  1228.81
  FLOW LENGTH(FEET) =   266.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS  10.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.43
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.52
  PIPE TRAVEL TIME(MIN.) =   0.47    Tc(MIN.) =    6.27
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     24.00 =     699.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     24.00 TO NODE     24.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.27
  RAINFALL INTENSITY(INCH/HR) =   4.53
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.12
  EFFECTIVE STREAM AREA(ACRES) =       2.09
  TOTAL STREAM AREA(ACRES) =       2.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       8.52

****************************************************************************
  FLOW PROCESS FROM NODE     38.00 TO NODE     25.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   239.00
  ELEVATION DATA: UPSTREAM(FEET) =   1242.30  DOWNSTREAM(FEET) =   1237.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.092
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.365
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               A        0.21      0.74     0.350    52    7.09
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.78
```

```
  TOTAL AREA(ACRES) =      0.21   PEAK FLOW RATE(CFS) =      0.78

****************************************************************************
  FLOW PROCESS FROM NODE     25.00 TO NODE     24.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1229.95  DOWNSTREAM(FEET) =  1228.81
  FLOW LENGTH(FEET) =    57.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   3.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.69
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.78
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    7.29
  LONGEST FLOWPATH FROM NODE     38.00 TO NODE     24.00 =     296.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     24.00 TO NODE     24.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.29
  RAINFALL INTENSITY(INCH/HR) =   4.32
  AREA-AVERAGED Fm(INCH/HR) =  0.26
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.21
  TOTAL STREAM AREA(ACRES) =       0.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.78

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        8.52    6.27    4.533  0.74( 0.09) 0.12       2.1      11.00
      1        7.87    9.12    3.953  0.74( 0.09) 0.13       2.2      20.00
      2        0.78    7.29    4.324  0.74( 0.26) 0.35       0.2      38.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        9.22    6.27    4.533  0.74( 0.10) 0.14       2.3      11.00
      2        9.06    7.29    4.324  0.74( 0.10) 0.14       2.3      38.00
      3        8.58    9.12    3.953  0.74( 0.11) 0.14       2.4      20.00
```

```
  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       9.22    Tc(MIN.) =     6.27
  EFFECTIVE AREA(ACRES) =       2.27   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.14
  TOTAL AREA(ACRES) =        2.4
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     24.00 =     699.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     24.00 TO NODE     26.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1228.81  DOWNSTREAM(FEET) =  1225.53
  FLOW LENGTH(FEET) =   164.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.68
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.22
  PIPE TRAVEL TIME(MIN.) =   0.31    Tc(MIN.) =    6.58
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     26.00 =     863.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     26.00 TO NODE     26.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.58
  RAINFALL INTENSITY(INCH/HR) =   4.47
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.14
  EFFECTIVE STREAM AREA(ACRES) =       2.27
  TOTAL STREAM AREA(ACRES) =       2.42
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       9.22

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE     27.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   451.00
  ELEVATION DATA: UPSTREAM(FEET) =   1242.30  DOWNSTREAM(FEET) =   1234.50

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.888
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.204
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
```

```
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 A        0.43      0.74      0.100    52    7.89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.60
  TOTAL AREA(ACRES) =      0.43   PEAK FLOW RATE(CFS) =      1.60

****************************************************************************
  FLOW PROCESS FROM NODE     27.00 TO NODE     26.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1226.67  DOWNSTREAM(FEET) =  1225.53
  FLOW LENGTH(FEET) =    56.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.62
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.60
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =    8.05
  LONGEST FLOWPATH FROM NODE      5.00 TO NODE     26.00 =     507.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     26.00 TO NODE     26.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.05
  RAINFALL INTENSITY(INCH/HR) =   4.17
  AREA-AVERAGED Fm(INCH/HR) =  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       0.43
  TOTAL STREAM AREA(ACRES) =       0.43
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.60

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        9.22    6.58    4.469  0.74( 0.10) 0.14       2.3      11.00
      1        9.06    7.61    4.260  0.74( 0.10) 0.14       2.3      38.00
      1        8.58    9.45    3.886  0.74( 0.11) 0.14       2.4      20.00
      2        1.60    8.05    4.170  0.74( 0.07) 0.10       0.4       5.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.
```

```
  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       10.62    6.58    4.469  0.74( 0.10) 0.13       2.6      11.00
      2       10.61    7.61    4.260  0.74( 0.10) 0.13       2.7      38.00
      3       10.54    8.05    4.170  0.74( 0.10) 0.14       2.8       5.00
      4       10.06    9.45    3.886  0.74( 0.10) 0.14       2.9      20.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      10.62    Tc(MIN.) =     6.58
  EFFECTIVE AREA(ACRES) =       2.62   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.13
  TOTAL AREA(ACRES) =        2.9
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     26.00 =     863.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     26.00 TO NODE      8.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1225.53  DOWNSTREAM(FEET) =  1223.75
  FLOW LENGTH(FEET) =    90.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.92
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.62
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =    6.75
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE      8.00 =     953.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     29.00 TO NODE     30.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   367.00
  ELEVATION DATA: UPSTREAM(FEET) =   1242.60  DOWNSTREAM(FEET) =   1237.50

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.057
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.357
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  PUBLIC PARK                A        0.10      0.74     0.850    52   12.06
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      0.25
  TOTAL AREA(ACRES) =      0.10   PEAK FLOW RATE(CFS) =      0.25

****************************************************************************
  FLOW PROCESS FROM NODE     30.00 TO NODE     31.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1233.84  DOWNSTREAM(FEET) =  1233.26
  FLOW LENGTH(FEET) =    13.70   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO  8.000
  DEPTH OF FLOW IN   8.0 INCH PIPE IS   1.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.46
  ESTIMATED PIPE DIAMETER(INCH) =   8.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.25
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   12.11
  LONGEST FLOWPATH FROM NODE     29.00 TO NODE     31.00 =     380.70 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     31.00 TO NODE     31.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   12.11
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.347
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.42      0.74     0.100    52
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.42      SUBAREA RUNOFF(CFS) =    1.24
  EFFECTIVE AREA(ACRES) =      0.52   AREA-AVERAGED Fm(INCH/HR) =  0.18
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.24
  TOTAL AREA(ACRES) =        0.5       PEAK FLOW RATE(CFS) =       1.48

****************************************************************************
  FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1233.16  DOWNSTREAM(FEET) =  1230.16
  FLOW LENGTH(FEET) =   138.90   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.67
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
```

```
  PIPE-FLOW(CFS) =       1.48
  PIPE TRAVEL TIME(MIN.) =   0.41    Tc(MIN.) =   12.52
  LONGEST FLOWPATH FROM NODE     29.00 TO NODE     32.00 =     519.60 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   12.52
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.264
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.44      0.74     0.100    52
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.44      SUBAREA RUNOFF(CFS) =    1.26
  EFFECTIVE AREA(ACRES) =      0.96   AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.18
  TOTAL AREA(ACRES) =        1.0       PEAK FLOW RATE(CFS) =       2.71

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     18.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1230.15  DOWNSTREAM(FEET) =  1227.90
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.41
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.71
  PIPE TRAVEL TIME(MIN.) =   0.29    Tc(MIN.) =   12.81
  LONGEST FLOWPATH FROM NODE     29.00 TO NODE     18.00 =     631.60 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   12.81
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.205
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.44      0.74     0.100    52
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.44      SUBAREA RUNOFF(CFS) =    1.24
```

```
  EFFECTIVE AREA(ACRES) =      1.40   AREA-AVERAGED Fm(INCH/HR) =  0.11
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.15
  TOTAL AREA(ACRES) =        1.4       PEAK FLOW RATE(CFS) =       3.89

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     19.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1227.80  DOWNSTREAM(FEET) =  1225.57
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   8.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.93
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.89
  PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =   13.08
  LONGEST FLOWPATH FROM NODE     29.00 TO NODE     19.00 =     743.60 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE     19.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   13.08
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.150
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.48      0.74     0.100    52
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.48      SUBAREA RUNOFF(CFS) =    1.33
  EFFECTIVE AREA(ACRES) =      1.88   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.14
  TOTAL AREA(ACRES) =        1.9       PEAK FLOW RATE(CFS) =       5.15

****************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE      8.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1225.47  DOWNSTREAM(FEET) =  1223.75
  FLOW LENGTH(FEET) =    81.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.69
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.15
  PIPE TRAVEL TIME(MIN.) =   0.18    Tc(MIN.) =   13.25
  LONGEST FLOWPATH FROM NODE     29.00 TO NODE      8.00 =     824.60 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.15   13.25    3.115  0.74( 0.10) 0.14       1.9      29.00
  LONGEST FLOWPATH FROM NODE     29.00 TO NODE      8.00 =     824.60 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       10.62    6.75    4.435  0.74( 0.10) 0.13       2.6      11.00
      2       10.61    7.78    4.226  0.74( 0.10) 0.13       2.7      38.00
      3       10.54    8.22    4.136  0.74( 0.10) 0.14       2.8       5.00
      4       10.06    9.62    3.852  0.74( 0.10) 0.14       2.9      20.00
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE      8.00 =     953.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       14.40    6.75    4.435  0.74( 0.10) 0.13       3.6      11.00
      2       14.75    7.78    4.226  0.74( 0.10) 0.14       3.9      38.00
      3       14.83    8.22    4.136  0.74( 0.10) 0.14       4.0       5.00
      4       14.72    9.62    3.852  0.74( 0.10) 0.14       4.2      20.00
      5       13.24   13.25    3.115  0.74( 0.10) 0.14       4.7      29.00
    TOTAL AREA(ACRES) =         4.7

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       14.83  Tc(MIN.) =    8.222
  EFFECTIVE AREA(ACRES) =      3.96  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.14
  TOTAL AREA(ACRES) =        4.7
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE      8.00 =     953.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       14.40    6.75    4.435  0.74( 0.10) 0.13       3.6      11.00
      2       14.75    7.78    4.226  0.74( 0.10) 0.14       3.9      38.00
      3       14.83    8.22    4.136  0.74( 0.10) 0.14       4.0       5.00
```

```
    4       14.72    9.62    3.852  0.74( 0.10) 0.14       4.2      20.00
    5       13.24   13.25    3.115  0.74( 0.10) 0.14       4.7      29.00
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE      8.00 =     953.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        7.74    6.15    4.557  0.74( 0.09) 0.13       1.9       9.00
      2        7.98    6.49    4.487  0.74( 0.09) 0.13       2.0      33.00
      3        8.69    7.94    4.194  0.74( 0.09) 0.13       2.3       3.00
      4        8.16   11.40    3.491  0.74( 0.10) 0.14       2.6       1.00
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      8.00 =    1161.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       21.24    6.15    4.557  0.74( 0.10) 0.13       5.1       9.00
      2       21.99    6.49    4.487  0.74( 0.10) 0.13       5.4      33.00
      3       22.50    6.75    4.435  0.74( 0.10) 0.13       5.6      11.00
      4       23.36    7.78    4.226  0.74( 0.10) 0.13       6.1      38.00
      5       23.47    7.94    4.194  0.74( 0.10) 0.13       6.2       3.00
      6       23.47    8.22    4.136  0.74( 0.10) 0.13       6.3       5.00
      7       23.15    9.62    3.852  0.74( 0.10) 0.14       6.6      20.00
      8       22.16   11.40    3.491  0.74( 0.10) 0.14       7.0       1.00
      9       20.50   13.25    3.115  0.74( 0.10) 0.14       7.3      29.00
    TOTAL AREA(ACRES) =         7.3

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       23.47  Tc(MIN.) =    8.222
  EFFECTIVE AREA(ACRES) =      6.25  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.13
  TOTAL AREA(ACRES) =        7.3
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      8.00 =    1161.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     34.00 TO NODE     35.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    93.00
  ELEVATION DATA: UPSTREAM(FEET) =   1236.70  DOWNSTREAM(FEET) =   1234.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.446
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.496
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  PUBLIC PARK                A        0.23      0.74     0.850    52    6.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
```

```
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      0.80
  TOTAL AREA(ACRES) =      0.23   PEAK FLOW RATE(CFS) =      0.80

****************************************************************************
  FLOW PROCESS FROM NODE     36.00 TO NODE     37.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    26.00
  ELEVATION DATA: UPSTREAM(FEET) =   1238.00  DOWNSTREAM(FEET) =   1235.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.790
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  PUBLIC PARK                A        0.06      0.74     0.850    52    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      0.22
  TOTAL AREA(ACRES) =      0.06   PEAK FLOW RATE(CFS) =      0.22

****************************************************************************
  FLOW PROCESS FROM NODE     39.00 TO NODE     40.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    46.00
  ELEVATION DATA: UPSTREAM(FEET) =   1236.10  DOWNSTREAM(FEET) =   1232.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.790
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  PUBLIC PARK                A        0.17      0.74     0.850    52    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      0.64
  TOTAL AREA(ACRES) =      0.17   PEAK FLOW RATE(CFS) =      0.64

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     51.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
```

```
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   151.00
  ELEVATION DATA: UPSTREAM(FEET) =   1237.60  DOWNSTREAM(FEET) =   1236.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.616
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.665
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 A        0.18      0.74     0.100    52    5.62
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      0.74
  TOTAL AREA(ACRES) =      0.18   PEAK FLOW RATE(CFS) =      0.74
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.2  TC(MIN.) =      5.62
  EFFECTIVE AREA(ACRES) =      0.18  AREA-AVERAGED Fm(INCH/HR)=  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap = 0.100
  PEAK FLOW RATE(CFS)   =       0.74
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```



```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
         (c) Copyright 1983-2011 Advanced Engineering Software (aes)
             Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:

                      Kimley-Horn and Associates, Inc.
                             765 The City Drive
                                 Suite 200
                              Orange, CA 92868

 ************************* DESCRIPTION OF STUDY *************************
* 160 N CACTUS AVE                                                      *
* 2 YR PROPOSED CONDITIONS                                              *
* KIMLEY-HORN                                                           *
 ************************************************************************

  FILE NAME: CACTUS2P.DAT
  TIME/DATE OF STUDY: 13:39 06/26/2023
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   8.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED TABLED RAINFALL USED*
  NUMBER OF [TIME,INTENSITY] DATA PAIRS =  5
   1)    5.00;  1.910
   2)   15.00;  1.100
   3)   60.00;  0.599
   4)  120.00;  0.436
   5)  360.00;  0.260
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
```

```
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   673.00
  ELEVATION DATA: UPSTREAM(FEET) =   1245.50  DOWNSTREAM(FEET) =   1235.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.111
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.496
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  APARTMENTS                 A        0.90      1.33     0.200    17   10.11
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      1.00
  TOTAL AREA(ACRES) =      0.90   PEAK FLOW RATE(CFS) =      1.00

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      4.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1231.40  DOWNSTREAM(FEET) =  1228.78
  FLOW LENGTH(FEET) =   238.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.00
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.00
  PIPE TRAVEL TIME(MIN.) =   0.99    Tc(MIN.) =   11.10
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =     911.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.10
  RAINFALL INTENSITY(INCH/HR) =   1.42
  AREA-AVERAGED Fm(INCH/HR) =  0.27
  AREA-AVERAGED Fp(INCH/HR) =  1.33
  AREA-AVERAGED Ap =  0.20
```

```
  EFFECTIVE STREAM AREA(ACRES) =       0.90
  TOTAL STREAM AREA(ACRES) =       0.90
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.00

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   391.00
  ELEVATION DATA: UPSTREAM(FEET) =   1240.80  DOWNSTREAM(FEET) =   1233.90

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.420
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.714
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 A        1.03      1.33     0.100    17    7.42
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.47
  TOTAL AREA(ACRES) =      1.03   PEAK FLOW RATE(CFS) =      1.47

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.42
  RAINFALL INTENSITY(INCH/HR) =   1.71
  AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  1.33
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       1.03
  TOTAL STREAM AREA(ACRES) =       1.03
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.47

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.00   11.10    1.416  1.33( 0.27) 0.20       0.9       1.00
      2        1.47    7.42    1.714  1.33( 0.13) 0.10       1.0       3.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.
```

```
  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.30    7.42    1.714  1.33( 0.18) 0.14       1.6       3.00
      2        2.19   11.10    1.416  1.33( 0.19) 0.15       1.9       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       2.30    Tc(MIN.) =     7.42
  EFFECTIVE AREA(ACRES) =       1.63   AREA-AVERAGED Fm(INCH/HR) =  0.18
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.14
  TOTAL AREA(ACRES) =        1.9
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =     911.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE     22.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1228.68  DOWNSTREAM(FEET) =  1227.80
  FLOW LENGTH(FEET) =    44.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   5.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.15
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.30
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    7.54
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE     22.00 =     955.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.54
  RAINFALL INTENSITY(INCH/HR) =   1.70
  AREA-AVERAGED Fm(INCH/HR) =  0.18
  AREA-AVERAGED Fp(INCH/HR) =  1.33
  AREA-AVERAGED Ap =  0.14
  EFFECTIVE STREAM AREA(ACRES) =       1.63
  TOTAL STREAM AREA(ACRES) =       1.93
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.30

****************************************************************************
  FLOW PROCESS FROM NODE      9.00 TO NODE     10.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   200.00
```

```
 ELEVATION DATA: UPSTREAM(FEET) =   1237.00  DOWNSTREAM(FEET) =   1233.50

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.684
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.855
 SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 COMMERCIAL                 A        0.34      1.33     0.100    17    5.68
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA RUNOFF(CFS) =      0.53
 TOTAL AREA(ACRES) =      0.34   PEAK FLOW RATE(CFS) =      0.53

****************************************************************************
 FLOW PROCESS FROM NODE     10.00 TO NODE     22.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1228.04  DOWNSTREAM(FEET) =  1227.80
 FLOW LENGTH(FEET) =    12.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO  8.000
 DEPTH OF FLOW IN   8.0 INCH PIPE IS   3.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.21
 ESTIMATED PIPE DIAMETER(INCH) =   8.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       0.53
 PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    5.73
 LONGEST FLOWPATH FROM NODE      9.00 TO NODE     22.00 =     212.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =    5.73
 RAINFALL INTENSITY(INCH/HR) =   1.85
 AREA-AVERAGED Fm(INCH/HR) =  0.13
 AREA-AVERAGED Fp(INCH/HR) =  1.33
 AREA-AVERAGED Ap =  0.10
 EFFECTIVE STREAM AREA(ACRES) =       0.34
 TOTAL STREAM AREA(ACRES) =       0.34
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.53

 ** CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1        2.30    7.54    1.704  1.33( 0.18) 0.14       1.6       3.00
```

```
     1        2.19   11.23    1.406  1.33( 0.19) 0.15       1.9       1.00
     2        0.53    5.73    1.851  1.33( 0.13) 0.10       0.3       9.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.45    5.73    1.851  1.33( 0.17) 0.13       1.6       9.00
      2        2.79    7.54    1.704  1.33( 0.17) 0.13       2.0       3.00
      3        2.58   11.23    1.406  1.33( 0.19) 0.14       2.3       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       2.79    Tc(MIN.) =     7.54
  EFFECTIVE AREA(ACRES) =       1.97   AREA-AVERAGED Fm(INCH/HR) =  0.17
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.13
  TOTAL AREA(ACRES) =        2.3
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE     22.00 =     955.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE      6.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1227.80  DOWNSTREAM(FEET) =  1225.81
  FLOW LENGTH(FEET) =    98.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.48
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.79
  PIPE TRAVEL TIME(MIN.) =   0.25    Tc(MIN.) =    7.79
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    1053.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.79
  RAINFALL INTENSITY(INCH/HR) =   1.68
  AREA-AVERAGED Fm(INCH/HR) =  0.17
  AREA-AVERAGED Fp(INCH/HR) =  1.33
  AREA-AVERAGED Ap =  0.13
  EFFECTIVE STREAM AREA(ACRES) =       1.97
  TOTAL STREAM AREA(ACRES) =       2.27
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.79
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     33.00 TO NODE      6.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   246.00
  ELEVATION DATA: UPSTREAM(FEET) =   1237.00  DOWNSTREAM(FEET) =   1233.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.266
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.807
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 A        0.29      1.33     0.100    17    6.27
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      0.44
  TOTAL AREA(ACRES) =      0.29   PEAK FLOW RATE(CFS) =      0.44

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.27
  RAINFALL INTENSITY(INCH/HR) =   1.81
  AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  1.33
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       0.29
  TOTAL STREAM AREA(ACRES) =       0.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.44

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.45    5.99    1.830  1.33( 0.17) 0.13       1.6       9.00
      1        2.79    7.79    1.684  1.33( 0.17) 0.13       2.0       3.00
      1        2.58   11.48    1.385  1.33( 0.19) 0.14       2.3       1.00
      2        0.44    6.27    1.807  1.33( 0.13) 0.10       0.3      33.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

```
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.87    5.99    1.830  1.33( 0.17) 0.12       1.9       9.00
      2        2.94    6.27    1.807  1.33( 0.17) 0.12       1.9      33.00
      3        3.19    7.79    1.684  1.33( 0.17) 0.13       2.3       3.00
      4        2.90   11.48    1.385  1.33( 0.18) 0.14       2.6       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.19    Tc(MIN.) =     7.79
  EFFECTIVE AREA(ACRES) =       2.26   AREA-AVERAGED Fm(INCH/HR) =  0.17
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.13
  TOTAL AREA(ACRES) =        2.6
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    1053.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      8.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1225.71  DOWNSTREAM(FEET) =  1223.65
  FLOW LENGTH(FEET) =   108.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.53
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.19
  PIPE TRAVEL TIME(MIN.) =   0.28    Tc(MIN.) =    8.07
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      8.00 =    1161.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  22
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>>>>USE SPECIFIED Tc VALUE FOR INITIAL SUBAREA<<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    98.00
  USER SPECIFIED Tc(MIN.) =    5.000
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.910
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.44      1.33     0.100    17
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      0.70
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      0.70
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1243.38  DOWNSTREAM(FEET) =  1240.74
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO  8.000
  DEPTH OF FLOW IN   8.0 INCH PIPE IS   3.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.85
  ESTIMATED PIPE DIAMETER(INCH) =   8.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.70
  PIPE TRAVEL TIME(MIN.) =   0.38    Tc(MIN.) =    5.38
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     13.00 =     210.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     13.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    5.38
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.879
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.45      1.33     0.100    17
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.45      SUBAREA RUNOFF(CFS) =    0.71
  EFFECTIVE AREA(ACRES) =      0.89   AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        0.9       PEAK FLOW RATE(CFS) =       1.40

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1240.60  DOWNSTREAM(FEET) =  1238.36
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.43
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.40
  PIPE TRAVEL TIME(MIN.) =   0.34    Tc(MIN.) =    5.73
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     14.00 =     322.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     14.00 TO NODE     14.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    5.73
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.851
 SUBAREA LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 A        0.45      1.33     0.100    17
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA AREA(ACRES) =    0.45      SUBAREA RUNOFF(CFS) =    0.70
 EFFECTIVE AREA(ACRES) =      1.34   AREA-AVERAGED Fm(INCH/HR) =  0.13
 AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.10
 TOTAL AREA(ACRES) =        1.3       PEAK FLOW RATE(CFS) =       2.07

****************************************************************************
 FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1238.66  DOWNSTREAM(FEET) =  1238.26
 FLOW LENGTH(FEET) =    13.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.00
 ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.07
 PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =    5.76
 LONGEST FLOWPATH FROM NODE     11.00 TO NODE     15.00 =     335.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     15.00 TO NODE     15.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =    5.76
 RAINFALL INTENSITY(INCH/HR) =   1.85
 AREA-AVERAGED Fm(INCH/HR) =  0.13
 AREA-AVERAGED Fp(INCH/HR) =  1.33
 AREA-AVERAGED Ap =  0.10
 EFFECTIVE STREAM AREA(ACRES) =       1.34
 TOTAL STREAM AREA(ACRES) =       1.34
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.07

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   259.00
  ELEVATION DATA: UPSTREAM(FEET) =   1242.60  DOWNSTREAM(FEET) =   1240.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.380
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.636
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.37      1.33     0.250    17    8.38
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      0.43
  TOTAL AREA(ACRES) =      0.37   PEAK FLOW RATE(CFS) =      0.43

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     15.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1235.36  DOWNSTREAM(FEET) =  1235.16
  FLOW LENGTH(FEET) =    17.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO  8.000
  DEPTH OF FLOW IN   8.0 INCH PIPE IS   3.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.32
  ESTIMATED PIPE DIAMETER(INCH) =   8.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.43
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =    8.47
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     15.00 =     276.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     15.00 TO NODE     15.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.47
  RAINFALL INTENSITY(INCH/HR) =   1.63
  AREA-AVERAGED Fm(INCH/HR) =  0.33
  AREA-AVERAGED Fp(INCH/HR) =  1.33
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.37
  TOTAL STREAM AREA(ACRES) =       0.37
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.43
```

```
 ** CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1        2.07    5.76    1.848  1.33( 0.13) 0.10       1.3      11.00
     2        0.43    8.47    1.629  1.33( 0.33) 0.25       0.4      20.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1        2.42    5.76    1.848  1.33( 0.16) 0.12       1.6      11.00
     2        2.24    8.47    1.629  1.33( 0.18) 0.13       1.7      20.00

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       2.42    Tc(MIN.) =     5.76
 EFFECTIVE AREA(ACRES) =       1.59   AREA-AVERAGED Fm(INCH/HR) =  0.16
 AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.12
 TOTAL AREA(ACRES) =        1.7
 LONGEST FLOWPATH FROM NODE     11.00 TO NODE     15.00 =     335.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     15.00 TO NODE     23.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1238.26  DOWNSTREAM(FEET) =  1236.02
 FLOW LENGTH(FEET) =    98.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN   9.0 INCH PIPE IS   7.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.29
 ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.42
 PIPE TRAVEL TIME(MIN.) =   0.26    Tc(MIN.) =    6.02
 LONGEST FLOWPATH FROM NODE     11.00 TO NODE     23.00 =     433.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     23.00 TO NODE     23.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    6.02
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.827
 SUBAREA LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 A        0.50      1.33     0.100    17
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA AREA(ACRES) =    0.50      SUBAREA RUNOFF(CFS) =    0.76
```

```
  EFFECTIVE AREA(ACRES) =      2.09   AREA-AVERAGED Fm(INCH/HR) =  0.16
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.12
  TOTAL AREA(ACRES) =        2.2       PEAK FLOW RATE(CFS) =       3.15

****************************************************************************
  FLOW PROCESS FROM NODE     23.00 TO NODE     24.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1236.02  DOWNSTREAM(FEET) =  1228.81
  FLOW LENGTH(FEET) =   266.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.45
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.15
  PIPE TRAVEL TIME(MIN.) =   0.60    Tc(MIN.) =    6.61
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     24.00 =     699.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     24.00 TO NODE     24.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.61
  RAINFALL INTENSITY(INCH/HR) =   1.78
  AREA-AVERAGED Fm(INCH/HR) =  0.16
  AREA-AVERAGED Fp(INCH/HR) =  1.33
  AREA-AVERAGED Ap =  0.12
  EFFECTIVE STREAM AREA(ACRES) =       2.09
  TOTAL STREAM AREA(ACRES) =       2.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.15

****************************************************************************
  FLOW PROCESS FROM NODE     38.00 TO NODE     25.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   239.00
  ELEVATION DATA: UPSTREAM(FEET) =   1242.30  DOWNSTREAM(FEET) =   1237.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.092
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.741
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               A        0.21      1.33     0.350    17    7.09
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.24
  TOTAL AREA(ACRES) =      0.21   PEAK FLOW RATE(CFS) =      0.24

****************************************************************************
  FLOW PROCESS FROM NODE     25.00 TO NODE     24.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1229.95  DOWNSTREAM(FEET) =  1228.81
  FLOW LENGTH(FEET) =    57.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO  8.000
  DEPTH OF FLOW IN   8.0 INCH PIPE IS   2.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.41
  ESTIMATED PIPE DIAMETER(INCH) =   8.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.24
  PIPE TRAVEL TIME(MIN.) =   0.28    Tc(MIN.) =    7.37
  LONGEST FLOWPATH FROM NODE     38.00 TO NODE     24.00 =     296.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     24.00 TO NODE     24.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.37
  RAINFALL INTENSITY(INCH/HR) =   1.72
  AREA-AVERAGED Fm(INCH/HR) =  0.46
  AREA-AVERAGED Fp(INCH/HR) =  1.33
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.21
  TOTAL STREAM AREA(ACRES) =       0.21
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.24

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.15    6.61    1.779  1.33( 0.16) 0.12       2.1      11.00
      1        2.87    9.33    1.559  1.33( 0.17) 0.13       2.2      20.00
      2        0.24    7.37    1.718  1.33( 0.46) 0.35       0.2      38.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
```

```
      1        3.37    6.61    1.779  1.33( 0.18) 0.14       2.3      11.00
      2        3.31    7.37    1.718  1.33( 0.19) 0.14       2.3      38.00
      3        3.08    9.33    1.559  1.33( 0.19) 0.14       2.4      20.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.37    Tc(MIN.) =     6.61
  EFFECTIVE AREA(ACRES) =       2.28   AREA-AVERAGED Fm(INCH/HR) =  0.18
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.14
  TOTAL AREA(ACRES) =        2.4
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     24.00 =     699.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     24.00 TO NODE     26.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1228.81  DOWNSTREAM(FEET) =  1225.53
  FLOW LENGTH(FEET) =   164.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.74
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.37
  PIPE TRAVEL TIME(MIN.) =   0.41    Tc(MIN.) =    7.02
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     26.00 =     863.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     26.00 TO NODE     26.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.02
  RAINFALL INTENSITY(INCH/HR) =   1.75
  AREA-AVERAGED Fm(INCH/HR) =  0.18
  AREA-AVERAGED Fp(INCH/HR) =  1.33
  AREA-AVERAGED Ap =  0.14
  EFFECTIVE STREAM AREA(ACRES) =       2.28
  TOTAL STREAM AREA(ACRES) =       2.42
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.37

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE     27.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   451.00
  ELEVATION DATA: UPSTREAM(FEET) =   1242.30  DOWNSTREAM(FEET) =   1234.50
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.888
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.676
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 A        0.43      1.33     0.100    17    7.89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      0.60
  TOTAL AREA(ACRES) =      0.43   PEAK FLOW RATE(CFS) =      0.60

****************************************************************************
  FLOW PROCESS FROM NODE     27.00 TO NODE     26.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1226.67  DOWNSTREAM(FEET) =  1225.53
  FLOW LENGTH(FEET) =    56.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO  8.000
  DEPTH OF FLOW IN   8.0 INCH PIPE IS   3.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.41
  ESTIMATED PIPE DIAMETER(INCH) =   8.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.60
  PIPE TRAVEL TIME(MIN.) =   0.21    Tc(MIN.) =    8.10
  LONGEST FLOWPATH FROM NODE      5.00 TO NODE     26.00 =     507.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     26.00 TO NODE     26.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.10
  RAINFALL INTENSITY(INCH/HR) =   1.66
  AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  1.33
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       0.43
  TOTAL STREAM AREA(ACRES) =       0.43
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.60

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.37    7.02    1.746  1.33( 0.18) 0.14       2.3      11.00
      1        3.31    7.78    1.685  1.33( 0.19) 0.14       2.3      38.00
      1        3.08    9.75    1.525  1.33( 0.19) 0.14       2.4      20.00
```

```
     2        0.60    8.10    1.659  1.33( 0.13) 0.10       0.4       5.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.92    7.02    1.746  1.33( 0.18) 0.13       2.7      11.00
      2        3.89    7.78    1.685  1.33( 0.18) 0.13       2.7      38.00
      3        3.87    8.10    1.659  1.33( 0.18) 0.13       2.8       5.00
      4        3.62    9.75    1.525  1.33( 0.18) 0.14       2.9      20.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.92    Tc(MIN.) =     7.02
  EFFECTIVE AREA(ACRES) =       2.65   AREA-AVERAGED Fm(INCH/HR) =  0.18
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.13
  TOTAL AREA(ACRES) =        2.9
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE     26.00 =     863.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     26.00 TO NODE      8.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1225.53  DOWNSTREAM(FEET) =  1223.75
  FLOW LENGTH(FEET) =    90.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   8.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.91
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.92
  PIPE TRAVEL TIME(MIN.) =   0.22    Tc(MIN.) =    7.24
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE      8.00 =     953.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     29.00 TO NODE     30.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   367.00
  ELEVATION DATA: UPSTREAM(FEET) =   1242.60  DOWNSTREAM(FEET) =   1237.50

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
```

```
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   12.057
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.338
 SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 PUBLIC PARK                A        0.10      1.33     0.850    17   12.06
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
 SUBAREA RUNOFF(CFS) =      0.02
 TOTAL AREA(ACRES) =      0.10   PEAK FLOW RATE(CFS) =      0.02

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     31.00 IS CODE =  31
----------------------------------------------------------------------------
 ** WARNING: Computed Flowrate is less than 0.1 cfs,
              Routing Algorithm is UNAVAILABLE.

****************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     31.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =   12.06
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.338
 SUBAREA LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 A        0.42      1.33     0.100    17
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA AREA(ACRES) =    0.42      SUBAREA RUNOFF(CFS) =    0.46
 EFFECTIVE AREA(ACRES) =      0.52   AREA-AVERAGED Fm(INCH/HR) =  0.32
 AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.24
 TOTAL AREA(ACRES) =        0.5       PEAK FLOW RATE(CFS) =       0.47

****************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =  1233.16  DOWNSTREAM(FEET) =  1230.16
 FLOW LENGTH(FEET) =   138.90   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO  8.000
 DEPTH OF FLOW IN   8.0 INCH PIPE IS   2.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.23
 ESTIMATED PIPE DIAMETER(INCH) =   8.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       0.47
 PIPE TRAVEL TIME(MIN.) =   0.55    Tc(MIN.) =   12.60
 LONGEST FLOWPATH FROM NODE     29.00 TO NODE     32.00 =     505.90 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   12.60
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.294
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.44      1.33     0.100    17
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  * RAINFALL INTENSITY IS LESS THAN AREA-AVERAGED Fp;
  * IMPERVIOUS AREA USED FOR RUNOFF ESTIMATES.
  SUBAREA AREA(ACRES) =    0.44      SUBAREA RUNOFF(CFS) =    0.46
  EFFECTIVE AREA(ACRES) =      0.96   AREA-AVERAGED Fm(INCH/HR) =  0.24
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.18
  * RAINFALL INTENSITY IS LESS THAN AREA-AVERAGED Fp;
  * IMPERVIOUS AREA USED FOR RUNOFF ESTIMATES.
  TOTAL AREA(ACRES) =        1.0       PEAK FLOW RATE(CFS) =       0.92

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     18.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1230.15  DOWNSTREAM(FEET) =  1227.90
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.91
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.92
  PIPE TRAVEL TIME(MIN.) =   0.38    Tc(MIN.) =   12.98
  LONGEST FLOWPATH FROM NODE     29.00 TO NODE     18.00 =     617.90 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     18.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   12.98
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.263
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.44      1.33     0.100    17
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  * RAINFALL INTENSITY IS LESS THAN AREA-AVERAGED Fp;
```

```
  * IMPERVIOUS AREA USED FOR RUNOFF ESTIMATES.
  SUBAREA AREA(ACRES) =    0.44      SUBAREA RUNOFF(CFS) =    0.45
  EFFECTIVE AREA(ACRES) =      1.40   AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.15
  * RAINFALL INTENSITY IS LESS THAN AREA-AVERAGED Fp;
  * IMPERVIOUS AREA USED FOR RUNOFF ESTIMATES.
  TOTAL AREA(ACRES) =        1.4       PEAK FLOW RATE(CFS) =       1.35

****************************************************************************
  FLOW PROCESS FROM NODE     18.00 TO NODE     19.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =  1227.80  DOWNSTREAM(FEET) =  1225.57
  FLOW LENGTH(FEET) =   112.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.35
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.35
  PIPE TRAVEL TIME(MIN.) =   0.35    Tc(MIN.) =   13.33
  LONGEST FLOWPATH FROM NODE     29.00 TO NODE     19.00 =     729.90 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE     19.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =   13.33
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.235
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.48      1.33     0.100    17
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  * RAINFALL INTENSITY IS LESS THAN AREA-AVERAGED Fp;
  * IMPERVIOUS AREA USED FOR RUNOFF ESTIMATES.
  SUBAREA AREA(ACRES) =    0.48      SUBAREA RUNOFF(CFS) =    0.48
  EFFECTIVE AREA(ACRES) =      1.88   AREA-AVERAGED Fm(INCH/HR) =  0.19
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.14
  * RAINFALL INTENSITY IS LESS THAN AREA-AVERAGED Fp;
  * IMPERVIOUS AREA USED FOR RUNOFF ESTIMATES.
  TOTAL AREA(ACRES) =        1.9       PEAK FLOW RATE(CFS) =       1.80

****************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE      8.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =  1225.47  DOWNSTREAM(FEET) =  1223.75
  FLOW LENGTH(FEET) =    81.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.87
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.80
  PIPE TRAVEL TIME(MIN.) =   0.23    Tc(MIN.) =   13.56
  LONGEST FLOWPATH FROM NODE     29.00 TO NODE      8.00 =     810.90 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.80   13.56    1.216  1.33( 0.19) 0.14       1.9      29.00
  LONGEST FLOWPATH FROM NODE     29.00 TO NODE      8.00 =     810.90 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.92    7.24    1.729  1.33( 0.18) 0.13       2.7      11.00
      2        3.89    7.99    1.667  1.33( 0.18) 0.13       2.7      38.00
      3        3.87    8.32    1.641  1.33( 0.18) 0.13       2.8       5.00
      4        3.62    9.97    1.508  1.33( 0.18) 0.14       2.9      20.00
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE      8.00 =     953.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.33    7.24    1.729  1.33( 0.18) 0.13       3.7      11.00
      2        5.39    7.99    1.667  1.33( 0.18) 0.14       3.9      38.00
      3        5.40    8.32    1.641  1.33( 0.18) 0.14       3.9       5.00
      4        5.29    9.97    1.508  1.33( 0.18) 0.14       4.2      20.00
      5        4.67   13.56    1.216  1.33( 0.18) 0.14       4.7      29.00
    TOTAL AREA(ACRES) =         4.7

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =        5.40  Tc(MIN.) =    8.317
  EFFECTIVE AREA(ACRES) =      3.93  AREA-AVERAGED Fm(INCH/HR) =  0.18
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.14
  TOTAL AREA(ACRES) =        4.7
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE      8.00 =     953.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      8.00 TO NODE      8.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
```

```
==============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.33    7.24    1.729  1.33( 0.18) 0.13       3.7      11.00
      2        5.39    7.99    1.667  1.33( 0.18) 0.14       3.9      38.00
      3        5.40    8.32    1.641  1.33( 0.18) 0.14       3.9       5.00
      4        5.29    9.97    1.508  1.33( 0.18) 0.14       4.2      20.00
      5        4.67   13.56    1.216  1.33( 0.18) 0.14       4.7      29.00
  LONGEST FLOWPATH FROM NODE     11.00 TO NODE      8.00 =     953.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.87    6.27    1.807  1.33( 0.17) 0.12       1.9       9.00
      2        2.94    6.55    1.785  1.33( 0.17) 0.12       1.9      33.00
      3        3.19    8.07    1.662  1.33( 0.17) 0.13       2.3       3.00
      4        2.90   11.77    1.362  1.33( 0.18) 0.14       2.6       1.00
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      8.00 =    1161.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        7.73    6.27    1.807  1.33( 0.17) 0.13       5.0       9.00
      2        7.94    6.55    1.785  1.33( 0.17) 0.13       5.2      33.00
      3        8.39    7.24    1.729  1.33( 0.17) 0.13       5.7      11.00
      4        8.57    7.99    1.667  1.33( 0.18) 0.13       6.1      38.00
      5        8.59    8.07    1.662  1.33( 0.18) 0.13       6.1       3.00
      6        8.57    8.32    1.641  1.33( 0.18) 0.13       6.2       5.00
      7        8.34    9.97    1.508  1.33( 0.18) 0.14       6.6      20.00
      8        7.88   11.77    1.362  1.33( 0.18) 0.14       7.0       1.00
      9        7.25   13.56    1.216  1.33( 0.18) 0.14       7.3      29.00
    TOTAL AREA(ACRES) =         7.3

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =        8.59  Tc(MIN.) =    8.067
  EFFECTIVE AREA(ACRES) =      6.13  AREA-AVERAGED Fm(INCH/HR) =  0.18
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap =  0.14
  TOTAL AREA(ACRES) =        7.3
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      8.00 =    1161.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     34.00 TO NODE     35.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    93.00
  ELEVATION DATA: UPSTREAM(FEET) =   1236.70  DOWNSTREAM(FEET) =   1234.80
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.446
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.793
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  PUBLIC PARK                A        0.23      1.33     0.850    17    6.45
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      0.14
  TOTAL AREA(ACRES) =      0.23   PEAK FLOW RATE(CFS) =      0.14

****************************************************************************
  FLOW PROCESS FROM NODE     36.00 TO NODE     37.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    26.00
  ELEVATION DATA: UPSTREAM(FEET) =   1238.00  DOWNSTREAM(FEET) =   1235.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.910
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  PUBLIC PARK                A        0.06      1.33     0.850    17    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      0.04
  TOTAL AREA(ACRES) =      0.06   PEAK FLOW RATE(CFS) =      0.04

****************************************************************************
  FLOW PROCESS FROM NODE     39.00 TO NODE     40.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    46.00
  ELEVATION DATA: UPSTREAM(FEET) =   1236.10  DOWNSTREAM(FEET) =   1232.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.910
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  PUBLIC PARK                A        0.17      1.33     0.850    17    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
```

```
  SUBAREA RUNOFF(CFS) =      0.12
  TOTAL AREA(ACRES) =      0.17   PEAK FLOW RATE(CFS) =      0.12

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     51.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   151.00
  ELEVATION DATA: UPSTREAM(FEET) =   1237.60  DOWNSTREAM(FEET) =   1236.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.616
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.860
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 A        0.18      1.33     0.100    17    5.62
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  1.33
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      0.28
  TOTAL AREA(ACRES) =      0.18   PEAK FLOW RATE(CFS) =      0.28
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.2  TC(MIN.) =      5.62
  EFFECTIVE AREA(ACRES) =      0.18  AREA-AVERAGED Fm(INCH/HR)=  0.13
  AREA-AVERAGED Fp(INCH/HR) =  1.33  AREA-AVERAGED Ap = 0.100
  PEAK FLOW RATE(CFS)   =       0.28
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```



```
**************************************************************************
          NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
                    AND LOW LOSS FRACTION ESTIMATIONS
==========================================================================
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                          Analysis prepared by:

                       Kimley-Horn and Associates, Inc.
                              765 The City Drive
                                  Suite 200
                               Orange, CA 92868

**************************************************************************
--------------------------------------------------------------------------

 Problem Descriptions:
  160 N CACTUS AVE
  100 YEAR 24 HOUR PROPOSED CONDITIONS
  KIMLEY-HORN
==========================================================================
*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)
    AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

    TOTAL 24-HOUR DURATION RAINFALL DEPTH =     6.59 (inches)

    SOIL-COVER     AREA      PERCENT OF    SCS CURVE    LOSS RATE
       TYPE      (Acres)   PERVIOUS AREA     NUMBER    Fp(in./hr.)    YIELD
         1          7.32        6.00       32.(AMC II)     0.742       0.921

    TOTAL AREA (Acres) =      7.32

                                  _
    AREA-AVERAGED LOSS RATE, Fm (in./hr.) =  0.045

                                  _
    AREA-AVERAGED LOW LOSS FRACTION, Y = 0.079
==========================================================================

 Problem Descriptions:
  160 N CACTUS AVE
  100 YEAR 24 HOUR PROPOSED CONDITIONS
  KIMLEY-HORN
--------------------------------------------------------------------------


    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.85
    TOTAL CATCHMENT AREA(ACRES) =    7.32
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.045
    LOW LOSS FRACTION = 0.079
    TIME OF CONCENTRATION(MIN.) =  8.22
```

SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY(YEARS) = 100
5-MINUTE POINT RAINFALL VALUE(INCHES) = 0.40
30-MINUTE POINT RAINFALL VALUE(INCHES) = 1.03
1-HOUR POINT RAINFALL VALUE(INCHES) = 1.50
3-HOUR POINT RAINFALL VALUE(INCHES) = 2.58
6-HOUR POINT RAINFALL VALUE(INCHES) = 3.62
24-HOUR POINT RAINFALL VALUE(INCHES) = 6.59

TOTAL CATCHMENT RUNOFF VOLUME(ACRE-FEET) = 3.18
TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) = 0.84

****

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	7.5	15.0	22.5	30.0
0.11	0.0039	0.68	Q	.	.	.	.
0.24	0.0116	0.69	Q	.	.	.	.
0.38	0.0194	0.69	Q	.	.	.	.
0.52	0.0273	0.69	Q	.	.	.	.
0.66	0.0351	0.70	Q	.	.	.	.
0.79	0.0431	0.70	Q	.	.	.	.
0.93	0.0510	0.70	Q	.	.	.	.
1.07	0.0590	0.71	Q	.	.	.	.
1.20	0.0670	0.71	Q	.	.	.	.
1.34	0.0751	0.72	Q	.	.	.	.
1.48	0.0832	0.72	Q	.	.	.	.
1.61	0.0914	0.72	Q	.	.	.	.
1.75	0.0996	0.73	Q	.	.	.	.
1.89	0.1079	0.73	Q	.	.	.	.
2.03	0.1162	0.73	Q	.	.	.	.
2.16	0.1245	0.74	Q	.	.	.	.
2.30	0.1329	0.74	Q	.	.	.	.
2.44	0.1413	0.75	Q	.	.	.	.
2.57	0.1498	0.75	.Q	.	.	.	.
2.71	0.1584	0.76	.Q	.	.	.	.
2.85	0.1670	0.76	.Q	.	.	.	.
2.98	0.1756	0.77	.Q	.	.	.	.
3.12	0.1843	0.77	.Q	.	.	.	.
3.26	0.1930	0.78	.Q	.	.	.	.
3.40	0.2018	0.78	.Q	.	.	.	.
3.53	0.2107	0.78	.Q	.	.	.	.
3.67	0.2196	0.79	.Q	.	.	.	.
3.81	0.2285	0.79	.Q	.	.	.	.
3.94	0.2375	0.80	.Q	.	.	.	.
4.08	0.2466	0.80	.Q	.	.	.	.
4.22	0.2557	0.81	.Q	.	.	.	.
4.36	0.2649	0.82	.Q	.	.	.	.

4.49	0.2742	0.82	.Q	.	.	.	.
4.63	0.2835	0.83	.Q	.	.	.	.
4.77	0.2929	0.83	.Q	.	.	.	.
4.90	0.3023	0.84	.Q	.	.	.	.
5.04	0.3118	0.84	.Q	.	.	.	.
5.18	0.3214	0.85	.Q	.	.	.	.
5.31	0.3310	0.85	.Q	.	.	.	.
5.45	0.3407	0.86	.Q	.	.	.	.
5.59	0.3505	0.87	.Q	.	.	.	.
5.72	0.3604	0.87	.Q	.	.	.	.
5.86	0.3703	0.88	.Q	.	.	.	.
6.00	0.3803	0.89	.Q	.	.	.	.
6.14	0.3904	0.89	.Q	.	.	.	.
6.27	0.4006	0.90	.Q	.	.	.	.
6.41	0.4108	0.91	.Q	.	.	.	.
6.55	0.4211	0.92	.Q	.	.	.	.
6.68	0.4315	0.92	.Q	.	.	.	.
6.82	0.4420	0.93	.Q	.	.	.	.
6.96	0.4526	0.94	.Q	.	.	.	.
7.09	0.4633	0.95	.Q	.	.	.	.
7.23	0.4741	0.95	.Q	.	.	.	.
7.37	0.4849	0.96	.Q	.	.	.	.
7.51	0.4959	0.97	.Q	.	.	.	.
7.64	0.5069	0.98	.Q	.	.	.	.
7.78	0.5181	0.99	.Q	.	.	.	.
7.92	0.5294	1.00	.Q	.	.	.	.
8.05	0.5407	1.01	.Q	.	.	.	.
8.19	0.5522	1.02	.Q	.	.	.	.
8.33	0.5638	1.03	.Q	.	.	.	.
8.47	0.5755	1.04	.Q	.	.	.	.
8.60	0.5874	1.05	.Q	.	.	.	.
8.74	0.5993	1.06	.Q	.	.	.	.
8.88	0.6114	1.07	.Q	.	.	.	.
9.01	0.6236	1.09	.Q	.	.	.	.
9.15	0.6360	1.09	.Q	.	.	.	.
9.29	0.6484	1.11	.Q	.	.	.	.
9.42	0.6611	1.12	.Q	.	.	.	.
9.56	0.6738	1.14	.Q	.	.	.	.
9.70	0.6868	1.15	.Q	.	.	.	.
9.84	0.6999	1.17	.Q	.	.	.	.
9.97	0.7131	1.18	.Q	.	.	.	.
10.11	0.7265	1.20	.Q	.	.	.	.
10.25	0.7401	1.21	.Q	.	.	.	.
10.38	0.7539	1.23	.Q	.	.	.	.
10.52	0.7679	1.24	.Q	.	.	.	.
10.66	0.7820	1.26	.Q	.	.	.	.
10.79	0.7964	1.27	.Q	.	.	.	.
10.93	0.8110	1.30	.Q	.	.	.	.
11.07	0.8258	1.31	.Q	.	.	.	.
11.20	0.8408	1.34	.Q	.	.	.	.
11.34	0.8561	1.36	.Q	.	.	.	.

11.48	0.8716	1.39	.Q	.	.	.	.
11.62	0.8873	1.40	.Q	.	.	.	.
11.75	0.9034	1.43	.Q	.	.	.	.
11.89	0.9197	1.45	.Q	.	.	.	.
12.03	0.9364	1.49	.Q	.	.	.	.
12.16	0.9542	1.66	. Q	.	.	.	.
12.30	0.9736	1.75	. Q	.	.	.	.
12.44	0.9934	1.77	. Q	.	.	.	.
12.57	1.0137	1.81	. Q	.	.	.	.
12.71	1.0344	1.84	. Q	.	.	.	.
12.85	1.0555	1.89	. Q	.	.	.	.
12.99	1.0771	1.92	. Q	.	.	.	.
13.12	1.0992	1.98	. Q	.	.	.	.
13.26	1.1218	2.01	. Q	.	.	.	.
13.40	1.1449	2.08	. Q	.	.	.	.
13.53	1.1687	2.12	. Q	.	.	.	.
13.67	1.1931	2.20	. Q	.	.	.	.
13.81	1.2182	2.24	. Q	.	.	.	.
13.95	1.2441	2.34	. Q	.	.	.	.
14.08	1.2708	2.39	. Q	.	.	.	.
14.22	1.2987	2.53	. Q	.	.	.	.
14.36	1.3277	2.59	. Q	.	.	.	.
14.49	1.3579	2.74	. Q	.	.	.	.
14.63	1.3894	2.82	. Q	.	.	.	.
14.77	1.4224	3.01	. Q	.	.	.	.
14.90	1.4572	3.13	. Q	.	.	.	.
15.04	1.4941	3.40	. Q	.	.	.	.
15.18	1.5336	3.57	. Q	.	.	.	.
15.32	1.5765	4.01	. Q	.	.	.	.
15.45	1.6243	4.43	. Q	.	.	.	.
15.59	1.6806	5.52	. Q	.	.	.	.
15.73	1.7462	6.08	. Q	.	.	.	.
15.86	1.8253	7.89	. Q	.	.	.	.
16.00	1.9278	10.21	. .	Q	.	.	.
16.14	2.1184	23.47	. .	.	.	.Q	.
16.27	2.2894	6.74	. Q	.	.	.	.
16.41	2.3564	5.09	. Q	.	.	.	.
16.55	2.4066	3.77	. Q	.	.	.	.
16.68	2.4463	3.25	. Q	.	.	.	.
16.82	2.4812	2.91	. Q	.	.	.	.
16.96	2.5128	2.66	. Q	.	.	.	.
17.10	2.5419	2.47	. Q	.	.	.	.
17.23	2.5688	2.29	. Q	.	.	.	.
17.37	2.5939	2.16	. Q	.	.	.	.
17.51	2.6177	2.04	. Q	.	.	.	.
17.64	2.6403	1.95	. Q	.	.	.	.
17.78	2.6619	1.86	. Q	.	.	.	.
17.92	2.6826	1.79	. Q	.	.	.	.
18.06	2.7025	1.72	. Q	.	.	.	.
18.19	2.7206	1.47	.Q	.	.	.	.
18.33	2.7369	1.42	.Q	.	.	.	.

18.47	2.7527	1.37	.Q	.	.	.	.
18.60	2.7680	1.33	.Q	.	.	.	.
18.74	2.7828	1.29	.Q	.	.	.	.
18.88	2.7971	1.25	.Q	.	.	.	.
19.01	2.8111	1.22	.Q	.	.	.	.
19.15	2.8247	1.19	.Q	.	.	.	.
19.29	2.8379	1.16	.Q	.	.	.	.
19.42	2.8509	1.13	.Q	.	.	.	.
19.56	2.8635	1.10	.Q	.	.	.	.
19.70	2.8759	1.08	.Q	.	.	.	.
19.84	2.8879	1.06	.Q	.	.	.	.
19.97	2.8998	1.03	.Q	.	.	.	.
20.11	2.9114	1.01	.Q	.	.	.	.
20.25	2.9227	0.99	.Q	.	.	.	.
20.38	2.9339	0.98	.Q	.	.	.	.
20.52	2.9449	0.96	.Q	.	.	.	.
20.66	2.9556	0.94	.Q	.	.	.	.
20.80	2.9662	0.93	.Q	.	.	.	.
20.93	2.9766	0.91	.Q	.	.	.	.
21.07	2.9869	0.90	.Q	.	.	.	.
21.21	2.9970	0.88	.Q	.	.	.	.
21.34	3.0069	0.87	.Q	.	.	.	.
21.48	3.0167	0.86	.Q	.	.	.	.
21.62	3.0263	0.85	.Q	.	.	.	.
21.75	3.0358	0.83	.Q	.	.	.	.
21.89	3.0452	0.82	.Q	.	.	.	.
22.03	3.0544	0.81	.Q	.	.	.	.
22.17	3.0636	0.80	.Q	.	.	.	.
22.30	3.0726	0.79	.Q	.	.	.	.
22.44	3.0815	0.78	.Q	.	.	.	.
22.58	3.0903	0.77	.Q	.	.	.	.
22.71	3.0990	0.76	.Q	.	.	.	.
22.85	3.1076	0.75	.Q	.	.	.	.
22.99	3.1160	0.75	Q	.	.	.	.
23.12	3.1244	0.74	Q	.	.	.	.
23.26	3.1327	0.73	Q	.	.	.	.
23.40	3.1409	0.72	Q	.	.	.	.
23.53	3.1491	0.71	Q	.	.	.	.
23.67	3.1571	0.71	Q	.	.	.	.
23.81	3.1651	0.70	Q	.	.	.	.
23.95	3.1729	0.69	Q	.	.	.	.
24.08	3.1807	0.69	Q	.	.	.	.
24.22	3.1846	0.00	Q	.	.	.	.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Duration

Peak Flow Rate	(minutes)
0%	1446.7
10%	189.1
20%	57.5
30%	24.7
40%	16.4
50%	8.2
60%	8.2
70%	8.2
80%	8.2
90%	8.2

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	TERENCE ZHAO 626-425-2874 TERENCE.ZHAO@ADSPIPE.COM
ADS SALES REP	ARNE ERIKSEN 951-796-2048 ARNE.ERIKSEN@ADS-PIPE.COM
PROJECT NO.	S335291

Advanced Drainage Systems, Inc.

ADS SiteAssist™
FOR STORMTECH
INSTALLATION INSTRUCTIONS
VISIT OUR APP

160 N CACTUS

RIALTO, CA, USA

MC-7200 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-7200.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-7200 CHAMBER SYSTEM

1. STORMTECH MC-7200 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-7200 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-7200 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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PROPOSED LAYOUT

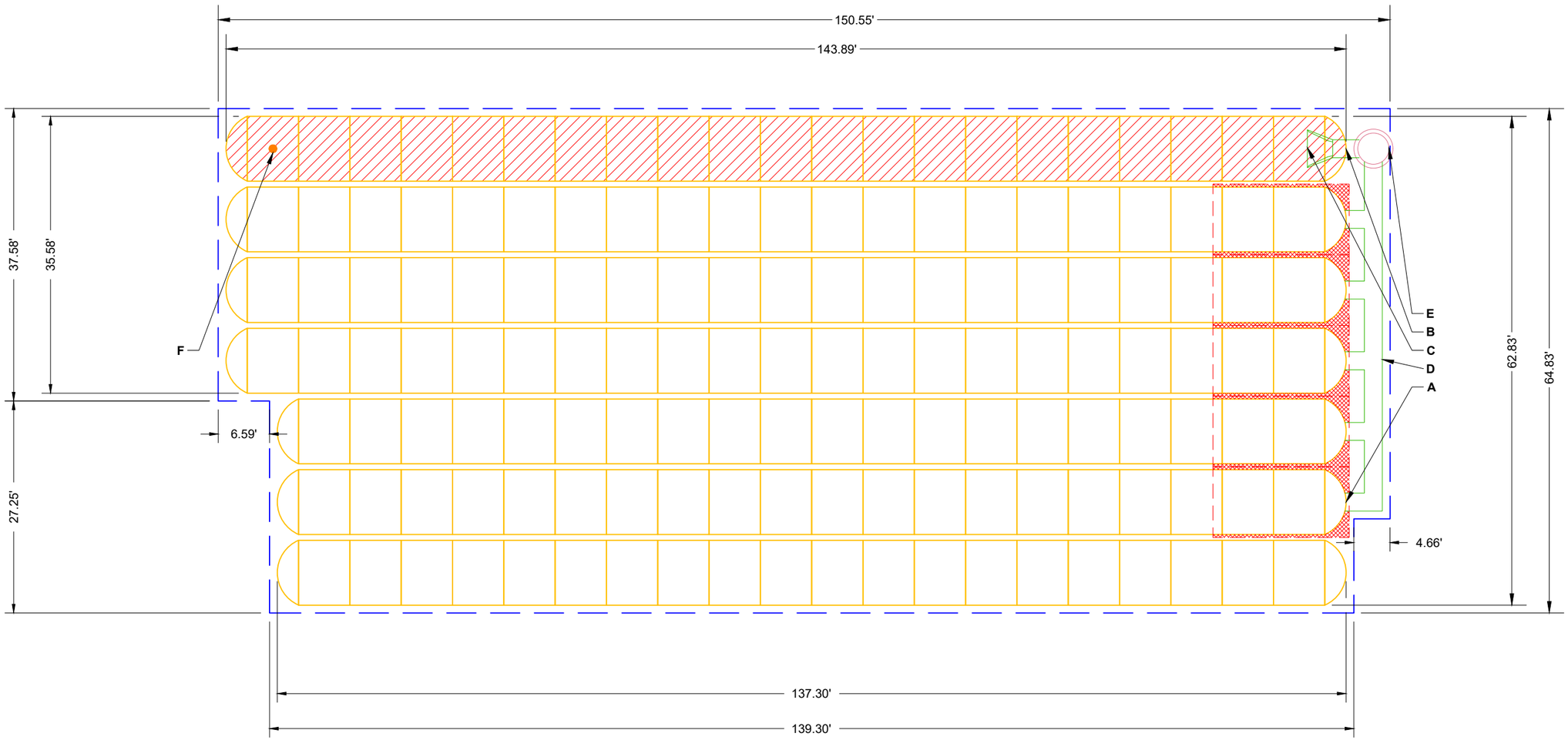
144	STORMTECH MC-7200 CHAMBERS
14	STORMTECH MC-7200 END CAPS
12	STONE ABOVE (in)
9	STONE BELOW (in)
40	% STONE VOID
41,245	**INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED)**
9,524	SYSTEM AREA (ft²)
431	SYSTEM PERIMETER (ft)

PROPOSED ELEVATIONS

1235.73	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
1231.23	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
1230.73	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
1230.73	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
1230.73	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
1229.73	TOP OF STONE
1228.73	TOP OF MC-7200 CHAMBER
1225.65	24" TOP MANIFOLD INVERT
1223.92	24" ISOLATOR ROW PLUS CONNECTION INVERT
1223.73	BOTTOM OF MC-7200 CHAMBER
1222.98	BOTTOM OF STONE

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	24" TOP PARTIAL CUT END CAP, PART#: MC7200IEPP24T / TYP OF ALL 24" TOP CONNECTIONS	23.05"	
PREFABRICATED END CAP	B	24" BOTTOM PARTIAL CUT END CAP, PART#: MC7200IEPP24B / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.26"	
FLAMP	C	INSTALL FLAMP ON 24" ACCESS PIPE / PART#: MC720024RAMP		
MANIFOLD	D	24" x 24" TOP MANIFOLD, ADS N-12	23.05"	
CONCRETE STRUCTURE	E	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		33.2 CFS IN
INSPECTION PORT	F	4" SEE DETAIL		



ISOLATOR ROW PLUS
(SEE DETAIL)

PLACE MINIMUM 17.50' OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.

160 N CACTUS
RIALTO, CA, USA

DATE: 01/31/23 | DRAWN: AMC | CHECKED: JPR
PROJECT #: S335291

DATE	DRW	CHK	DESCRIPTION
02/21/23	PME	RWD	REVISE - UPDATED VOLUME

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StormTech®
Chamber System
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4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

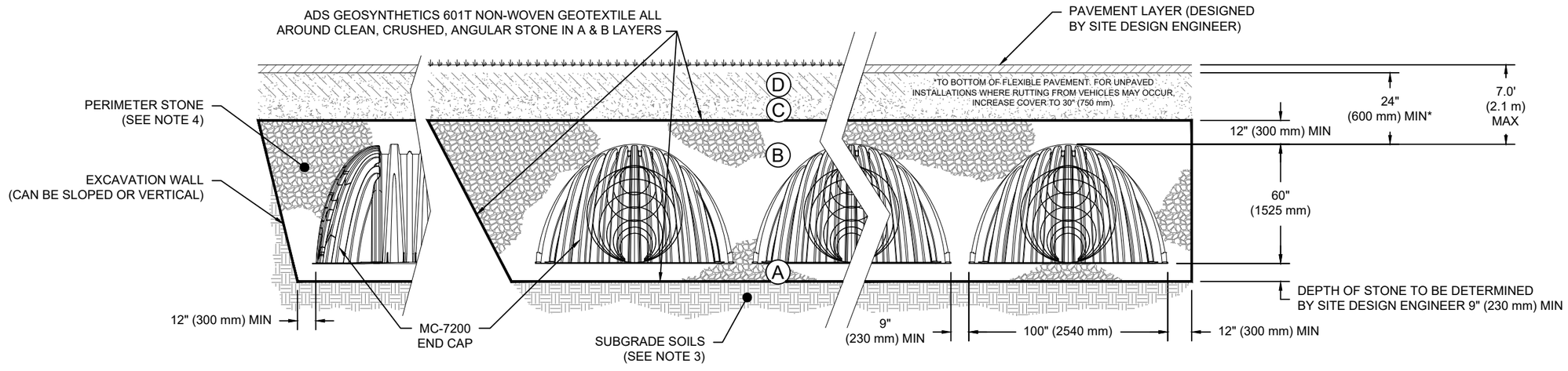
ADS

30
15
0

ACCEPTABLE FILL MATERIALS: STORMTECH MC-7200 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-7200 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

160 N CACTUS
RIALTO, CA, USA
DATE: 01/31/23 | DRAWN: AMC | CHECKED: JPR
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DATE	DRW	PME	CHK	RWD	DESCRIPTION	REVISE - UPDATED VOLUME
02/21/23						

StormTech® Chamber System
888-892-2694 | WWW.STORMTECH.COM

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

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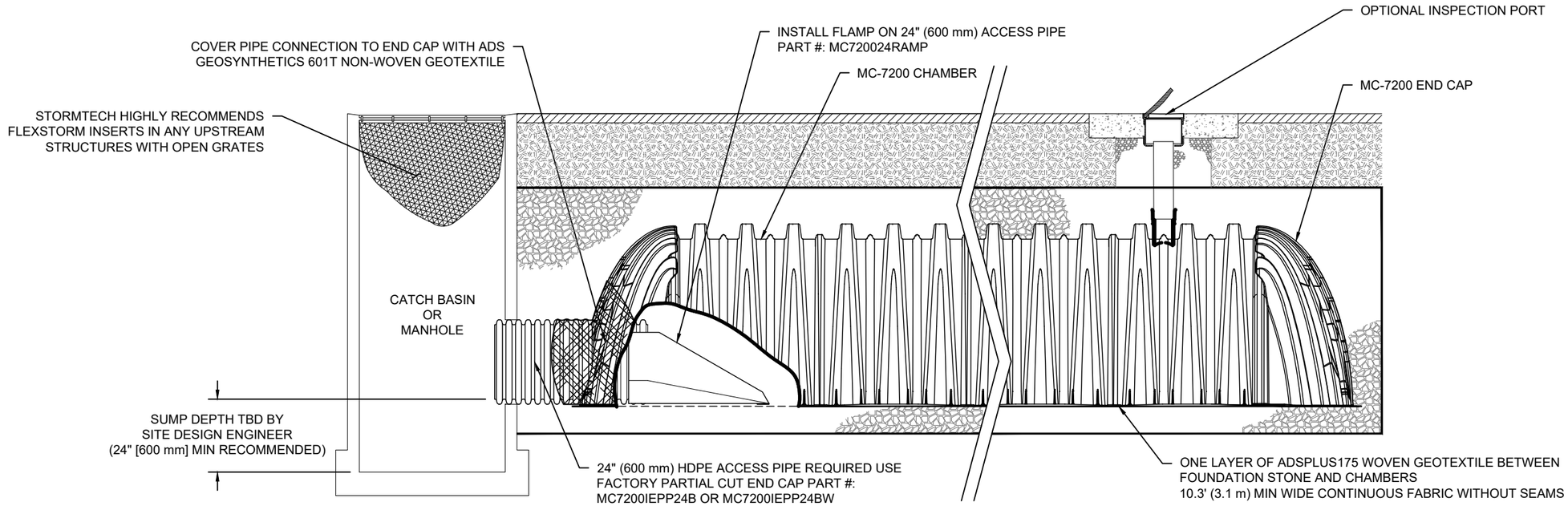


MC-7200 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

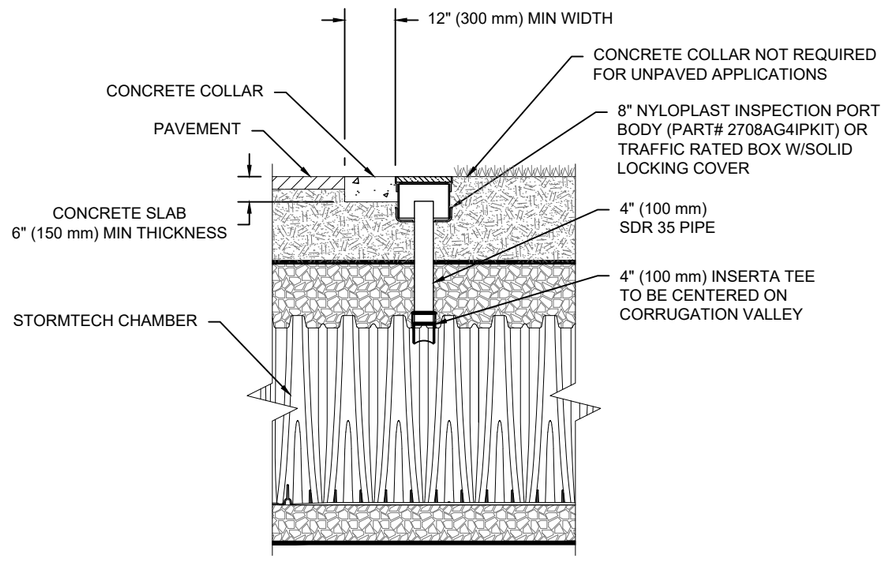
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4" PVC INSPECTION PORT DETAIL
(MC SERIES CHAMBER)
NTS

160 N CACTUS
RIALTO, CA, USA

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02/21/23	PME	RWD	REVISE - UPDATED VOLUME

ADS
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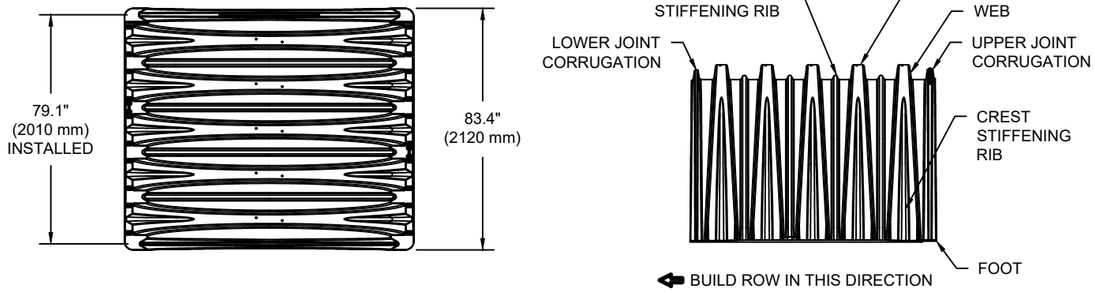
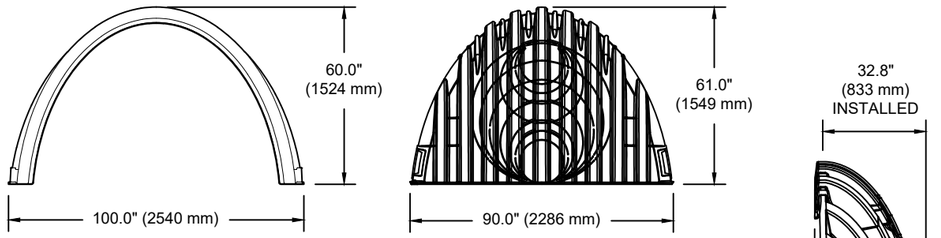
MC-7200 TECHNICAL SPECIFICATION

NTS





NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 79.1"	(2540 mm X 1524 mm X 2010 mm)
CHAMBER STORAGE	175.9 CUBIC FEET	(4.98 m³)
MINIMUM INSTALLED STORAGE*	267.3 CUBIC FEET	(7.56 m³)
WEIGHT (NOMINAL)	205 lbs.	(92.9 kg)

NOMINAL END CAP SPECIFICATIONS

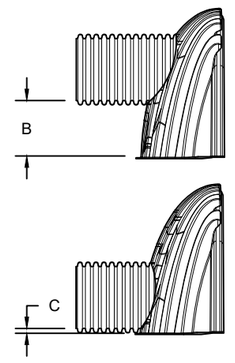
SIZE (W X H X INSTALLED LENGTH)	90.0" X 61.0" X 32.8"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC7200IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC7200IEPP06B		---	0.86" (22 mm)
MC7200IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC7200IEPP08B		---	1.01" (26 mm)
MC7200IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC7200IEPP10B		---	1.33" (34 mm)
MC7200IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC7200IEPP12B		---	1.55" (39 mm)
MC7200IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC7200IEPP15B		---	1.70" (43 mm)
MC7200IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC7200IEPP18TW			
MC7200IEPP18B		---	1.97" (50 mm)
MC7200IEPP18BW			
MC7200IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC7200IEPP24TW			
MC7200IEPP24B		---	2.26" (57 mm)
MC7200IEPP24BW			
MC7200IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC7200IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC7200IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

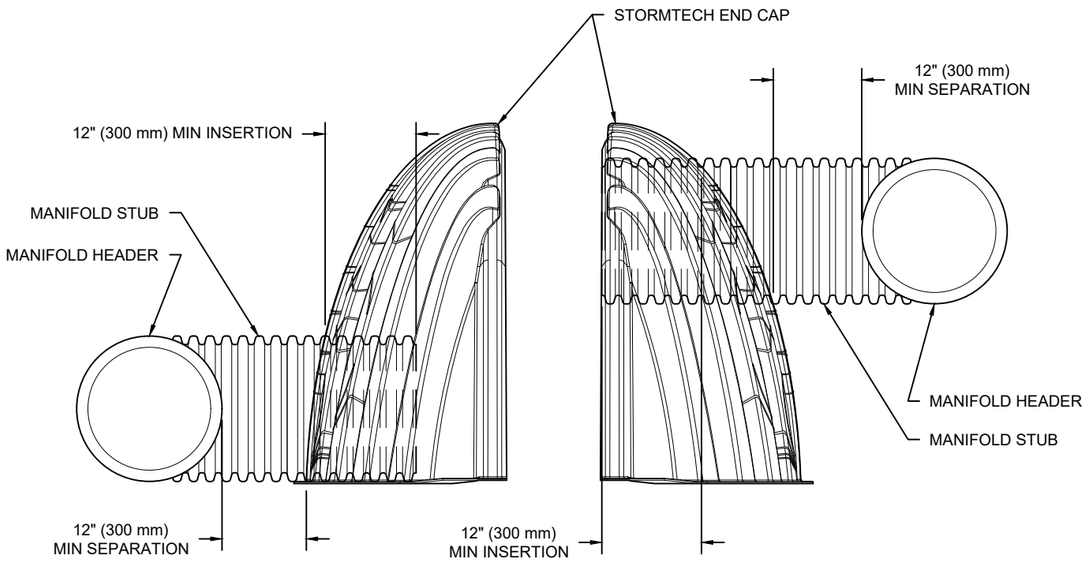
NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PREFABRICATED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-7200 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL

NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

160 N CACTUS
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6" @ 2%
6
6"SD
2.00%
2.00%
1237.04 TC
1236.37 FS
RIM: 1235.69
INV IN: 1224.02
INV OUT: 1223.92
2
1236.70 TC
1236.03 FS
24"SD
2.70%
1235.83 TC
1235.16 FS
3.87%
7
RIM: 1236.02
1223.75 INV (W)
1223.75 INV (N)
1223.65 INV (S)
1227.61 INV
1225.37 INV
24"SD
24"SD
24"SD
24"SD
6
24" @ 2%
1.25%
1235.54 TC
1234.87 FS
1
1235.21 TC
1234.54 FS
24" @ 2%
6
24"SD
RIM: 1233.95
1228.78 INV (W)
1233.28 INV (S)
1228.68 INV (E)
4
15" @ 2%
6
15"SD
15"SD
RIM: 1232.58
1225.71 INV (N)
1225.81 INV (W)
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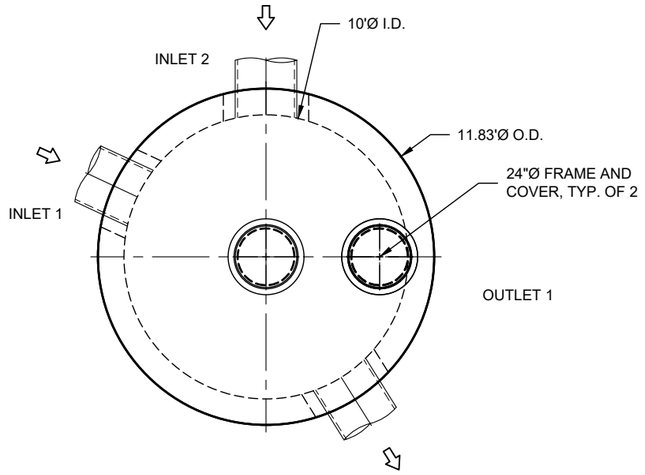
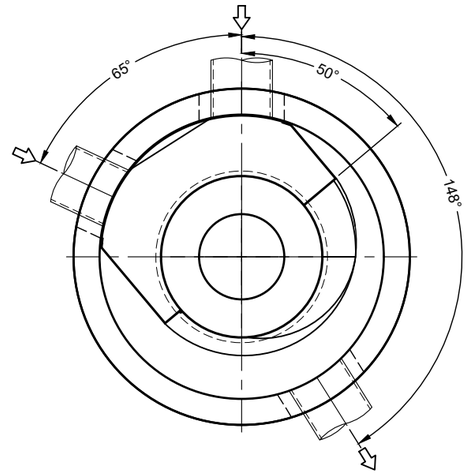
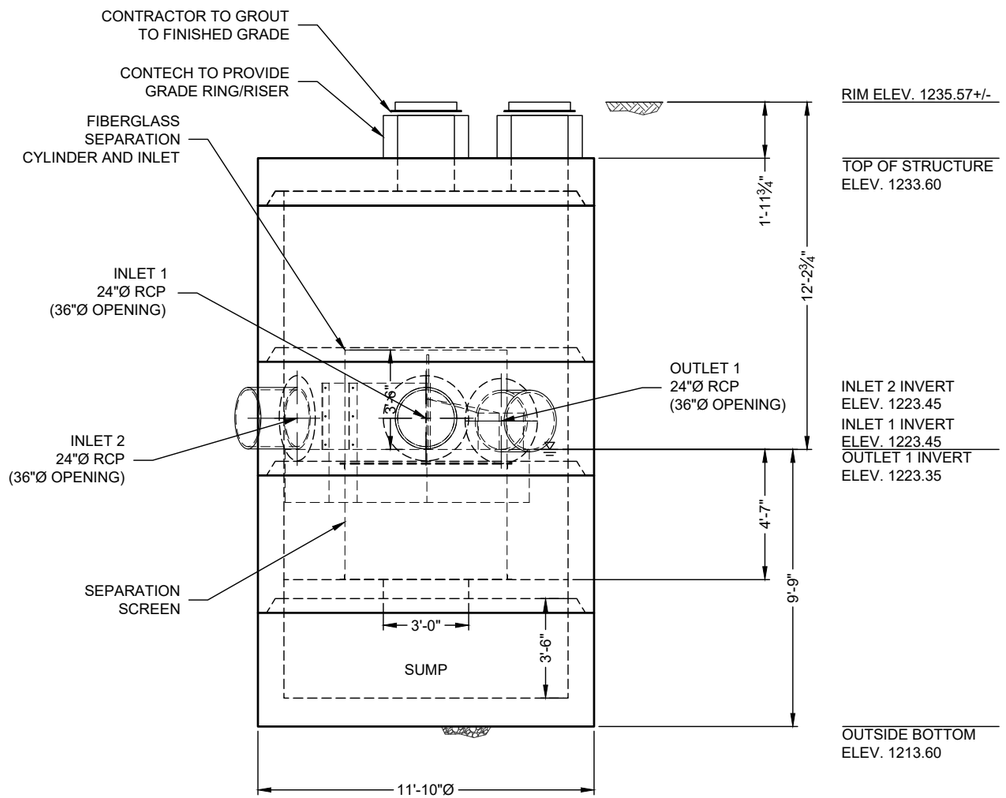
7
6
15" @ 2%
4
1232.85 TC
12"SD



PLAN VIEW
INTERNALS NOT SHOWN



PLAN VIEW FOR PIPE ORIENTATION
TOP SLAB NOT SHOWN



ELEVATION VIEW

MATERIAL LIST (PROVIDED BY CONTECH)

COUNT	DESCRIPTION	INSTALLED BY
1	5640-10 LEFT CONCENTRIC FIBERGLASS INSERT	CONTRACTOR
1	5640, 4700 micron, 5.71' O.D. x 4.08' SCREEN, GREEN FLANGE UP	CONTRACTOR
1	56 SERIES HARDWARE KIT	CONTRACTOR
1	SEALANT FOR JOINTS	CONTRACTOR
2 PLC	GRADE RINGS/RISERS	CONTRACTOR
2	24"Ø X 4" FRAME AND COVER, EJ #416003009A01, NV	CONTRACTOR

SITE DESIGN DATA

WATER QUALITY FLOW RATE	3.50 CFS

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = 33000 LBS.
STRUCTURE IS DELIVERED IN 5 PIECES

MAX FOOTPRINT = 11.83'Ø

CONTECH
PROPOSAL
DRAWING

PRECS
LAYOUT 1A

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MARK	DATE	REVISION DESCRIPTION	BY

CDS5640-10-C - 743584-010
160 N CACTUS AVE
RIALTO, CA
SITE DESIGNATION: CDS

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
11815 NE Glenn Widing Drive, Portland, OR 97220
800-548-4667 503-240-3393 800-561-1271 FAX
FOR PATENT INFORMATION, GO TO www.ContechES.com/IP

DATE:	06/15/2023
DESIGNED: RLH	DRAWN: RLH
CHECKED: RLH	APPROVED: RLH
PROJECT No.: 743584	SEQUENCE No.: 010
SHEET:	1 OF 1

\\QUIKRETE.NET\CONTECH\MERLIN\PROJECTVAC\TVE\743500\743584\743584-10-CDS\DRAWINGS\743584-10-CDS5640-10-C-CONFAB.DWG 6/15/2023 8:57 AM

Project: **160 N Cactus**

Chamber Model -	MC-7200	
Units -	Imperial	
Number of Chambers -	144	
Number of End Caps -	14	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	1222.98	ft
Amount of Stone Above Chambers -	12	in
Amount of Stone Below Chambers -	9	in

Area of system - 9524 sf Min. Area - 9097 sf min. area

StormTech MC-7200 Cumulative Storage Volumes

Height of System (inches)	Incremental Single Chamber (cubic feet)	Incremental Single End Cap (cubic feet)	Incremental Chambers (cubic feet)	Incremental End Cap (cubic feet)	Incremental Stone (cubic feet)	Incremental Ch, EC and Stone (feet)	Cumulative System (cubic feet)	Elevation (feet)
81	0.00	0.00	0.00	0.00	317.47	317.47	41244.90	1229.73
80	0.00	0.00	0.00	0.00	317.47	317.47	40927.44	1229.65
79	0.00	0.00	0.00	0.00	317.47	317.47	40609.97	1229.56
78	0.00	0.00	0.00	0.00	317.47	317.47	40292.50	1229.48
77	0.00	0.00	0.00	0.00	317.47	317.47	39975.04	1229.40
76	0.00	0.00	0.00	0.00	317.47	317.47	39657.57	1229.31
75	0.00	0.00	0.00	0.00	317.47	317.47	39340.10	1229.23
74	0.00	0.00	0.00	0.00	317.47	317.47	39022.64	1229.15
73	0.00	0.00	0.00	0.00	317.47	317.47	38705.17	1229.06
72	0.00	0.00	0.00	0.00	317.47	317.47	38387.70	1228.98
71	0.00	0.00	0.00	0.00	317.47	317.47	38070.24	1228.90
70	0.00	0.00	0.00	0.00	317.47	317.47	37752.77	1228.81
69	0.06	0.01	8.55	0.18	313.97	322.71	37435.30	1228.73
68	0.19	0.03	27.39	0.47	306.32	334.18	37112.60	1228.65
67	0.28	0.05	39.63	0.72	301.33	341.68	36778.41	1228.56
66	0.36	0.07	51.44	0.92	296.52	348.89	36436.74	1228.48
65	0.46	0.08	66.01	1.16	290.60	357.77	36087.85	1228.40
64	0.74	0.11	106.80	1.47	274.16	382.43	35730.08	1228.31
63	1.10	0.13	157.88	1.85	253.57	413.31	35347.65	1228.23
62	1.32	0.16	189.86	2.25	240.62	432.74	34934.35	1228.15
61	1.50	0.19	215.75	2.64	230.11	448.50	34501.61	1228.06
60	1.65	0.22	238.25	3.06	220.94	462.25	34053.11	1227.98
59	1.79	0.25	258.33	3.46	212.75	474.54	33590.86	1227.90
58	1.92	0.28	276.43	3.85	205.35	485.64	33116.32	1227.81
57	2.04	0.30	293.39	4.23	198.42	496.04	32630.68	1227.73
56	2.15	0.33	308.93	4.59	192.06	505.57	32134.65	1227.65
55	2.25	0.35	323.67	4.96	186.01	514.65	31629.07	1227.56
54	2.34	0.38	337.41	5.37	180.35	523.14	31114.43	1227.48
53	2.43	0.41	350.42	5.73	175.01	531.15	30591.29	1227.40
52	2.52	0.44	362.74	6.17	169.90	538.82	30060.14	1227.31
51	2.60	0.47	374.48	6.56	165.05	546.09	29521.32	1227.23
50	2.68	0.50	385.69	6.93	160.42	553.04	28975.23	1227.15
49	2.75	0.52	396.37	7.29	156.00	559.66	28422.18	1227.06
48	2.82	0.54	406.58	7.62	151.79	565.99	27862.52	1226.98
47	2.89	0.57	416.36	7.93	147.75	572.05	27296.54	1226.90
46	2.96	0.59	425.72	8.24	143.88	577.84	26724.49	1226.81
45	3.02	0.61	434.70	8.54	140.17	583.41	26146.65	1226.73
44	3.08	0.63	443.32	8.85	136.60	588.77	25563.24	1226.65
43	3.14	0.64	451.62	9.00	133.22	593.84	24974.47	1226.56
42	3.19	0.68	459.61	9.48	129.83	598.92	24380.62	1226.48
41	3.25	0.70	467.28	9.80	126.63	603.71	23781.70	1226.40
40	3.30	0.72	474.67	10.11	123.55	608.34	23177.98	1226.31
39	3.35	0.74	481.77	10.41	120.59	612.78	22569.65	1226.23
38	3.39	0.76	488.61	10.70	117.74	617.05	21956.87	1226.15
37	3.44	0.79	495.19	11.00	114.99	621.18	21339.82	1226.06
36	3.48	0.80	501.53	11.24	112.36	625.13	20718.64	1225.98
35	3.53	0.82	507.65	11.48	109.81	628.95	20093.51	1225.90
34	3.57	0.84	513.53	11.74	107.36	632.63	19464.56	1225.81
33	3.61	0.85	519.20	11.92	105.02	636.14	18831.94	1225.73
32	3.64	0.86	524.66	12.03	102.79	639.48	18195.80	1225.65
31	3.68	0.89	529.91	12.45	100.52	642.89	17556.31	1225.56
30	3.71	0.90	534.96	12.66	98.42	646.04	16913.43	1225.48
29	3.75	0.92	539.81	12.84	96.41	649.06	16267.39	1225.40
28	3.78	0.92	544.46	12.88	94.53	651.87	15618.33	1225.31
27	3.81	0.94	548.93	13.21	92.61	654.75	14966.46	1225.23
26	3.84	0.96	553.20	13.39	90.83	657.42	14311.71	1225.15
25	3.87	0.97	557.30	13.56	89.12	659.99	13654.29	1225.06
24	3.90	0.98	561.23	13.74	87.48	662.45	12994.30	1224.98
23	3.92	0.97	564.98	13.60	86.04	664.61	12331.85	1224.90
22	3.95	1.00	568.55	14.05	84.43	667.02	11667.24	1224.81
21	3.97	1.01	571.96	14.16	83.02	669.14	11000.22	1224.73
20	3.99	1.02	575.21	14.29	81.67	671.16	10331.08	1224.65
19	4.02	1.03	578.29	14.42	80.38	673.10	9659.92	1224.56
18	4.04	1.04	581.21	14.54	79.16	674.92	8986.82	1224.48
17	4.06	1.05	583.98	14.65	78.01	676.65	8311.90	1224.40
16	4.07	1.05	586.59	14.76	76.93	678.28	7635.26	1224.31
15	4.09	1.05	589.03	14.71	75.97	679.71	6956.98	1224.23
14	4.11	1.06	591.36	14.79	75.00	681.16	6277.27	1224.15
13	4.12	1.08	593.58	15.06	74.01	682.65	5596.11	1224.06
12	4.14	1.08	595.66	15.16	73.14	683.96	4913.46	1223.98
11	4.15	1.09	597.60	15.23	72.33	685.16	4229.50	1223.90
10	4.17	1.11	600.63	15.49	71.02	687.14	3544.34	1223.81
9	0.00	0.00	0.00	0.00	317.47	317.47	2857.20	1223.73
8	0.00	0.00	0.00	0.00	317.47	317.47	2539.73	1223.65
7	0.00	0.00	0.00	0.00	317.47	317.47	2222.27	1223.56
6	0.00	0.00	0.00	0.00	317.47	317.47	1904.80	1223.48
5	0.00	0.00	0.00	0.00	317.47	317.47	1587.33	1223.40
4	0.00	0.00	0.00	0.00	317.47	317.47	1269.87	1223.31
3	0.00	0.00	0.00	0.00	317.47	317.47	952.40	1223.23
2	0.00	0.00	0.00	0.00	317.47	317.47	634.93	1223.15
1	0.00	0.00	0.00	0.00	317.47	317.47	317.47	1223.06

Detention Basin Infiltration Calculation

Project Name: 160 N Cactus Ave
Completed by: BY
Reviewed by: LAC
Date: 22-Jun-23
Updated: 26-Jun-23
County: San Bernardino

Measured Infiltration Rate	Design Factor of Safety	Design Infiltration Rate	Detention Basin Infiltration Area	In/Hr to Ft/Sec Conversion Value	Pondpack Infiltration Rate
(in/hr)		(in/hr)	(sf)		(cf/sec)
37	3	12.33	9524	43200	2.72

160 N Cactus Ave

Project Summary	
Title	160 Cactus
Engineer	Bryant Yang
Company	Kimley-Horn and Associates, Inc.
Date	6/26/2023

Notes	1. Inflow hydrograph calculated based on Small Unit Hydrograph from San Bernardino County Hydrology Manual (April 1978) using AES software. 2. Flow-through basin analysis completed using modfified Pul's (storage indication routing).

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160 N Cactus Ave

Subsection: User Notifications

User Notifications?	No user notifications generated.

160 N Cactus Ave

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft^3)	Time to Peak (hours)	Peak Flow (ft^3/s)
A	Base	0	135,716.000	16.023	23.72

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft^3)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ft^3)
Det-A (IN)	Base	0	135,544.000	16.000	21.49	(N/A)	(N/A)
Det-A (OUT)	Base	0	0.000	0.000	0.00	1,226.667	25,691.000

160 N Cactus Ave

Subsection: Read Hydrograph
Scenario: Base
Label: A

Peak Discharge	23.72 ft³/s
Time to Peak	16.029 hours
Hydrograph Volume	135,770.562 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.137 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.000	0.67	0.67	0.67	0.68	0.68
0.685	0.68	0.69	0.69	0.69	0.70
1.370	0.70	0.71	0.71	0.71	0.72
2.055	0.72	0.73	0.73	0.73	0.74
2.740	0.74	0.75	0.75	0.76	0.76
3.425	0.77	0.77	0.78	0.78	0.79
4.110	0.79	0.80	0.80	0.81	0.81
4.795	0.82	0.82	0.83	0.83	0.84
5.480	0.85	0.85	0.86	0.87	0.87
6.165	0.88	0.89	0.90	0.90	0.91
6.850	0.92	0.93	0.93	0.94	0.95
7.535	0.96	0.97	0.98	0.98	1.00
8.220	1.00	1.02	1.02	1.04	1.05
8.905	1.06	1.07	1.09	1.09	1.11
9.590	1.12	1.14	1.15	1.17	1.18
10.275	1.20	1.21	1.23	1.24	1.27
10.960	1.28	1.31	1.32	1.35	1.37
11.645	1.40	1.42	1.45	1.62	1.71
12.330	1.73	1.77	1.80	1.85	1.87
13.015	1.93	1.96	2.03	2.07	2.14
13.700	2.19	2.28	2.33	2.47	2.53
14.385	2.68	2.76	2.94	3.05	3.31
15.070	3.47	3.86	4.26	5.38	5.95
15.755	7.80	10.17	23.72	6.63	4.94
16.440	3.65	3.17	2.85	2.60	2.41
17.125	2.23	2.10	2.00	1.90	1.82
17.810	1.75	1.68	1.44	1.38	1.34
18.495	1.30	1.26	1.22	1.19	1.16
19.180	1.13	1.10	1.08	1.05	1.03
19.865	1.01	0.99	0.97	0.95	0.94
20.550	0.92	0.91	0.89	0.88	0.86
21.235	0.85	0.84	0.83	0.81	0.80
21.920	0.79	0.78	0.77	0.76	0.75
22.605	0.74	0.74	0.73	0.72	0.71
23.290	0.70	0.70	0.69	0.68	0.68
23.975	0.67	0.00	0.00	(N/A)	(N/A)

160 N Cactus Ave

Subsection: Time vs. Elevation
Scenario: Base
Label: Det-A (IN)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	0.000	262.331	296.236	300.618	301.184
0.250	301.258	301.640	302.778	304.354	305.428
0.500	305.721	305.759	305.764	305.765	305.983
0.750	306.945	308.499	309.724	310.192	310.253
1.000	310.260	310.261	310.325	311.112	312.643
1.250	314.020	314.663	314.746	315.193	316.403
1.500	317.988	319.000	319.222	319.250	319.254
1.750	319.255	319.537	320.570	322.133	323.296
2.000	323.692	323.744	324.405	325.861	327.352
2.250	328.132	328.233	328.246	328.247	328.248
2.500	328.748	330.028	331.623	332.572	332.722
2.750	332.900	333.797	335.342	336.626	337.161
3.000	337.231	337.772	339.088	340.684	341.601
3.250	341.720	341.926	342.858	344.408	345.660
3.500	346.160	346.224	346.796	348.149	349.718
3.750	350.600	350.714	350.951	351.918	353.473
4.000	354.695	355.158	355.218	355.822	357.210
4.250	358.751	359.598	359.707	359.976	360.979
4.500	362.538	363.729	364.157	364.212	364.846
4.750	366.271	367.785	368.596	368.701	369.000
5.000	370.040	371.604	372.763	373.155	373.206
5.250	373.871	375.331	376.949	378.588	380.230
5.500	381.554	382.122	382.195	382.709	383.995
5.750	385.590	387.226	388.867	390.346	391.089
6.000	391.185	391.547	392.658	394.231	395.864
6.250	397.504	399.146	400.788	402.430	403.877
6.500	404.584	404.675	405.068	406.215	407.793
6.750	409.426	411.067	412.709	414.351	415.992
7.000	417.408	418.079	418.166	418.590	419.773
7.250	421.355	422.989	424.630	426.271	427.913
7.500	429.555	431.196	432.838	434.480	436.122
7.750	437.764	439.405	440.416	440.630	440.864
8.000	442.530	445.604	448.281	449.477	449.631
8.250	450.604	453.113	456.296	458.240	458.595
8.500	458.911	460.651	463.735	466.671	468.873
8.750	470.587	472.239	473.881	475.523	477.165
9.000	478.807	480.616	483.160	486.348	488.913
9.250	489.967	490.103	491.201	493.852	497.042
9.500	499.587	501.345	503.201	505.783	508.976
9.750	511.863	513.995	515.700	517.922	520.925
10.000	524.129	526.644	528.398	530.285	532.903

Subsection: Time vs. Elevation
Scenario: Base
Label: Det-A (IN)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.250	536.101	538.956	541.053	542.753	545.006
10.500	548.045	551.222	553.701	555.451	557.631
10.750	561.296	566.058	570.065	572.545	574.294
11.000	577.221	581.729	586.386	589.633	591.482
11.250	593.738	597.476	602.248	606.673	610.339
11.500	613.671	617.628	622.380	627.144	631.195
11.750	634.578	638.200	642.567	647.421	659.508
12.000	682.537	709.816	732.053	747.920	761.642
12.250	770.082	774.032	778.117	783.648	790.081
12.500	796.087	801.323	806.320	812.715	820.690
12.750	828.261	833.635	837.189	842.064	849.969
13.000	859.568	867.658	873.410	878.632	886.646
13.250	897.688	908.419	916.966	923.789	931.652
13.500	941.793	953.111	963.365	972.053	980.641
13.750	992.076	1,006.419	1,020.075	1,030.783	1,039.314
14.000	1,051.639	1,070.887	1,093.388	1,111.195	1,122.678
14.250	1,133.740	1,151.181	1,174.878	1,197.299	1,214.552
14.500	1,223.061	1,223.064	1,223.070	1,223.079	1,223.091
14.750	1,223.105	1,223.122	1,223.142	1,223.165	1,223.191
15.000	1,223.221	1,223.253	1,223.289	1,223.333	1,223.387
15.250	1,223.444	1,223.505	1,223.577	1,223.669	1,223.749
15.500	1,223.804	1,223.871	1,223.939	1,224.012	1,224.103
15.750	1,224.209	1,224.328	1,224.473	1,224.651	1,224.906
16.000	1,225.273	1,225.699	1,226.041	1,226.243	1,226.348
16.250	1,226.428	1,226.488	1,226.535	1,226.572	1,226.601
16.500	1,226.623	1,226.640	1,226.652	1,226.660	1,226.665
16.750	1,226.667	1,226.667	1,226.665	1,226.661	1,226.656
17.000	1,226.648	1,226.638	1,226.626	1,226.612	1,226.597
17.250	1,226.581	1,226.564	1,226.547	1,226.530	1,226.512
17.500	1,226.493	1,226.473	1,226.453	1,226.432	1,226.410
17.750	1,226.386	1,226.360	1,226.334	1,226.307	1,226.283
18.000	1,226.257	1,226.229	1,226.199	1,226.168	1,226.136
18.250	1,226.101	1,226.065	1,226.033	1,226.000	1,225.968
18.500	1,225.935	1,225.902	1,225.865	1,225.828	1,225.792
18.750	1,225.758	1,225.724	1,225.690	1,225.655	1,225.617
19.000	1,225.578	1,225.541	1,225.506	1,225.470	1,225.435
19.250	1,225.399	1,225.359	1,225.318	1,225.281	1,225.245
19.500	1,225.209	1,225.173	1,225.134	1,225.093	1,225.052
19.750	1,225.016	1,224.979	1,224.941	1,224.904	1,224.863
20.000	1,224.821	1,224.782	1,224.744	1,224.707	1,224.669
20.250	1,224.629	1,224.586	1,224.545	1,224.507	1,224.469

Subsection: Time vs. Elevation
Scenario: Base
Label: Det-A (IN)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.500	1,224.431	1,224.391	1,224.348	1,224.306	1,224.267
20.750	1,224.229	1,224.190	1,224.151	1,224.108	1,224.064
21.000	1,224.025	1,223.986	1,223.947	1,223.907	1,223.864
21.250	1,223.820	1,223.779	1,223.740	1,223.667	1,223.573
21.500	1,223.485	1,223.400	1,223.303	1,223.217	1,223.128
21.750	991.043	441.294	368.813	358.015	355.190
22.000	353.396	351.734	350.090	348.448	346.806
22.250	345.164	343.522	341.881	340.239	338.597
22.500	336.955	335.314	333.732	332.872	332.761
22.750	332.500	331.505	329.947	328.316	326.676
23.000	325.035	323.393	321.751	320.109	318.467
23.250	316.826	315.462	314.849	314.770	314.295
23.500	313.054	311.465	309.829	308.188	306.670
23.750	305.882	305.780	305.457	304.391	302.824
24.000	268.431	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Scenario: Base
Label: Det-A

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
0.000	0.000	68.000	77.000	78.000	78.000
0.250	78.000	78.000	79.000	79.000	79.000
0.500	79.000	79.000	79.000	79.000	79.000
0.750	80.000	80.000	80.000	81.000	81.000
1.000	81.000	81.000	81.000	81.000	81.000
1.250	82.000	82.000	82.000	82.000	82.000
1.500	83.000	83.000	83.000	83.000	83.000
1.750	83.000	83.000	83.000	84.000	84.000
2.000	84.000	84.000	84.000	85.000	85.000
2.250	85.000	85.000	85.000	85.000	85.000
2.500	85.000	86.000	86.000	86.000	86.000
2.750	86.000	87.000	87.000	87.000	88.000
3.000	88.000	88.000	88.000	88.000	89.000
3.250	89.000	89.000	89.000	89.000	90.000
3.500	90.000	90.000	90.000	90.000	91.000
3.750	91.000	91.000	91.000	91.000	92.000
4.000	92.000	92.000	92.000	92.000	93.000
4.250	93.000	93.000	93.000	93.000	94.000
4.500	94.000	94.000	95.000	95.000	95.000
4.750	95.000	95.000	96.000	96.000	96.000
5.000	96.000	96.000	97.000	97.000	97.000
5.250	97.000	97.000	98.000	98.000	99.000
5.500	99.000	99.000	99.000	99.000	100.000
5.750	100.000	101.000	101.000	101.000	102.000
6.000	102.000	102.000	102.000	102.000	103.000
6.250	103.000	104.000	104.000	104.000	105.000
6.500	105.000	105.000	105.000	105.000	106.000
6.750	106.000	107.000	107.000	108.000	108.000
7.000	108.000	109.000	109.000	109.000	109.000
7.250	109.000	110.000	110.000	111.000	111.000
7.500	111.000	112.000	112.000	113.000	113.000
7.750	114.000	114.000	114.000	114.000	114.000
8.000	115.000	116.000	116.000	117.000	117.000
8.250	117.000	118.000	118.000	119.000	119.000
8.500	119.000	120.000	120.000	121.000	122.000
8.750	122.000	123.000	123.000	123.000	124.000
9.000	124.000	125.000	125.000	126.000	127.000
9.250	127.000	127.000	128.000	128.000	129.000
9.500	130.000	130.000	131.000	131.000	132.000
9.750	133.000	133.000	134.000	134.000	135.000
10.000	136.000	137.000	137.000	138.000	138.000

160 N Cactus Ave

Subsection: Time vs. Volume
Scenario: Base
Label: Det-A

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
10.250	139.000	140.000	140.000	141.000	141.000
10.500	142.000	143.000	144.000	144.000	145.000
10.750	146.000	147.000	148.000	149.000	149.000
11.000	150.000	151.000	152.000	153.000	154.000
11.250	154.000	155.000	156.000	157.000	158.000
11.500	159.000	160.000	162.000	163.000	164.000
11.750	165.000	166.000	167.000	168.000	171.000
12.000	177.000	184.000	190.000	194.000	198.000
12.250	200.000	201.000	202.000	203.000	205.000
12.500	207.000	208.000	209.000	211.000	213.000
12.750	215.000	216.000	217.000	219.000	221.000
13.000	223.000	225.000	227.000	228.000	230.000
13.250	233.000	236.000	238.000	240.000	242.000
13.500	244.000	247.000	250.000	252.000	255.000
13.750	258.000	261.000	265.000	268.000	270.000
14.000	273.000	278.000	284.000	288.000	291.000
14.250	294.000	299.000	305.000	311.000	315.000
14.500	320.000	330.000	351.000	384.000	427.000
14.750	477.000	535.000	607.000	695.000	799.000
15.000	915.000	1,042.000	1,185.000	1,351.000	1,543.000
15.250	1,761.000	2,005.000	2,282.000	2,614.000	3,019.000
15.500	3,489.000	4,006.000	4,560.000	5,183.000	5,919.000
15.750	6,776.000	7,773.000	8,925.000	10,339.000	12,383.000
16.000	15,317.000	18,588.000	21,188.000	22,666.000	23,431.000
16.250	23,989.000	24,437.000	24,788.000	25,054.000	25,245.000
16.500	25,386.000	25,495.000	25,577.000	25,635.000	25,671.000
16.750	25,689.000	25,691.000	25,675.000	25,646.000	25,604.000
17.000	25,550.000	25,484.000	25,406.000	25,317.000	25,219.000
17.250	25,113.000	24,999.000	24,878.000	24,750.000	24,617.000
17.500	24,476.000	24,329.000	24,177.000	24,019.000	23,856.000
17.750	23,689.000	23,517.000	23,340.000	23,159.000	22,972.000
18.000	22,774.000	22,560.000	22,332.000	22,098.000	21,860.000
18.250	21,618.000	21,374.000	21,127.000	20,877.000	20,625.000
18.500	20,370.000	20,112.000	19,852.000	19,589.000	19,324.000
18.750	19,056.000	18,785.000	18,513.000	18,238.000	17,962.000
19.000	17,684.000	17,403.000	17,121.000	16,836.000	16,550.000
19.250	16,262.000	15,972.000	15,680.000	15,386.000	15,092.000
19.500	14,795.000	14,497.000	14,197.000	13,895.000	13,592.000
19.750	13,288.000	12,982.000	12,675.000	12,367.000	12,057.000
20.000	11,746.000	11,434.000	11,121.000	10,806.000	10,490.000
20.250	10,172.000	9,854.000	9,534.000	9,214.000	8,893.000

160 N Cactus Ave

Subsection: Time vs. Volume
Scenario: Base
Label: Det-A

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
20.500	8,571.000	8,247.000	7,923.000	7,598.000	7,272.000
20.750	6,945.000	6,617.000	6,287.000	5,957.000	5,626.000
21.000	5,294.000	4,961.000	4,627.000	4,292.000	3,956.000
21.250	3,619.000	3,282.000	2,944.000	2,606.000	2,266.000
21.500	1,926.000	1,586.000	1,243.000	900.000	556.000
21.750	257.000	115.000	96.000	93.000	92.000
22.000	92.000	91.000	91.000	90.000	90.000
22.250	90.000	89.000	89.000	88.000	88.000
22.500	87.000	87.000	87.000	86.000	86.000
22.750	86.000	86.000	86.000	85.000	85.000
23.000	84.000	84.000	84.000	83.000	83.000
23.250	82.000	82.000	82.000	82.000	82.000
23.500	81.000	81.000	80.000	80.000	80.000
23.750	79.000	79.000	79.000	79.000	79.000
24.000	70.000	(N/A)	(N/A)	(N/A)	(N/A)

160 N Cactus Ave

Subsection: Elevation vs. Volume Curve
Scenario: Base
Label: Det-A

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
0.000	0.000
1,223.060	317.470
1,223.150	634.930
1,223.230	952.400
1,223.310	1,269.870
1,223.400	1,587.330
1,223.480	1,904.800
1,223.560	2,222.270
1,223.650	2,539.730
1,223.730	2,857.200
1,223.810	3,544.340
1,223.900	4,229.500
1,223.980	4,913.460
1,224.060	5,596.110
1,224.150	6,277.270
1,224.230	6,956.980
1,224.310	7,635.260
1,224.400	8,311.900
1,224.480	8,986.820
1,224.560	9,659.920
1,224.650	10,331.080
1,224.730	11,000.220
1,224.810	11,667.240
1,224.900	12,331.850
1,224.980	12,994.300
1,225.060	13,654.290
1,225.150	14,311.710
1,225.230	14,966.460
1,225.310	15,618.330
1,225.400	16,267.390
1,225.480	16,913.430
1,225.560	17,556.310
1,225.650	18,195.800
1,225.730	18,831.940
1,225.810	19,464.560
1,225.900	20,093.510
1,225.980	20,718.640
1,226.060	21,339.820
1,226.150	21,956.870
1,226.230	22,569.650
1,226.310	23,177.980
1,226.400	23,781.700
1,226.480	24,380.620

Subsection: Elevation vs. Volume Curve
Scenario: Base
Label: Det-A

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
1,226.560	24,974.470
1,226.650	25,563.240
1,226.730	26,146.650
1,226.810	26,724.490
1,226.900	27,296.540
1,226.980	27,862.520
1,227.060	28,422.180
1,227.150	28,975.230
1,227.230	29,521.320
1,227.310	30,060.140
1,227.400	30,591.290
1,227.480	31,114.430
1,227.560	31,629.070
1,227.650	32,134.650
1,227.730	32,630.680
1,227.810	33,116.320
1,227.900	33,590.860
1,227.980	34,053.110
1,228.060	34,501.610
1,228.150	34,934.350
1,228.230	35,347.650
1,228.310	35,730.080
1,228.400	36,087.850
1,228.480	36,436.740
1,228.560	36,778.410
1,228.650	37,112.600
1,228.730	37,435.300
1,228.810	37,752.770
1,228.900	38,070.240
1,228.980	38,387.700
1,229.060	38,705.170
1,229.150	39,022.640
1,229.230	39,340.100
1,229.310	39,657.570
1,229.400	39,975.040
1,229.480	40,292.500
1,229.560	40,609.970
1,229.650	40,927.440
1,229.730	41,244.900

Subsection: Elevation-Volume-Flow Table (Pond) Scenario: Base

Label: Det-A

Infiltration	
Infiltration Method (Computed)	Constant
Infiltration Rate (Constant)	2.72 ft³/s

Initial Conditions	
Elevation (Water Surface, Initial)	0.000 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
0.000	0.00	0.000	0	0.00	0.00	0.00
1,223.060	0.00	317.470	0	2.72	2.72	6.25
1,223.150	0.00	634.930	0	2.72	2.72	9.77
1,223.230	0.00	952.400	0	2.72	2.72	13.30
1,223.310	0.00	1,269.870	0	2.72	2.72	16.83
1,223.400	0.00	1,587.330	0	2.72	2.72	20.36
1,223.480	0.00	1,904.800	0	2.72	2.72	23.88
1,223.560	0.00	2,222.270	0	2.72	2.72	27.41
1,223.650	0.00	2,539.730	0	2.72	2.72	30.94
1,223.730	0.00	2,857.200	0	2.72	2.72	34.47
1,223.810	0.00	3,544.340	0	2.72	2.72	42.10
1,223.900	0.00	4,229.500	0	2.72	2.72	49.71
1,223.980	0.00	4,913.460	0	2.72	2.72	57.31
1,224.060	0.00	5,596.110	0	2.72	2.72	64.90
1,224.150	0.00	6,277.270	0	2.72	2.72	72.47
1,224.230	0.00	6,956.980	0	2.72	2.72	80.02
1,224.310	0.00	7,635.260	0	2.72	2.72	87.56
1,224.400	0.00	8,311.900	0	2.72	2.72	95.07
1,224.480	0.00	8,986.820	0	2.72	2.72	102.57
1,224.560	0.00	9,659.920	0	2.72	2.72	110.05
1,224.650	0.00	10,331.080	0	2.72	2.72	117.51
1,224.730	0.00	11,000.220	0	2.72	2.72	124.94
1,224.810	0.00	11,667.240	0	2.72	2.72	132.36
1,224.900	0.00	12,331.850	0	2.72	2.72	139.74
1,224.980	0.00	12,994.300	0	2.72	2.72	147.10
1,225.060	0.00	13,654.290	0	2.72	2.72	154.43
1,225.150	0.00	14,311.710	0	2.72	2.72	161.74
1,225.230	0.00	14,966.460	0	2.72	2.72	169.01

Subsection: Elevation-Volume-Flow Table (Pond) Scenario: Base

Label: Det-A

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
1,225.310	0.00	15,618.330	0	2.72	2.72	176.26
1,225.400	0.00	16,267.390	0	2.72	2.72	183.47
1,225.480	0.00	16,913.430	0	2.72	2.72	190.65
1,225.560	0.00	17,556.310	0	2.72	2.72	197.79
1,225.650	0.00	18,195.800	0	2.72	2.72	204.90
1,225.730	0.00	18,831.940	0	2.72	2.72	211.96
1,225.810	0.00	19,464.560	0	2.72	2.72	218.99
1,225.900	0.00	20,093.510	0	2.72	2.72	225.98
1,225.980	0.00	20,718.640	0	2.72	2.72	232.93
1,226.060	0.00	21,339.820	0	2.72	2.72	239.83
1,226.150	0.00	21,956.870	0	2.72	2.72	246.69
1,226.230	0.00	22,569.650	0	2.72	2.72	253.49
1,226.310	0.00	23,177.980	0	2.72	2.72	260.25
1,226.400	0.00	23,781.700	0	2.72	2.72	266.96
1,226.480	0.00	24,380.620	0	2.72	2.72	273.62
1,226.560	0.00	24,974.470	0	2.72	2.72	280.21
1,226.650	0.00	25,563.240	0	2.72	2.72	286.76
1,226.730	0.00	26,146.650	0	2.72	2.72	293.24
1,226.810	0.00	26,724.490	0	2.72	2.72	299.66
1,226.900	0.00	27,296.540	0	2.72	2.72	306.01
1,226.980	0.00	27,862.520	0	2.72	2.72	312.30
1,227.060	0.00	28,422.180	0	2.72	2.72	318.52
1,227.150	0.00	28,975.230	0	2.72	2.72	324.67
1,227.230	0.00	29,521.320	0	2.72	2.72	330.73
1,227.310	0.00	30,060.140	0	2.72	2.72	336.72
1,227.400	0.00	30,591.290	0	2.72	2.72	342.62
1,227.480	0.00	31,114.430	0	2.72	2.72	348.44
1,227.560	0.00	31,629.070	0	2.72	2.72	354.15
1,227.650	0.00	32,134.650	0	2.72	2.72	359.77
1,227.730	0.00	32,630.680	0	2.72	2.72	365.28
1,227.810	0.00	33,116.320	0	2.72	2.72	370.68
1,227.900	0.00	33,590.860	0	2.72	2.72	375.95
1,227.980	0.00	34,053.110	0	2.72	2.72	381.09
1,228.060	0.00	34,501.610	0	2.72	2.72	386.07
1,228.150	0.00	34,934.350	0	2.72	2.72	390.88
1,228.230	0.00	35,347.650	0	2.72	2.72	395.47
1,228.310	0.00	35,730.080	0	2.72	2.72	399.72
1,228.400	0.00	36,087.850	0	2.72	2.72	403.70
1,228.480	0.00	36,436.740	0	2.72	2.72	407.57
1,228.560	0.00	36,778.410	0	2.72	2.72	411.37
1,228.650	0.00	37,112.600	0	2.72	2.72	415.08
1,228.730	0.00	37,435.300	0	2.72	2.72	418.67
1,228.810	0.00	37,752.770	0	2.72	2.72	422.20

Subsection: Elevation-Volume-Flow Table (Pond) Scenario: Base

Label: Det-A

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
1,228.900	0.00	38,070.240	0	2.72	2.72	425.72
1,228.980	0.00	38,387.700	0	2.72	2.72	429.25
1,229.060	0.00	38,705.170	0	2.72	2.72	432.78
1,229.150	0.00	39,022.640	0	2.72	2.72	436.30
1,229.230	0.00	39,340.100	0	2.72	2.72	439.83
1,229.310	0.00	39,657.570	0	2.72	2.72	443.36
1,229.400	0.00	39,975.040	0	2.72	2.72	446.89
1,229.480	0.00	40,292.500	0	2.72	2.72	450.41
1,229.560	0.00	40,609.970	0	2.72	2.72	453.94
1,229.650	0.00	40,927.440	0	2.72	2.72	457.47
1,229.730	0.00	41,244.900	0	2.72	2.72	461.00

Subsection: Level Pool Pond Routing Summary
Scenario: Base
Label: Det-A (IN)

Infiltration	
Infiltration Method (Computed)	Constant
Infiltration Rate (Constant)	2.72 ft³/s

Initial Conditions	
Elevation (Water Surface, Initial)	0.000 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	21.49 ft³/s	Time to Peak (Flow, In)	16.000 hours
Infiltration (Peak)	2.72 ft³/s	Time to Peak (Infiltration)	14.500 hours
Flow (Peak Outlet)	0.00 ft³/s	Time to Peak (Flow, Outlet)	0.000 hours

Elevation (Water Surface, Peak)	1,226.667 ft
Volume (Peak)	25,690.504 ft³

Mass Balance (ft³)	
Volume (Initial)	0.000 ft³
Volume (Total Inflow)	135,544.000 ft³
Volume (Total Infiltration)	135,535.000 ft³
Volume (Total Outlet Outflow)	0.000 ft³
Volume (Retained)	9.000 ft³
Volume (Unrouted)	0.000 ft³
Error (Mass Balance)	0.0 %

160 N Cactus Ave

Subsection: Pond Infiltration Hydrograph
Scenario: Base
Label: Det-A (INF)

Peak Discharge	2.72 ft³/s
Time to Peak	19.000 hours
Hydrograph Volume	135,474.199 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.000	0.00	0.58	0.66	0.67	0.67
0.250	0.67	0.67	0.67	0.68	0.68
0.500	0.68	0.68	0.68	0.68	0.68
0.750	0.68	0.69	0.69	0.69	0.69
1.000	0.69	0.69	0.69	0.69	0.70
1.250	0.70	0.70	0.70	0.70	0.70
1.500	0.71	0.71	0.71	0.71	0.71
1.750	0.71	0.71	0.71	0.72	0.72
2.000	0.72	0.72	0.72	0.72	0.73
2.250	0.73	0.73	0.73	0.73	0.73
2.500	0.73	0.73	0.74	0.74	0.74
2.750	0.74	0.74	0.75	0.75	0.75
3.000	0.75	0.75	0.75	0.76	0.76
3.250	0.76	0.76	0.76	0.77	0.77
3.500	0.77	0.77	0.77	0.77	0.78
3.750	0.78	0.78	0.78	0.78	0.79
4.000	0.79	0.79	0.79	0.79	0.79
4.250	0.80	0.80	0.80	0.80	0.80
4.500	0.81	0.81	0.81	0.81	0.81
4.750	0.81	0.82	0.82	0.82	0.82
5.000	0.82	0.83	0.83	0.83	0.83
5.250	0.83	0.83	0.84	0.84	0.85
5.500	0.85	0.85	0.85	0.85	0.85
5.750	0.86	0.86	0.86	0.87	0.87
6.000	0.87	0.87	0.87	0.88	0.88
6.250	0.88	0.89	0.89	0.89	0.90
6.500	0.90	0.90	0.90	0.90	0.91
6.750	0.91	0.91	0.92	0.92	0.93
7.000	0.93	0.93	0.93	0.93	0.93
7.250	0.94	0.94	0.94	0.95	0.95
7.500	0.96	0.96	0.96	0.97	0.97
7.750	0.97	0.98	0.98	0.98	0.98
8.000	0.98	0.99	1.00	1.00	1.00
8.250	1.00	1.01	1.01	1.02	1.02
8.500	1.02	1.02	1.03	1.04	1.04
8.750	1.05	1.05	1.05	1.06	1.06
9.000	1.06	1.07	1.07	1.08	1.09

Subsection: Pond Infiltration Hydrograph
Scenario: Base
Label: Det-A (INF)

HYDROGRAPH ORDINATES (ft^3/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft^3/s)	Flow (ft^3/s)	Flow (ft^3/s)	Flow (ft^3/s)	Flow (ft^3/s)
9.250	1.09	1.09	1.09	1.10	1.11
9.500	1.11	1.11	1.12	1.12	1.13
9.750	1.14	1.14	1.15	1.15	1.16
10.000	1.17	1.17	1.18	1.18	1.19
10.250	1.19	1.20	1.20	1.21	1.21
10.500	1.22	1.23	1.23	1.24	1.24
10.750	1.25	1.26	1.27	1.27	1.28
11.000	1.28	1.29	1.30	1.31	1.32
11.250	1.32	1.33	1.34	1.35	1.36
11.500	1.36	1.37	1.38	1.39	1.40
11.750	1.41	1.42	1.43	1.44	1.47
12.000	1.52	1.58	1.63	1.66	1.69
12.250	1.71	1.72	1.73	1.74	1.76
12.500	1.77	1.78	1.79	1.81	1.83
12.750	1.84	1.85	1.86	1.87	1.89
13.000	1.91	1.93	1.94	1.95	1.97
13.250	2.00	2.02	2.04	2.05	2.07
13.500	2.09	2.12	2.14	2.16	2.18
13.750	2.21	2.24	2.27	2.29	2.31
14.000	2.34	2.38	2.43	2.47	2.50
14.250	2.52	2.56	2.61	2.66	2.70
14.500	2.72	2.72	2.72	2.72	2.72
14.750	2.72	2.72	2.72	2.72	2.72
15.000	2.72	2.72	2.72	2.72	2.72
15.250	2.72	2.72	2.72	2.72	2.72
15.500	2.72	2.72	2.72	2.72	2.72
15.750	2.72	2.72	2.72	2.72	2.72
16.000	2.72	2.72	2.72	2.72	2.72
16.250	2.72	2.72	2.72	2.72	2.72
16.500	2.72	2.72	2.72	2.72	2.72
16.750	2.72	2.72	2.72	2.72	2.72
17.000	2.72	2.72	2.72	2.72	2.72
17.250	2.72	2.72	2.72	2.72	2.72
17.500	2.72	2.72	2.72	2.72	2.72
17.750	2.72	2.72	2.72	2.72	2.72
18.000	2.72	2.72	2.72	2.72	2.72
18.250	2.72	2.72	2.72	2.72	2.72
18.500	2.72	2.72	2.72	2.72	2.72
18.750	2.72	2.72	2.72	2.72	2.72
19.000	2.72	2.72	2.72	2.72	2.72
19.250	2.72	2.72	2.72	2.72	2.72
19.500	2.72	2.72	2.72	2.72	2.72

Subsection: Pond Infiltration Hydrograph
Scenario: Base
Label: Det-A (INF)

HYDROGRAPH ORDINATES (ft^3/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft^3/s)	Flow (ft^3/s)	Flow (ft^3/s)	Flow (ft^3/s)	Flow (ft^3/s)
19.750	2.72	2.72	2.72	2.72	2.72
20.000	2.72	2.72	2.72	2.72	2.72
20.250	2.72	2.72	2.72	2.72	2.72
20.500	2.72	2.72	2.72	2.72	2.72
20.750	2.72	2.72	2.72	2.72	2.72
21.000	2.72	2.72	2.72	2.72	2.72
21.250	2.72	2.72	2.72	2.72	2.72
21.500	2.72	2.72	2.72	2.72	2.72
21.750	2.20	0.98	0.82	0.80	0.79
22.000	0.79	0.78	0.78	0.77	0.77
22.250	0.77	0.76	0.76	0.76	0.75
22.500	0.75	0.75	0.74	0.74	0.74
22.750	0.74	0.74	0.73	0.73	0.73
23.000	0.72	0.72	0.72	0.71	0.71
23.250	0.70	0.70	0.70	0.70	0.70
23.500	0.70	0.69	0.69	0.69	0.68
23.750	0.68	0.68	0.68	0.68	0.67
24.000	0.60	(N/A)	(N/A)	(N/A)	(N/A)

160 N Cactus Ave

Subsection: Pond Routed Hydrograph (total out) Scenario: Base

Label: Det-A (OUT)

Peak Discharge	0.00 ft³/s
Time to Peak	8.000 hours
Hydrograph Volume	0.000 ft³

HYDROGRAPH ORDINATES (ft³/s)

Output Time Increment = 0.050 hours

Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.000	0.00	0.00	(N/A)	(N/A)	(N/A)

Subsection: Pond Inflow Summary
Scenario: Base
Label: Det-A (IN)

Summary for Hydrograph Addition at 'Det-A'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	A

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	A	135,715.505	16.023	23.72
Flow (In)	Det-A	135,543.876	16.000	21.49

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Node 2-4

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.010	ft/ft
Normal Depth	12.0	in
Diameter	12.0	in
Discharge	3.58	cfs

Results		
Discharge	3.58	cfs
Normal Depth	12.0	in
Flow Area	0.8	ft²
Wetted Perimeter	3.1	ft
Hydraulic Radius	3.0	in
Top Width	0.00	ft
Critical Depth	9.7	in
Percent Full	100.0	%
Critical Slope	0.010	ft/ft
Velocity	4.56	ft/s
Velocity Head	0.32	ft
Specific Energy	1.32	ft
Froude Number	(N/A)	
Maximum Discharge	3.85	cfs
Discharge Full	3.58	cfs
Slope Full	0.010	ft/ft
Flow Type	Undefined	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	100.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	12.0	in
Critical Depth	9.7	in
Channel Slope	0.010	ft/ft
Critical Slope	0.010	ft/ft

Node 4-6

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.020	ft/ft
Normal Depth	15.0	in
Diameter	15.0	in
Discharge	9.14	cfs

Results		
Discharge	9.14	cfs
Normal Depth	15.0	in
Flow Area	1.2	ft²
Wetted Perimeter	3.9	ft
Hydraulic Radius	3.8	in
Top Width	0.00	ft
Critical Depth	13.9	in
Percent Full	100.0	%
Critical Slope	0.017	ft/ft
Velocity	7.44	ft/s
Velocity Head	0.86	ft
Specific Energy	2.11	ft
Froude Number	(N/A)	
Maximum Discharge	9.83	cfs
Discharge Full	9.14	cfs
Slope Full	0.020	ft/ft
Flow Type	Undefined	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	100.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	15.0	in
Critical Depth	13.9	in
Channel Slope	0.020	ft/ft
Critical Slope	0.017	ft/ft

Node 6-8

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.015	ft/ft
Normal Depth	18.0	in
Diameter	18.0	in
Discharge	12.74	cfs

Results		
Discharge	12.74	cfs
Normal Depth	18.0	in
Flow Area	1.8	ft²
Wetted Perimeter	4.7	ft
Hydraulic Radius	4.5	in
Top Width	0.00	ft
Critical Depth	16.1	in
Percent Full	100.0	%
Critical Slope	0.013	ft/ft
Velocity	7.21	ft/s
Velocity Head	0.81	ft
Specific Energy	2.31	ft
Froude Number	(N/A)	
Maximum Discharge	13.70	cfs
Discharge Full	12.74	cfs
Slope Full	0.015	ft/ft
Flow Type	Undefined	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	100.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	18.0	in
Critical Depth	16.1	in
Channel Slope	0.015	ft/ft
Critical Slope	0.013	ft/ft

Node 12-8

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.020 ft/ft
Normal Depth	18.0 in
Diameter	18.0 in
Discharge	14.85 cfs

Results	
Discharge	14.85 cfs
Normal Depth	18.0 in
Flow Area	1.8 ft²
Wetted Perimeter	4.7 ft
Hydraulic Radius	4.5 in
Top Width	0.00 ft
Critical Depth	16.8 in
Percent Full	100.0 %
Critical Slope	0.017 ft/ft
Velocity	8.41 ft/s
Velocity Head	1.10 ft
Specific Energy	2.60 ft
Froude Number	(N/A)
Maximum Discharge	15.98 cfs
Discharge Full	14.85 cfs
Slope Full	0.020 ft/ft
Flow Type	Undefined

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	18.0 in
Critical Depth	16.8 in
Channel Slope	0.020 ft/ft
Critical Slope	0.017 ft/ft

Node 31-8

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.021	ft/ft
Normal Depth	15.0	in
Diameter	15.0	in
Discharge	9.36	cfs

Results		
Discharge	9.36	cfs
Normal Depth	15.0	in
Flow Area	1.2	ft²
Wetted Perimeter	3.9	ft
Hydraulic Radius	3.8	in
Top Width	0.00	ft
Critical Depth	14.0	in
Percent Full	100.0	%
Critical Slope	0.018	ft/ft
Velocity	7.63	ft/s
Velocity Head	0.90	ft
Specific Energy	2.15	ft
Froude Number	(N/A)	
Maximum Discharge	10.07	cfs
Discharge Full	9.36	cfs
Slope Full	0.021	ft/ft
Flow Type	Undefined	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	100.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	15.0	in
Critical Depth	14.0	in
Channel Slope	0.021	ft/ft
Critical Slope	0.018	ft/ft

Node 7-6

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data		
Roughness Coefficient	0.013	
Channel Slope	0.020	ft/ft
Normal Depth	15.0	in
Diameter	15.0	in
Discharge	9.14	cfs

Results		
Discharge	9.14	cfs
Normal Depth	15.0	in
Flow Area	1.2	ft²
Wetted Perimeter	3.9	ft
Hydraulic Radius	3.8	in
Top Width	0.00	ft
Critical Depth	13.9	in
Percent Full	100.0	%
Critical Slope	0.017	ft/ft
Velocity	7.44	ft/s
Velocity Head	0.86	ft
Specific Energy	2.11	ft
Froude Number	(N/A)	
Maximum Discharge	9.83	cfs
Discharge Full	9.14	cfs
Slope Full	0.020	ft/ft
Flow Type	Undefined	

GVF Input Data		
Downstream Depth	0.0	in
Length	0.0	ft
Number Of Steps	0	

GVF Output Data		
Upstream Depth	0.0	in
Profile Description	N/A	
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.0	%
Normal Depth Over Rise	100.0	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	15.0	in
Critical Depth	13.9	in
Channel Slope	0.020	ft/ft
Critical Slope	0.017	ft/ft

Grate Inlet In Sag - Node 4

Project Description	
Solve For	Spread

Input Data	
Discharge	3.85 cfs
Gutter Width	0.00 ft
Gutter Cross Slope	0.000 ft/ft
Road Cross Slope	0.016 ft/ft
Grate Width	2.00 ft
Grate Length	3.0 ft
Local Depression	3.0 in
Local Depression Width	2.0 in
Grate Type	P-50 mm (P-1 -7/8")
Clogging	50.0 %

Results	
Spread	24.1 ft
Depth	4.5 in
Gutter Depression	0.0 in
Total Depression	3.0 in
Open Grate Area	2.7 ft²
Active Grate Weir Length	5.0 ft

Curb Inlet In Sag - Node 2

Project Description	
Solve For	Spread

Input Data		
Discharge	2.80	cfs
Gutter Width	2.50	ft
Gutter Cross Slope	0.037	ft/ft
Road Cross Slope	0.002	ft/ft
Curb Opening Length	15.0	ft
Opening Height	0.5	ft
Curb Throat Type	Horizontal	
Local Depression	2.0	in
Local Depression Width	2.0	in
Throat Incline Angle	90.00	degrees

Results		
Spread	71.4	ft
Depth	2.9	in
Gutter Depression	1.1	in
Total Depression	3.1	in

Curb Inlet In Sag - Node 7

Project Description	
Solve For	Spread

Input Data		
Discharge	1.61	cfs
Gutter Width	2.50	ft
Gutter Cross Slope	0.016	ft/ft
Road Cross Slope	0.016	ft/ft
Curb Opening Length	7.5	ft
Opening Height	0.5	ft
Curb Throat Type	Horizontal	
Local Depression	2.0	in
Local Depression Width	2.0	in
Throat Incline Angle	90.00	degrees

Results		
Spread	9.4	ft
Depth	1.8	in
Gutter Depression	0.0	in
Total Depression	2.0	in

Appendix F
Hydrology Reference Material

Residential Landscaping (Lawn, Shrubs, etc.) - The pervious portions of commercial establishments, single and multiple family dwellings, trailer parks and schools where the predominant land cover is lawn, shrubbery and trees.

Row Crops - Lettuce, tomatoes, beets, tulips or any field crop planted in rows far enough apart that most of the soil surface is exposed to rainfall impact throughout the growing season. At plowing, planting and harvest times it is equivalent to fallow.

Small Grain - Wheat, oats, barley, flax, etc. planted in rows close enough that the soil surface is not exposed except during planting and shortly thereafter.

Legumes - Alfalfa, sweetclover, timothy, etc. and combinations are either planted in close rows or broadcast.

Fallow - Fallow land is land plowed but not yet seeded or tilled.

Woodland - grass - Areas with an open cover of broadleaf or coniferous trees usually live oak and pines, with the intervening ground space occupied by annual grasses or weeds. The trees may occur singly or in small clumps. Canopy density, the amount of ground surface shaded at high noon, is from 20 to 50 percent.

Woodland - Areas on which coniferous or broadleaf trees predominate. The canopy density is at least 50 percent. Open areas may have a cover of annual or perennial grasses or of brush. Herbaceous plant cover under the trees is usually sparse because of leaf or needle litter accumulation.

Chaparral - Land on which the principal vegetation consists of evergreen shrubs with broad, hard, stiff leaves such as manzonita, ceanothus and scrub oak. The brush cover is usually dense or moderately dense. Diffusely branched evergreen shrubs with fine needle-like leaves, such as chamise and redchank, with dense high growth are also included in this soil cover.

Annual Grass - Land on which the principal vegetation consists of annual grasses and weeds such as annual bromes, wild barley, soft chess, ryegrass and filaree.

Irrigated Pasture - Irrigated land planted to perennial grasses and legumes for production of forage and which is cultivated only to establish or renew the stand of plants. Dry land pasture is considered as annual grass.

Meadow - Land areas with seasonally high water table, locally called cienegas. Principal vegetation consists of sod-forming grasses interspersed with other plants.

Orchard (Deciduous) - Land planted to such deciduous trees as apples, apricots, pears, walnuts, and almonds.

Orchard (Evergreen) - Land planted to evergreen trees which include citrus and avocados and coniferous plantings.

Turf - Golf courses, parks and similar lands where the predominant cover is irrigated mowed close-grown turf grass. Parks in which trees are dense may be classified as woodland.

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

SCS COVER TYPE DESCRIPTIONS

Figure C-2

Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparral, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	71	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent.)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	25	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		77	86	91	94

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

CURVE NUMBERS FOR PERVIOUS AREAS

Figure C-3 (1 of 2)

Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS (Continued)					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87

Notes:

1. All curve numbers are for Antecedent Moisture Condition (AMC) II.
2. Quality of cover definitions:

   Poor-Heavily grazed, regularly burned areas, or areas of high burn potential. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

   Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.

   Good-Heavy or dense cover with more than 75 percent of the ground surface protected.
3. See Figure C-2 for definition of cover types.

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

CURVE NUMBERS FOR PERVIOUS AREAS

Figure C-3 (2 of 2)

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent (2)
Natural or Agriculture	0 - 0	0
Public Park	10 - 25	15
School	30 - 50	40
Single Family Residential: (3)		
2.5 acre lots	5 - 15	10
1 acre lots	10 - 25	20
2 dwellings/acre	20 - 40	30
3-4 dwellings/acre	30 - 50	40
5-7 dwellings/acre	35 - 55	50
8-10 dwellings/acre	50 - 70	60
More than 10 dwellings/acre	65 - 90	80
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 - 100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area shall always be made, and a review of aerial photos, where available, may assist in estimating the percentage of impervious cover in developed areas.

3. For typical equestrian subdivisions increase impervious area 5 percent over the values recommended in the table above.

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

ACTUAL IMPERVIOUS COVER FOR DEVELOPED AREAS

Figure C-4

NOAA Atlas 14, Volume 6, Version 2
Location name: Rialto, California, USA*
Latitude: 34.1009°, Longitude: -117.3847°
Elevation: 1244.77 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.122** (0.102-0.148)	**0.159** (0.132-0.193)	**0.209** (0.173-0.254)	**0.250** (0.205-0.307)	**0.307** (0.244-0.390)	**0.352** (0.273-0.457)	**0.399** (0.302-0.531)	**0.448** (0.330-0.615)	**0.518** (0.365-0.741)	**0.574** (0.391-0.851)
10-min	**0.175** (0.146-0.213)	**0.228** (0.190-0.277)	**0.299** (0.248-0.364)	**0.358** (0.294-0.440)	**0.440** (0.349-0.559)	**0.504** (0.392-0.655)	**0.571** (0.433-0.761)	**0.642** (0.473-0.881)	**0.742** (0.524-1.06)	**0.823** (0.560-1.22)
15-min	**0.212** (0.177-0.257)	**0.276** (0.230-0.335)	**0.361** (0.300-0.440)	**0.433** (0.356-0.532)	**0.532** (0.422-0.676)	**0.610** (0.474-0.792)	**0.691** (0.524-0.920)	**0.777** (0.572-1.07)	**0.897** (0.633-1.29)	**0.995** (0.678-1.48)
30-min	**0.315** (0.262-0.382)	**0.410** (0.341-0.498)	**0.537** (0.445-0.654)	**0.643** (0.529-0.790)	**0.790** (0.628-1.00)	**0.906** (0.704-1.18)	**1.03** (0.778-1.37)	**1.16** (0.850-1.58)	**1.33** (0.941-1.91)	**1.48** (1.01-2.19)
60-min	**0.460** (0.383-0.558)	**0.599** (0.498-0.728)	**0.784** (0.650-0.955)	**0.939** (0.772-1.15)	**1.15** (0.916-1.47)	**1.32** (1.03-1.72)	**1.50** (1.14-2.00)	**1.69** (1.24-2.31)	**1.95** (1.37-2.79)	**2.16** (1.47-3.20)
2-hr	**0.678** (0.565-0.823)	**0.873** (0.726-1.06)	**1.13** (0.937-1.38)	**1.34** (1.10-1.65)	**1.64** (1.30-2.08)	**1.86** (1.45-2.42)	**2.10** (1.59-2.80)	**2.35** (1.73-3.22)	**2.69** (1.90-3.85)	**2.96** (2.02-4.39)
3-hr	**0.850** (0.708-1.03)	**1.09** (0.906-1.32)	**1.41** (1.17-1.71)	**1.67** (1.37-2.05)	**2.02** (1.61-2.57)	**2.30** (1.78-2.98)	**2.58** (1.96-3.44)	**2.87** (2.12-3.94)	**3.28** (2.32-4.70)	**3.61** (2.46-5.35)
6-hr	**1.22** (1.01-1.48)	**1.56** (1.29-1.89)	**2.00** (1.66-2.44)	**2.36** (1.94-2.90)	**2.85** (2.27-3.63)	**3.23** (2.51-4.20)	**3.62** (2.74-4.82)	**4.01** (2.96-5.50)	**4.56** (3.22-6.52)	**4.98** (3.39-7.39)
12-hr	**1.64** (1.36-1.98)	**2.10** (1.75-2.55)	**2.70** (2.24-3.29)	**3.18** (2.62-3.91)	**3.83** (3.04-4.87)	**4.33** (3.36-5.62)	**4.82** (3.66-6.43)	**5.34** (3.93-7.32)	**6.03** (4.25-8.62)	**6.56** (4.47-9.73)
24-hr	**2.20** (1.95-2.53)	**2.85** (2.52-3.29)	**3.68** (3.25-4.26)	**4.35** (3.81-5.07)	**5.24** (4.44-6.31)	**5.91** (4.91-7.27)	**6.59** (5.34-8.30)	**7.28** (5.73-9.42)	**8.20** (6.20-11.1)	**8.90** (6.51-12.4)
2-day	**2.68** (2.37-3.09)	**3.54** (3.13-4.08)	**4.65** (4.10-5.38)	**5.54** (4.85-6.47)	**6.76** (5.72-8.14)	**7.68** (6.37-9.45)	**8.61** (6.98-10.9)	**9.57** (7.55-12.4)	**10.9** (8.23-14.7)	**11.9** (8.69-16.6)
3-day	**2.86** (2.53-3.29)	**3.84** (3.39-4.43)	**5.12** (4.52-5.93)	**6.18** (5.41-7.21)	**7.63** (6.46-9.19)	**8.75** (7.26-10.8)	**9.91** (8.03-12.5)	**11.1** (8.75-14.4)	**12.7** (9.65-17.2)	**14.0** (10.3-19.6)
4-day	**3.05** (2.70-3.52)	**4.14** (3.66-4.78)	**5.59** (4.93-6.46)	**6.78** (5.94-7.91)	**8.44** (7.15-10.2)	**9.74** (8.08-12.0)	**11.1** (8.97-14.0)	**12.5** (9.83-16.2)	**14.4** (10.9-19.4)	**16.0** (11.7-22.3)
7-day	**3.47** (3.08-4.00)	**4.76** (4.21-5.49)	**6.47** (5.71-7.49)	**7.89** (6.90-9.20)	**9.87** (8.35-11.9)	**11.4** (9.47-14.0)	**13.0** (10.6-16.4)	**14.7** (11.6-19.1)	**17.1** (12.9-23.1)	**19.0** (13.9-26.5)
10-day	**3.77** (3.34-4.35)	**5.20** (4.60-6.00)	**7.10** (6.26-8.21)	**8.68** (7.60-10.1)	**10.9** (9.22-13.1)	**12.6** (10.5-15.5)	**14.5** (11.7-18.2)	**16.4** (12.9-21.2)	**19.1** (14.4-25.7)	**21.2** (15.5-29.6)
20-day	**4.57** (4.05-5.27)	**6.36** (5.62-7.33)	**8.75** (7.72-10.1)	**10.8** (9.42-12.6)	**13.6** (11.5-16.4)	**15.8** (13.1-19.5)	**18.2** (14.7-22.9)	**20.7** (16.3-26.8)	**24.2** (18.3-32.7)	**27.1** (19.8-37.8)
30-day	**5.39** (4.78-6.22)	**7.52** (6.65-8.67)	**10.4** (9.15-12.0)	**12.8** (11.2-14.9)	**16.2** (13.7-19.5)	**18.9** (15.7-23.2)	**21.8** (17.6-27.4)	**24.8** (19.6-32.1)	**29.2** (22.1-39.4)	**32.7** (23.9-45.7)
45-day	**6.44** (5.70-7.42)	**8.93** (7.90-10.3)	**12.3** (10.9-14.2)	**15.2** (13.3-17.7)	**19.2** (16.3-23.1)	**22.4** (18.6-27.6)	**25.9** (21.0-32.6)	**29.6** (23.3-38.3)	**34.9** (26.4-47.0)	**39.2** (28.7-54.7)
60-day	**7.51** (6.65-8.66)	**10.3** (9.15-11.9)	**14.2** (12.5-16.4)	**17.5** (15.3-20.4)	**22.1** (18.7-26.6)	**25.8** (21.4-31.7)	**29.7** (24.1-37.5)	**34.0** (26.8-44.0)	**40.1** (30.4-54.1)	**45.2** (33.1-63.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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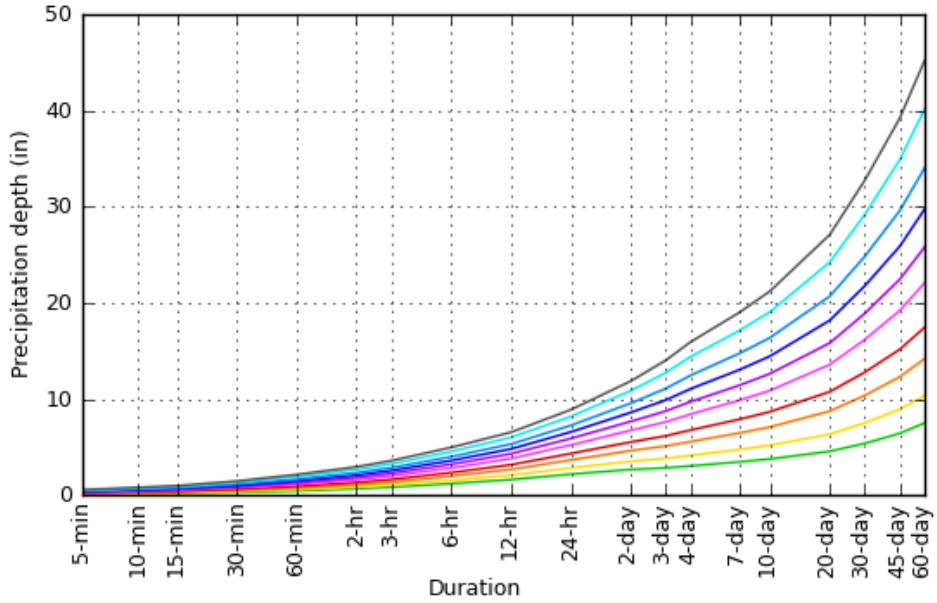
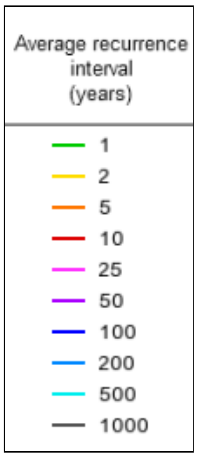
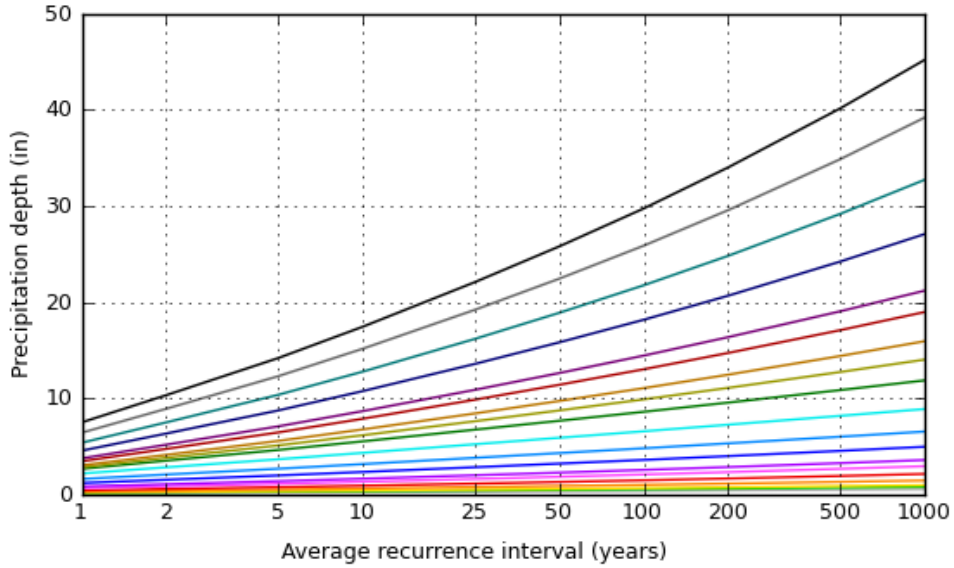
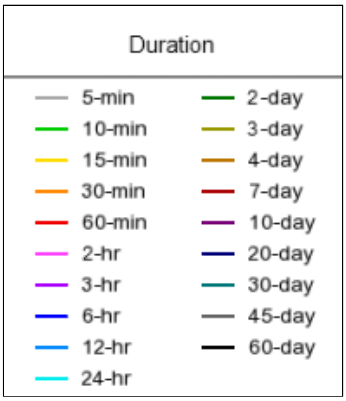
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 34.1009°, Longitude: -117.3847°









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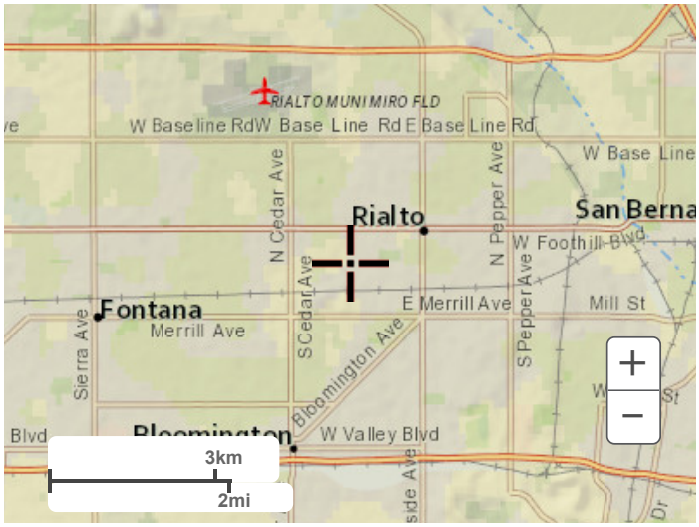
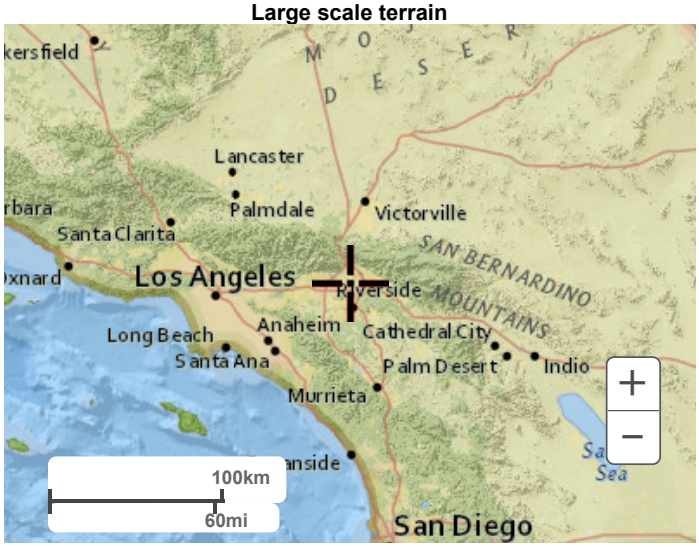
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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Disclaimer

NOAA Atlas 14, Volume 6, Version 2
Location name: Rialto, California, USA*
Latitude: 34.1009°, Longitude: -117.3847°
Elevation: 1244.77 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**1.46** (1.22-1.78)	**1.91** (1.58-2.32)	**2.51** (2.08-3.05)	**3.00** (2.46-3.68)	**3.68** (2.93-4.68)	**4.22** (3.28-5.48)	**4.79** (3.62-6.37)	**5.38** (3.96-7.38)	**6.22** (4.38-8.89)	**6.89** (4.69-10.2)
10-min	**1.05** (0.876-1.28)	**1.37** (1.14-1.66)	**1.79** (1.49-2.18)	**2.15** (1.76-2.64)	**2.64** (2.09-3.35)	**3.02** (2.35-3.93)	**3.43** (2.60-4.57)	**3.85** (2.84-5.29)	**4.45** (3.14-6.37)	**4.94** (3.36-7.32)
15-min	**0.848** (0.708-1.03)	**1.10** (0.920-1.34)	**1.44** (1.20-1.76)	**1.73** (1.42-2.13)	**2.13** (1.69-2.70)	**2.44** (1.90-3.17)	**2.76** (2.10-3.68)	**3.11** (2.29-4.26)	**3.59** (2.53-5.14)	**3.98** (2.71-5.90)
30-min	**0.630** (0.524-0.764)	**0.820** (0.682-0.996)	**1.07** (0.890-1.31)	**1.29** (1.06-1.58)	**1.58** (1.26-2.01)	**1.81** (1.41-2.35)	**2.05** (1.56-2.74)	**2.31** (1.70-3.17)	**2.67** (1.88-3.82)	**2.96** (2.01-4.38)
60-min	**0.460** (0.383-0.558)	**0.599** (0.498-0.728)	**0.784** (0.650-0.955)	**0.939** (0.772-1.15)	**1.15** (0.916-1.47)	**1.32** (1.03-1.72)	**1.50** (1.14-2.00)	**1.69** (1.24-2.31)	**1.95** (1.37-2.79)	**2.16** (1.47-3.20)
2-hr	**0.339** (0.282-0.412)	**0.436** (0.363-0.530)	**0.565** (0.468-0.688)	**0.672** (0.552-0.824)	**0.818** (0.650-1.04)	**0.932** (0.724-1.21)	**1.05** (0.796-1.40)	**1.17** (0.864-1.61)	**1.35** (0.949-1.93)	**1.48** (1.01-2.20)
3-hr	**0.283** (0.236-0.343)	**0.363** (0.302-0.441)	**0.468** (0.388-0.570)	**0.554** (0.456-0.681)	**0.673** (0.534-0.855)	**0.764** (0.594-0.993)	**0.858** (0.651-1.14)	**0.957** (0.705-1.31)	**1.09** (0.771-1.56)	**1.20** (0.818-1.78)
6-hr	**0.203** (0.169-0.246)	**0.260** (0.216-0.316)	**0.334** (0.277-0.407)	**0.394** (0.324-0.485)	**0.476** (0.378-0.606)	**0.540** (0.420-0.701)	**0.604** (0.458-0.804)	**0.670** (0.494-0.919)	**0.761** (0.537-1.09)	**0.832** (0.567-1.23)
12-hr	**0.136** (0.113-0.165)	**0.174** (0.145-0.212)	**0.224** (0.186-0.273)	**0.264** (0.217-0.324)	**0.318** (0.253-0.404)	**0.359** (0.279-0.466)	**0.400** (0.304-0.533)	**0.443** (0.326-0.607)	**0.500** (0.353-0.716)	**0.545** (0.371-0.808)
24-hr	**0.092** (0.081-0.106)	**0.119** (0.105-0.137)	**0.153** (0.135-0.177)	**0.181** (0.159-0.211)	**0.218** (0.185-0.263)	**0.246** (0.204-0.303)	**0.275** (0.222-0.346)	**0.303** (0.239-0.393)	**0.341** (0.258-0.461)	**0.371** (0.271-0.518)
2-day	**0.056** (0.049-0.064)	**0.074** (0.065-0.085)	**0.097** (0.085-0.112)	**0.115** (0.101-0.135)	**0.141** (0.119-0.170)	**0.160** (0.133-0.197)	**0.179** (0.145-0.226)	**0.199** (0.157-0.258)	**0.226** (0.171-0.305)	**0.247** (0.181-0.345)
3-day	**0.040** (0.035-0.046)	**0.053** (0.047-0.061)	**0.071** (0.063-0.082)	**0.086** (0.075-0.100)	**0.106** (0.090-0.128)	**0.122** (0.101-0.150)	**0.138** (0.111-0.173)	**0.154** (0.122-0.200)	**0.177** (0.134-0.239)	**0.195** (0.143-0.272)
4-day	**0.032** (0.028-0.037)	**0.043** (0.038-0.050)	**0.058** (0.051-0.067)	**0.071** (0.062-0.082)	**0.088** (0.074-0.106)	**0.101** (0.084-0.125)	**0.115** (0.093-0.145)	**0.130** (0.102-0.168)	**0.150** (0.114-0.202)	**0.166** (0.122-0.232)
7-day	**0.021** (0.018-0.024)	**0.028** (0.025-0.033)	**0.039** (0.034-0.045)	**0.047** (0.041-0.055)	**0.059** (0.050-0.071)	**0.068** (0.056-0.084)	**0.078** (0.063-0.098)	**0.088** (0.069-0.114)	**0.102** (0.077-0.137)	**0.113** (0.083-0.158)
10-day	**0.016** (0.014-0.018)	**0.022** (0.019-0.025)	**0.030** (0.026-0.034)	**0.036** (0.032-0.042)	**0.045** (0.038-0.055)	**0.053** (0.044-0.065)	**0.060** (0.049-0.076)	**0.068** (0.054-0.088)	**0.079** (0.060-0.107)	**0.088** (0.065-0.123)
20-day	**0.010** (0.008-0.011)	**0.013** (0.012-0.015)	**0.018** (0.016-0.021)	**0.022** (0.020-0.026)	**0.028** (0.024-0.034)	**0.033** (0.027-0.041)	**0.038** (0.031-0.048)	**0.043** (0.034-0.056)	**0.050** (0.038-0.068)	**0.056** (0.041-0.079)
30-day	**0.007** (0.007-0.009)	**0.010** (0.009-0.012)	**0.014** (0.013-0.017)	**0.018** (0.016-0.021)	**0.022** (0.019-0.027)	**0.026** (0.022-0.032)	**0.030** (0.024-0.038)	**0.034** (0.027-0.045)	**0.041** (0.031-0.055)	**0.045** (0.033-0.063)
45-day	**0.006** (0.005-0.007)	**0.008** (0.007-0.010)	**0.011** (0.010-0.013)	**0.014** (0.012-0.016)	**0.018** (0.015-0.021)	**0.021** (0.017-0.026)	**0.024** (0.019-0.030)	**0.027** (0.022-0.035)	**0.032** (0.024-0.044)	**0.036** (0.027-0.051)
60-day	**0.005** (0.005-0.006)	**0.007** (0.006-0.008)	**0.010** (0.009-0.011)	**0.012** (0.011-0.014)	**0.015** (0.013-0.018)	**0.018** (0.015-0.022)	**0.021** (0.017-0.026)	**0.024** (0.019-0.031)	**0.028** (0.021-0.038)	**0.031** (0.023-0.044)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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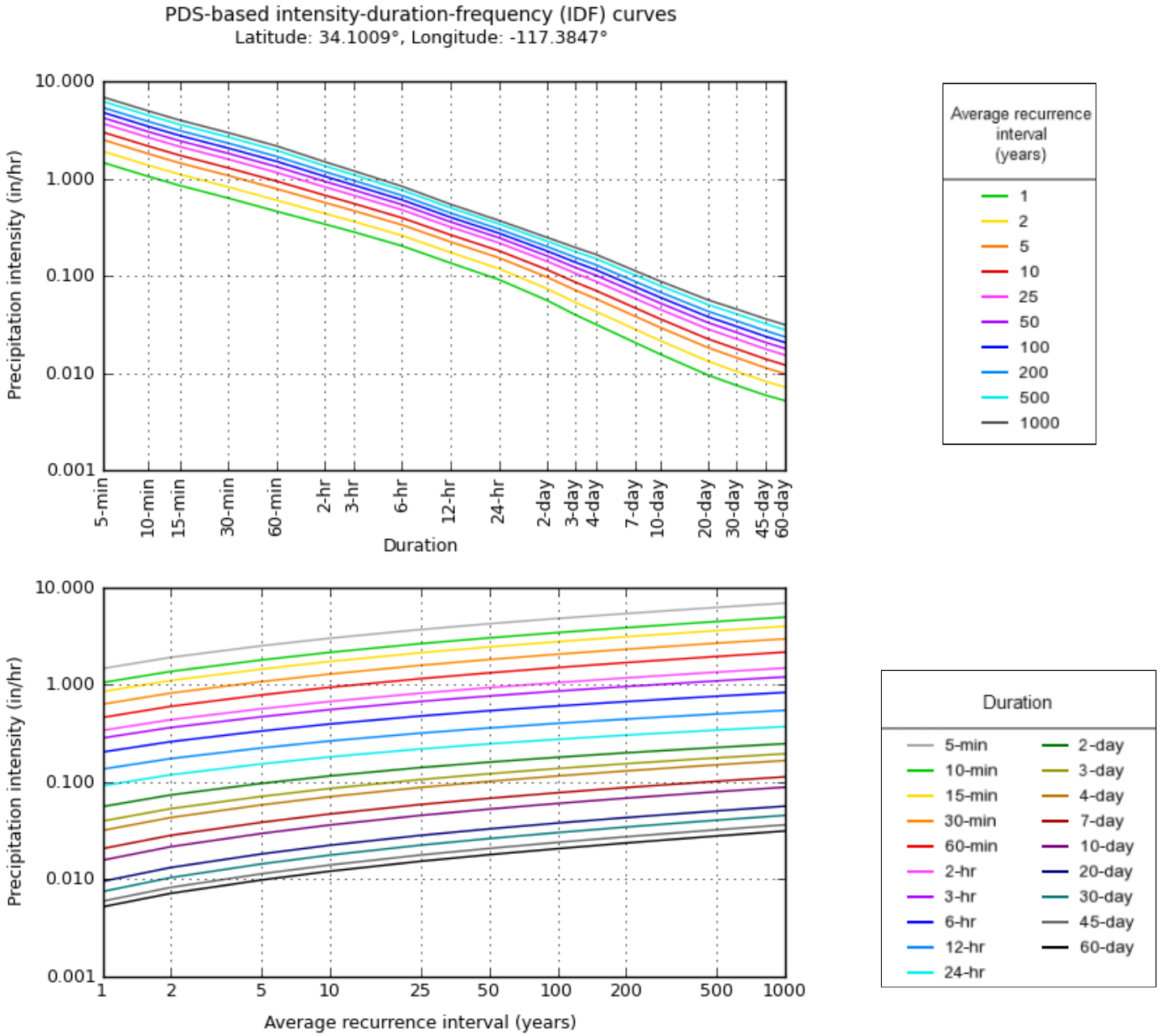
PF graphical



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Created (GMT): Thu Jun 23 17:01:23 2022

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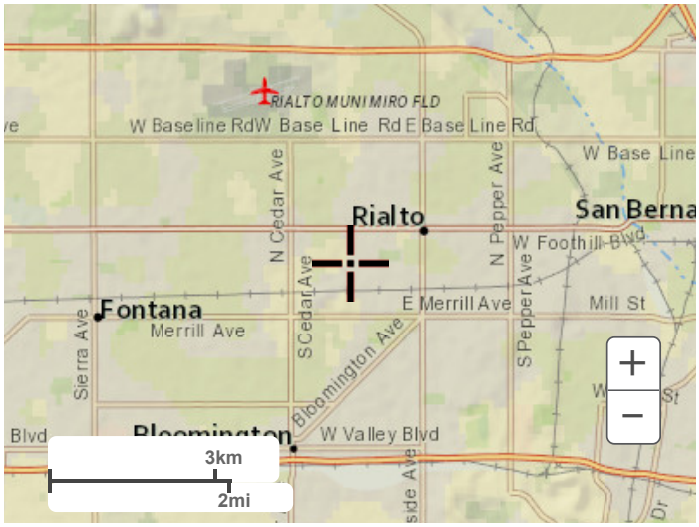
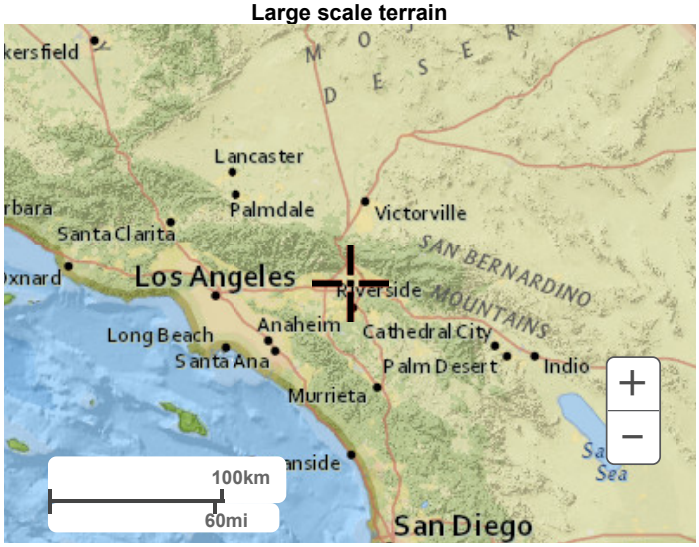
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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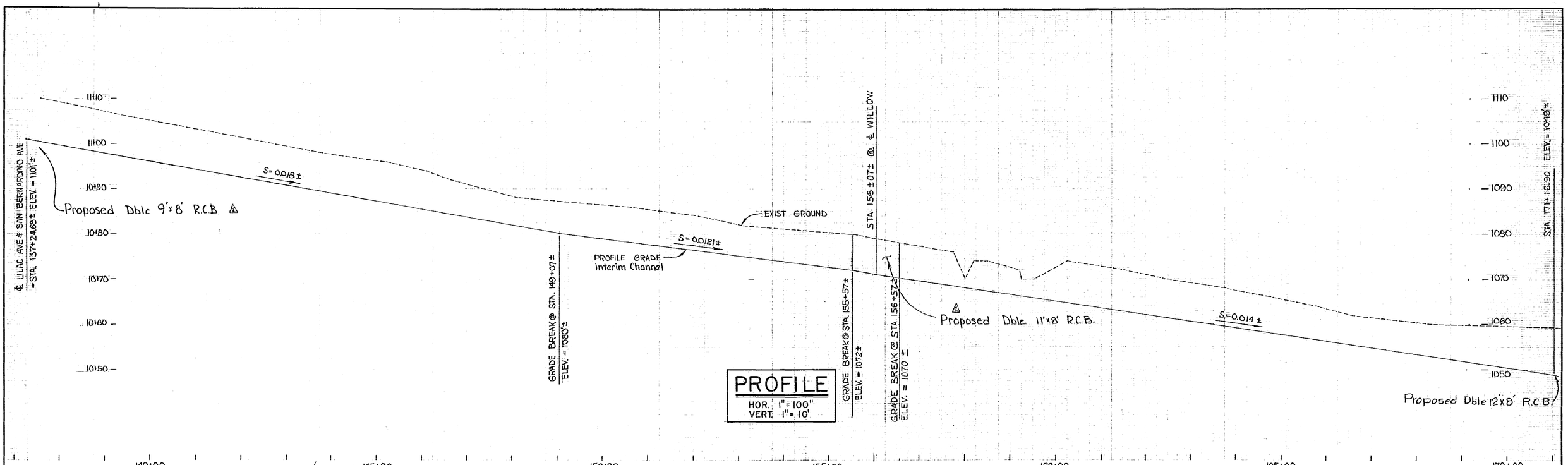
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Appendix G
Storm Drain As-builts



REVISIONS		
MARK	DATE	DESCRIPTION
⚠	3-8-71	Revised Alignment
⚠	1-17-73	Add Proposed R.C.B.s
⚠	1-17-73	Add 16' W.L.
⚠	1-17-74	Changed Limits on Typ. Sect.
⚠	1-17-74	Add Equ. at Valley Blvd.
⚠	7-8-77	Revised Alignment

ENGINEER: | DRAWN BY: | CHECKED BY:

SUBMITTED BY: CHIEF, ENGINEERING DIVISION

APPROVAL RECOMMENDED: FLOOD CONTROL ENGINEER

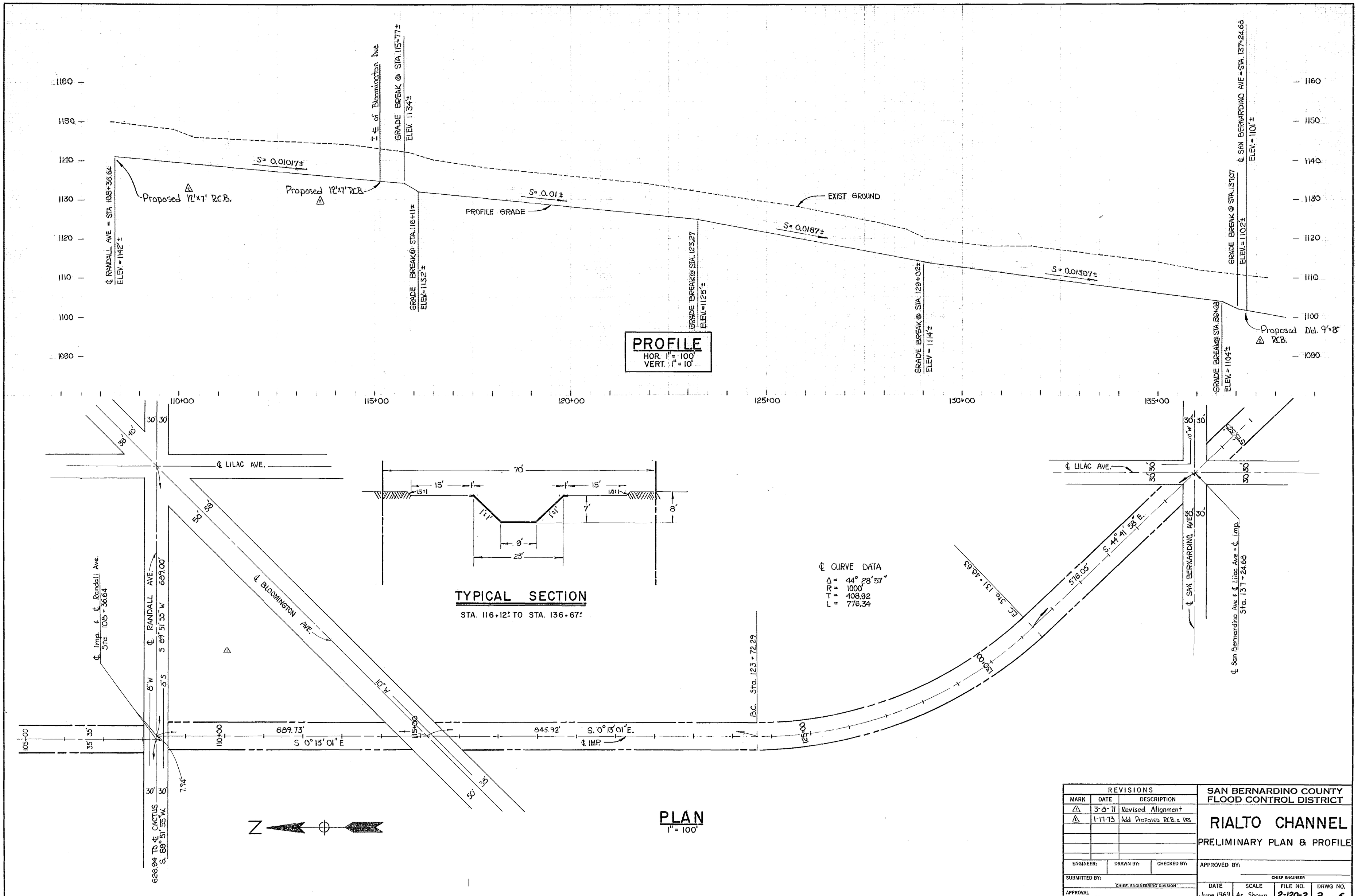
SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

RIALTO CHANNEL
PRELIMINARY PLAN & PROFILE

APPROVED BY: CHIEF ENGINEER

DATE	SCALE	FILE NO.	DRWG NO.
June 1969	As Shown	2-120-2	1 of 6.

5/66 DIETERICH POST CLEARPRINT 1020



REVISIONS		
MARK	DATE	DESCRIPTION
△1	3-8-71	Revised Alignment
△2	1-17-73	Add Proposed R.C.B. & RES

SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

RIALTO CHANNEL

PRELIMINARY PLAN & PROFILE

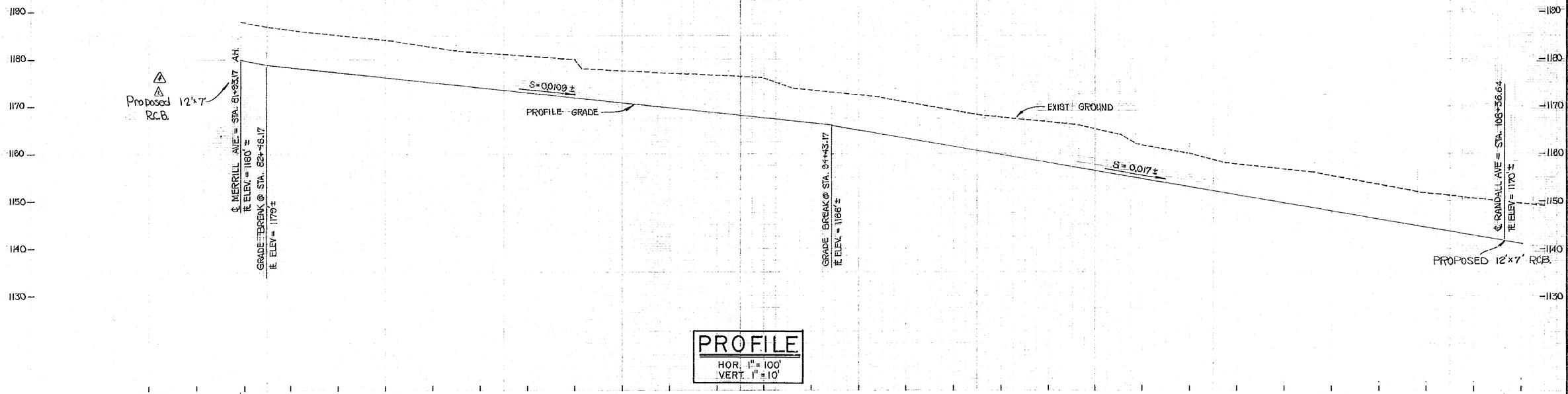
ENGINEER: | DRAWN BY: | CHECKED BY:

SUBMITTED BY: CHIEF, ENGINEERING DIVISION

APPROVAL RECOMMENDED: FLOOD CONTROL ENGINEER

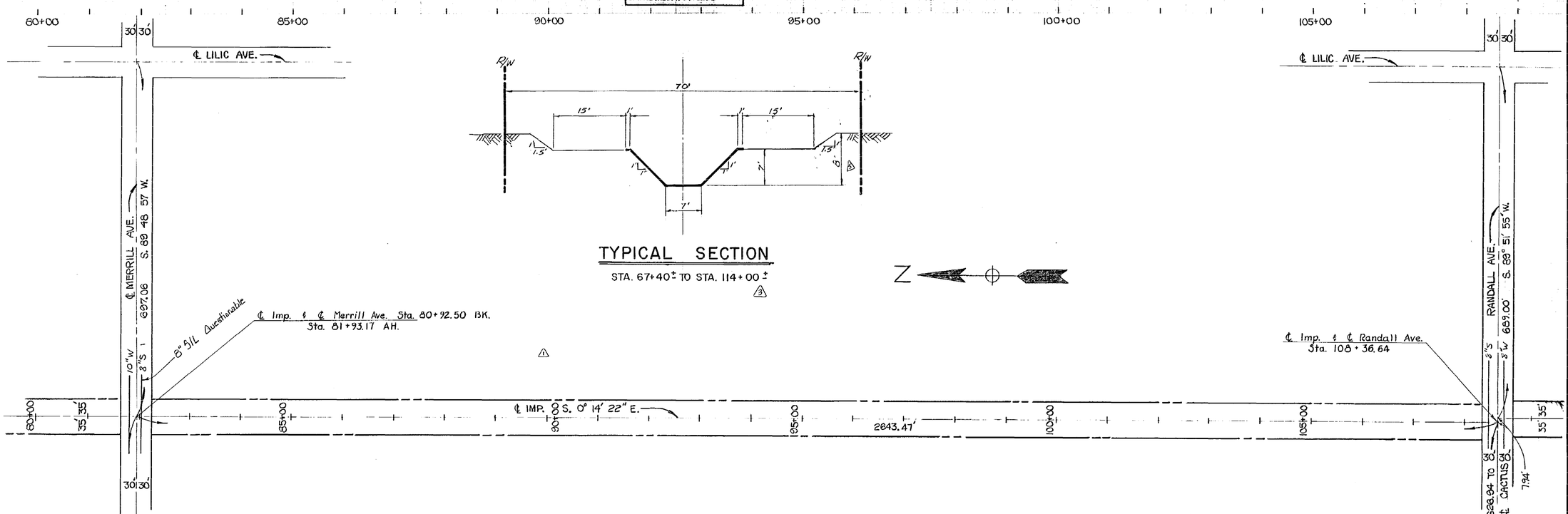
APPROVED BY: CHIEF ENGINEER

DATE	SCALE	FILE NO.	DRWG NO.
June 1969	As Shown	2-120-2	2 of 6



PROFILE

HOR. 1" = 100'
VERT. 1" = 10'



TYPICAL SECTION

STA. 67+40 ± TO STA. 114+00 ±

PLAN

1" = 100'

REVISIONS		
MARK	DATE	DESCRIPTION
1	3-8-71	Revised Alignment
2	1-17-73	Add 18'x6' RCB at Merrill
3	1-17-74	Added Typical Section
4	1-17-74	Changed RCB at Merrill
5	9-19-74	Changed typical sec.

ENGINEER: | DRAWN BY: | CHECKED BY:

SUBMITTED BY: CHIEF, ENGINEERING DIVISION

APPROVAL RECOMMENDED: FLOOD CONTROL ENGINEER

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

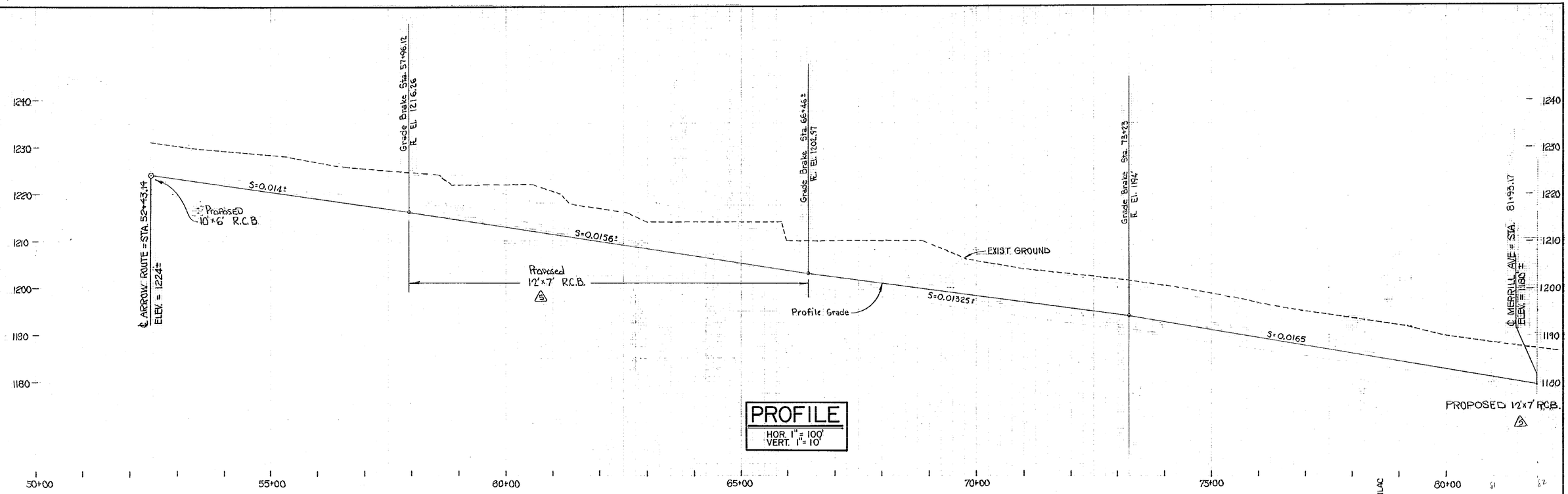
RIALTO CHANNEL

PRELIMINARY PLAN & PROFILE

APPROVED BY: CHIEF ENGINEER

DATE	SCALE	FILE NO.	DRWG NO.
June 1969	As Shown	2-120-2	3 of 6

K-46 DIETZGEN-POST CLEARPRINT 1020



PROFILE

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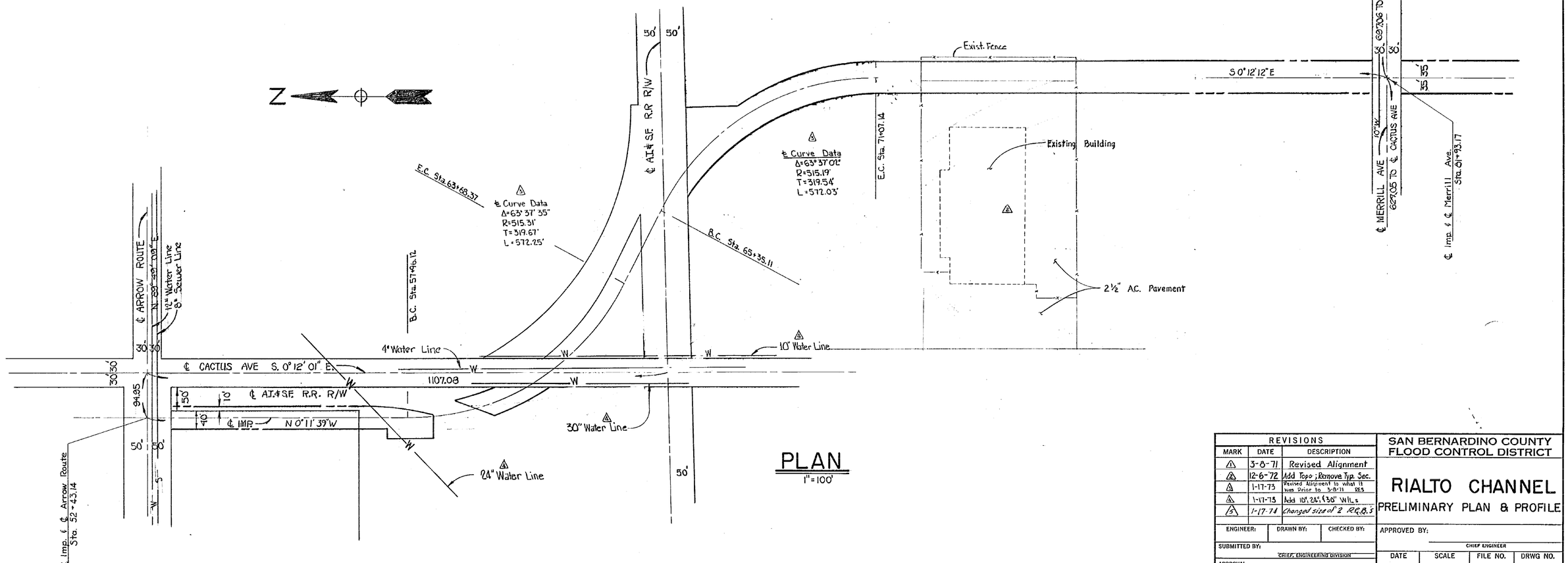
VERT. 1" = 10'



PLAN

1" = 100'

REVISIONS		
MARK	DATE	DESCRIPTION
1	3-8-71	Revised Alignment
2	12-6-72	Add Topo ; Remove Typ. Sec.
3	1-17-73	Revised Alignment to what it was Prior to 3-8-71
4	1-17-73	Add 10", 24", 30" W/L's
5	1-17-74	Changed size of 2 R.C.B.'s

ENGINEER: | DRAWN BY: | CHECKED BY:

SUBMITTED BY: CHIEF, ENGINEERING DIVISION

APPROVAL RECOMMENDED: FLOOD CONTROL ENGINEER

SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT

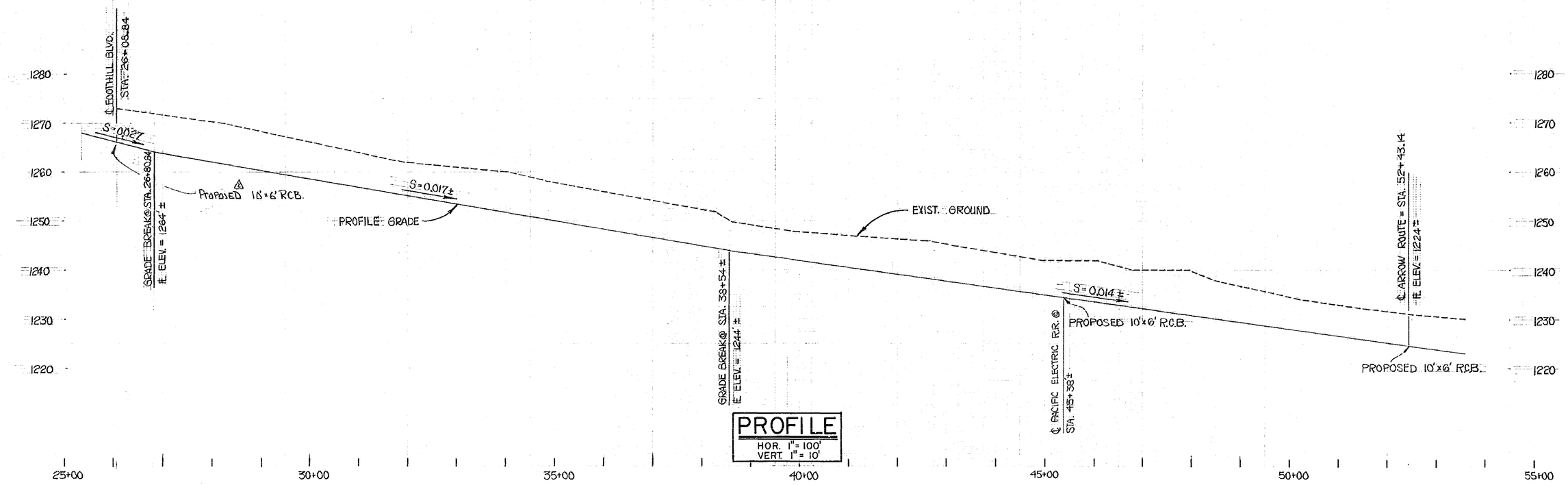
RIALTO CHANNEL

PRELIMINARY PLAN & PROFILE

APPROVED BY: CHIEF ENGINEER

DATE	SCALE	FILE NO.	DRWG NO.
June 1969	As Shown	2-120-2	4 of 6

5/66 DIETER/CH-POST CLEARPRINT 1020

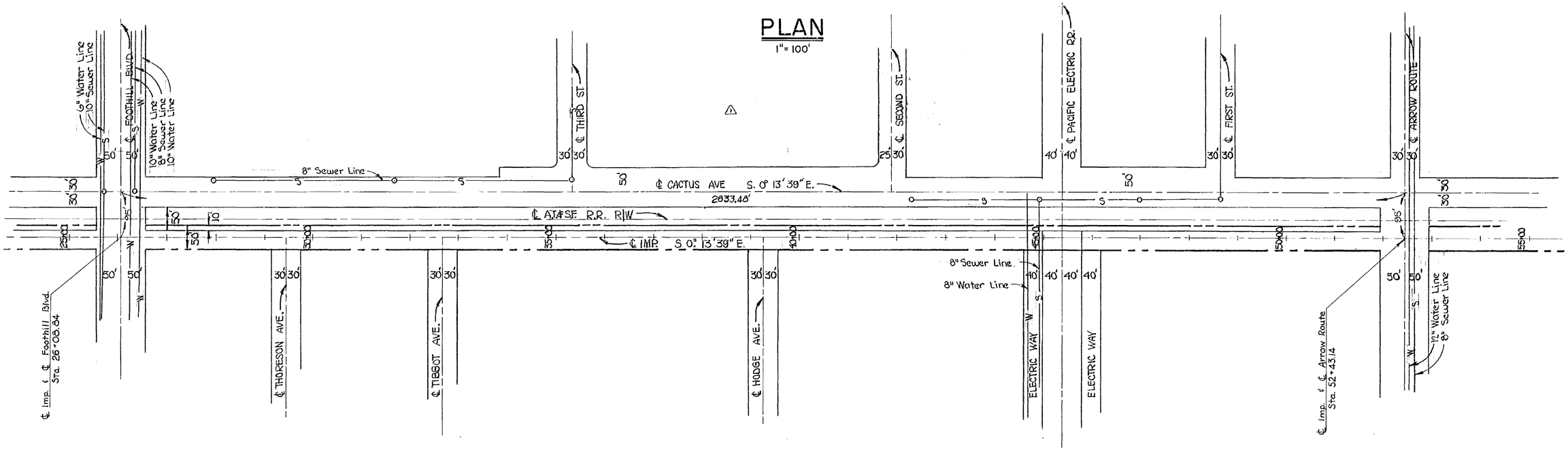


PROFILE

HOR. 1" = 100'
VERT. 1" = 10'

PLAN

1" = 100'



N

REVISIONS		
MARK	DATE	DESCRIPTION
⚠	3-8-71	Revised Alignment
⚠	1-17-73	Add Proposed R.C.B.

ENGINEER: | DRAWN BY: | CHECKED BY:

SUBMITTED BY: CHIEF, ENGINEERING DIVISION

APPROVAL RECOMMENDED: FLOOD CONTROL ENGINEER

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

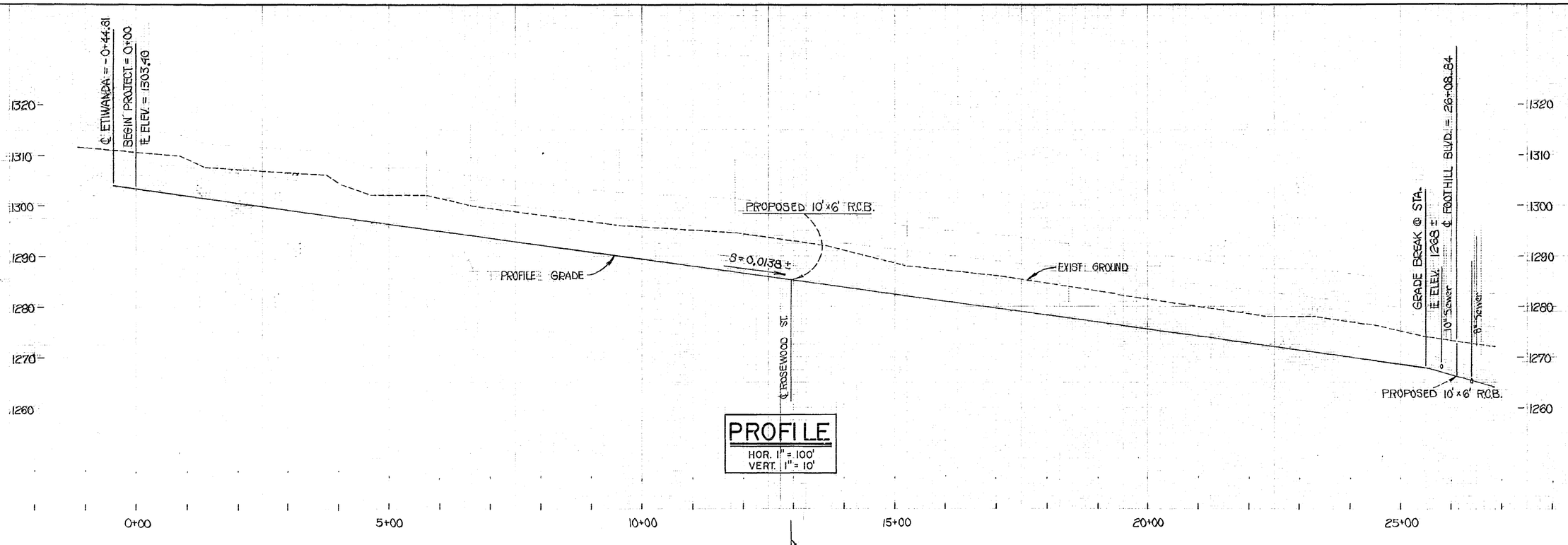
RIALTO CHANNEL

PRELIMINARY PLAN & PROFILE

APPROVED BY: CHIEF ENGINEER

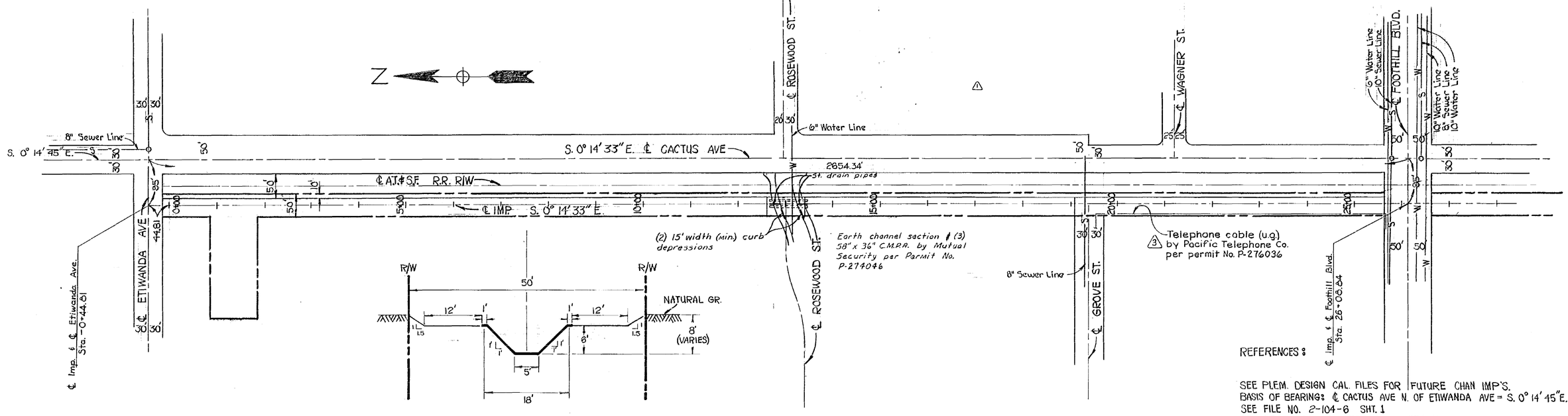
DATE	SCALE	FILE NO.	DRWG NO.
June 1969	As Shown	2-120-2	5 of 6

5/66 DIETERICH-POST CLEARPRINT 1020



PROFILE

HOR. 1" = 100'
VERT. 1" = 10'



TYPICAL SECTION

STA. 0+00 TO STA. 56+90±

△2

PLAN

1" = 100'

REFERENCES:

SEE PLEM. DESIGN CAL. FILES FOR FUTURE CHAN IMP'S.
BASIS OF BEARING: ℄ CACTUS AVE N. OF ETIWANDA AVE = S. 0° 14' 45" E.
SEE FILE NO. 2-104-6 SHT. 1
SEE F.B. 484/16-19, 522/1-42, 556/1

REVISIONS		
MARK	DATE	DESCRIPTION
△1	3-8-71	Revised Alignment
△2	1-17-72	Revised Limits on Typical Section
△3	5-25-77	Permit No. P-276036

ENGINEER: | DRAWN BY: | CHECKED BY:

SUBMITTED BY: CHIEF, ENGINEERING DIVISION

APPROVAL RECOMMENDED: FLOOD CONTROL ENGINEER

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT

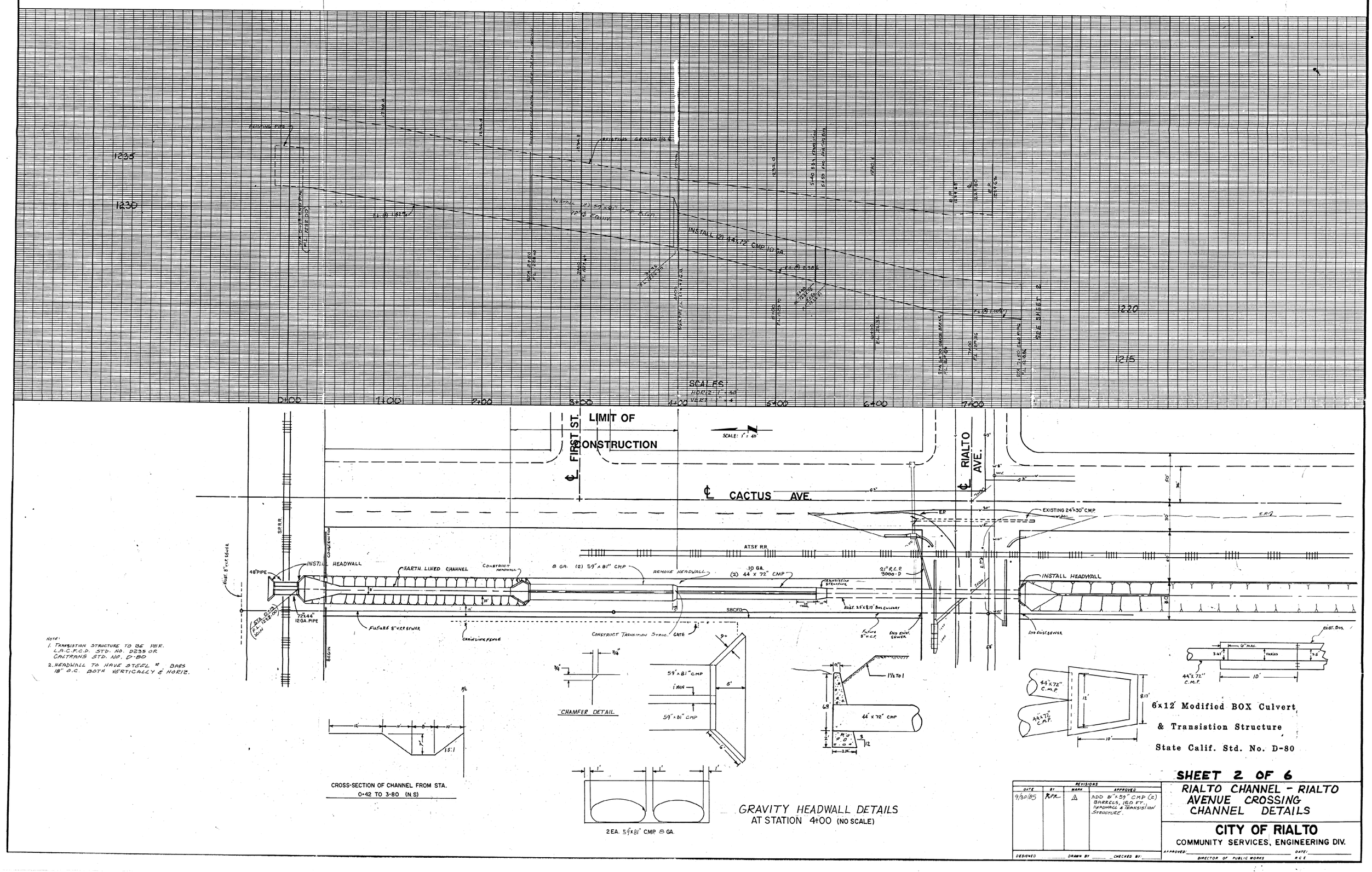
RIALTO CHANNEL

PRELIMINARY PLAN & PROFILE

APPROVED BY: CHIEF ENGINEER

DATE	SCALE	FILE NO.	DRWG NO.
June 1969	As Shown	2-120-2	6 of 6

5-65 DIETZGEN/POST CLEARPRINT 1020



NOTE:
1. TRANSITION STRUCTURE TO BE PER L.A.C.F.C.D. STD. NO. D235 OR CALTRANS STD. NO. D-80
2. HEADWALL TO HAVE STEEL # BARS 18" O.C. BOTH VERTICALLY & HORIZ.

CROSS-SECTION OF CHANNEL FROM STA. 0+42 TO 3+80 (N.S)

CHAMFER DETAIL

GRAVITY HEADWALL DETAILS AT STATION 4+00 (NO SCALE)

2 EA. 59"x81" CMP 8 GA.

44"x72" C.M.P.

6'x12' Modified BOX Culvert & Transistion Structure

State Calif. Std. No. D-80

SHEET 2 OF 6

REVISIONS			
DATE	BY	MARK	APPROVED
9/30/85	RFR	1	ADD 8'x59" CMP (2) BARRELS, 150 FT. HEADWALL & TRANSITION STRUCTURE.

DESIGNED ____ DRAWN BY ____ CHECKED BY: ____

RIALTO CHANNEL - RIALTO AVENUE CROSSING CHANNEL DETAILS

CITY OF RIALTO
COMMUNITY SERVICES, ENGINEERING DIV.

APPROVED: ____ DATE: ____
DIRECTOR OF PUBLIC WORKS R.C.E.

identify site location on here

Appendix I

Noise and Vibration Analysis

160 N. Cactus Avenue

NOISE AND VIBRATION ANALYSIS

CITY OF RIALTO

PREPARED BY:

Bill Lawson, PE, INCE
blawson@urbanxroads.com
(949) 584-3148

JANUARY 27, 2023

15203-02 NA

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	160 N. Cactus Avenue
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for 160 N. Cactus Avenue ("Project"). The Project is proposed to consist of a single 159,680 square foot warehouse building. This study has been prepared to satisfy applicable City of Rialto standards and thresholds of significance based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this 160 N. Cactus Avenue Noise and Vibration Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Operational Noise	7	*Less Than Significant*	-
Construction Noise	8	*Less Than Significant*	-
Concrete Pour Noise		*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed 160 N. Cactus Avenue ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The 160 N. Cactus Avenue Project is located on the northwest corner of North Cactus Avenue and W. Rialto Avenue in the City of Rialto as shown on Exhibit 1-A.

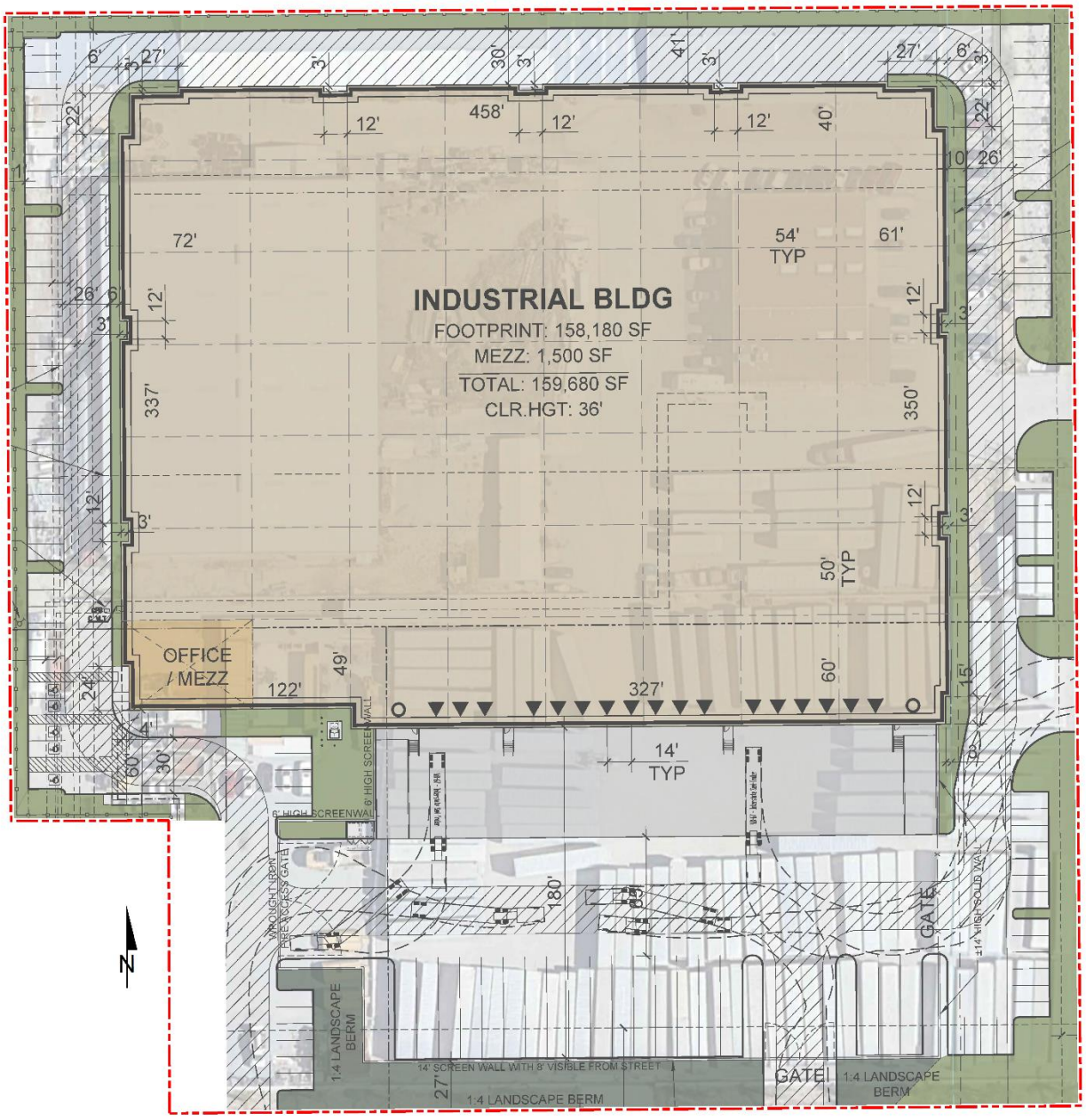
1.2 PROJECT DESCRIPTION

The Project is proposed to consist of single 159,680 square foot warehouse building as shown on Exhibit 1-B. The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements.

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise is simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (2) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 1,000 feet, which can cause serious discomfort. (3) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most used metric is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when noise can become more intrusive. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Rialto relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (2)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (2)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of-sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The Federal Highway Administration (FHWA) does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must block the line-of-sight path of sound from the noise source.

2.6 LAND USE COMPATIBILITY WITH NOISE

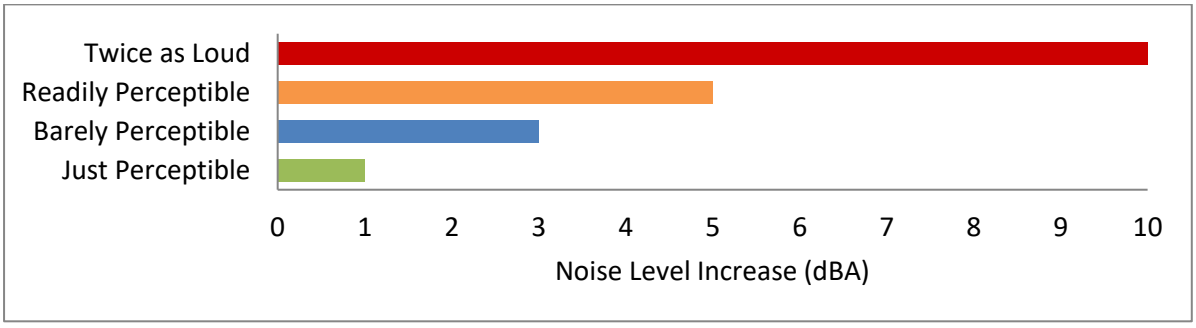
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (6)

2.7 COMMUNITY RESPONSE TO NOISE

Approximately sixteen percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (7 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (8) According to research originally published in the Noise Effects Handbook (7), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



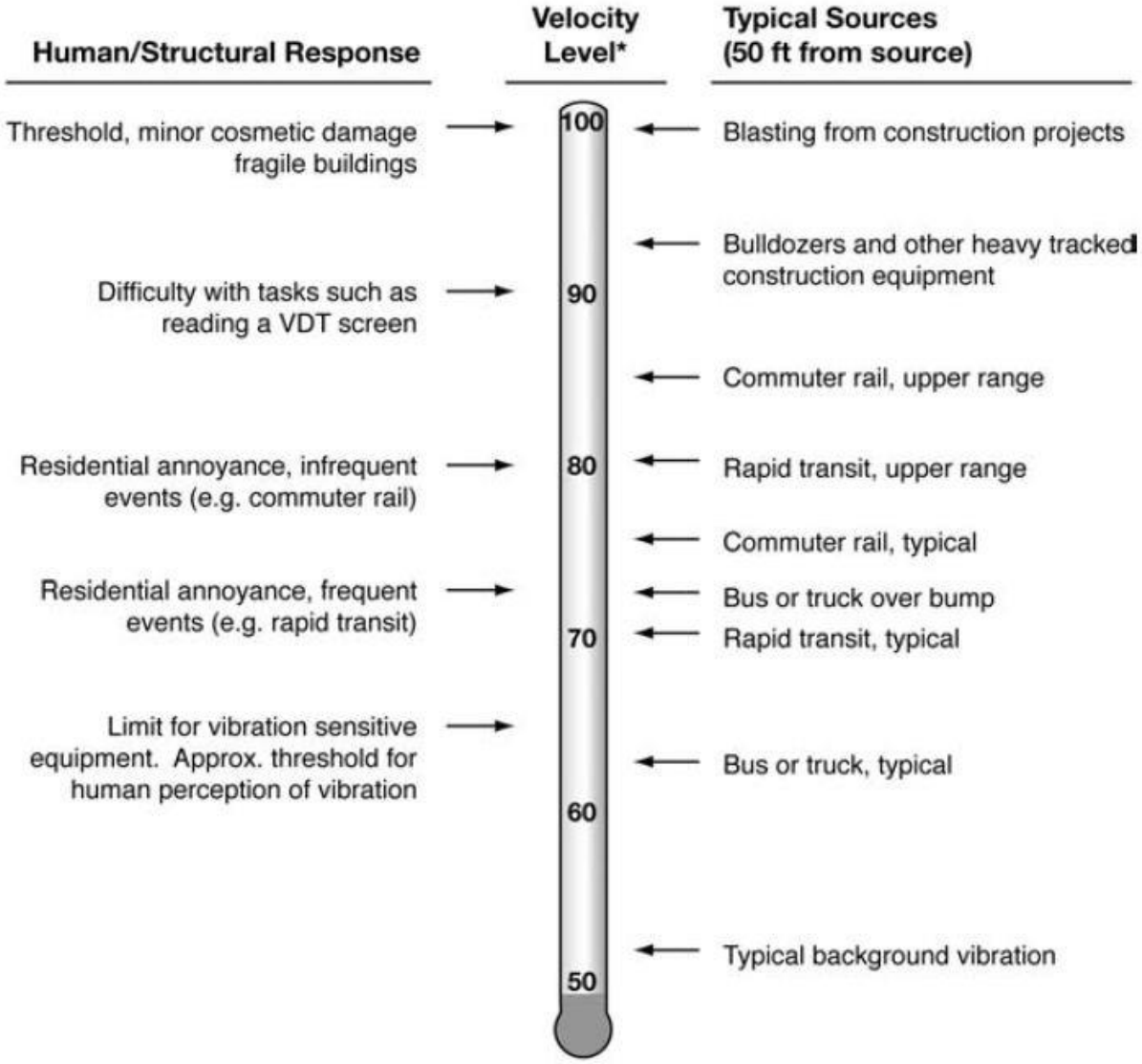
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Impact Assessment Manual* (8) , vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



* *RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual.

3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

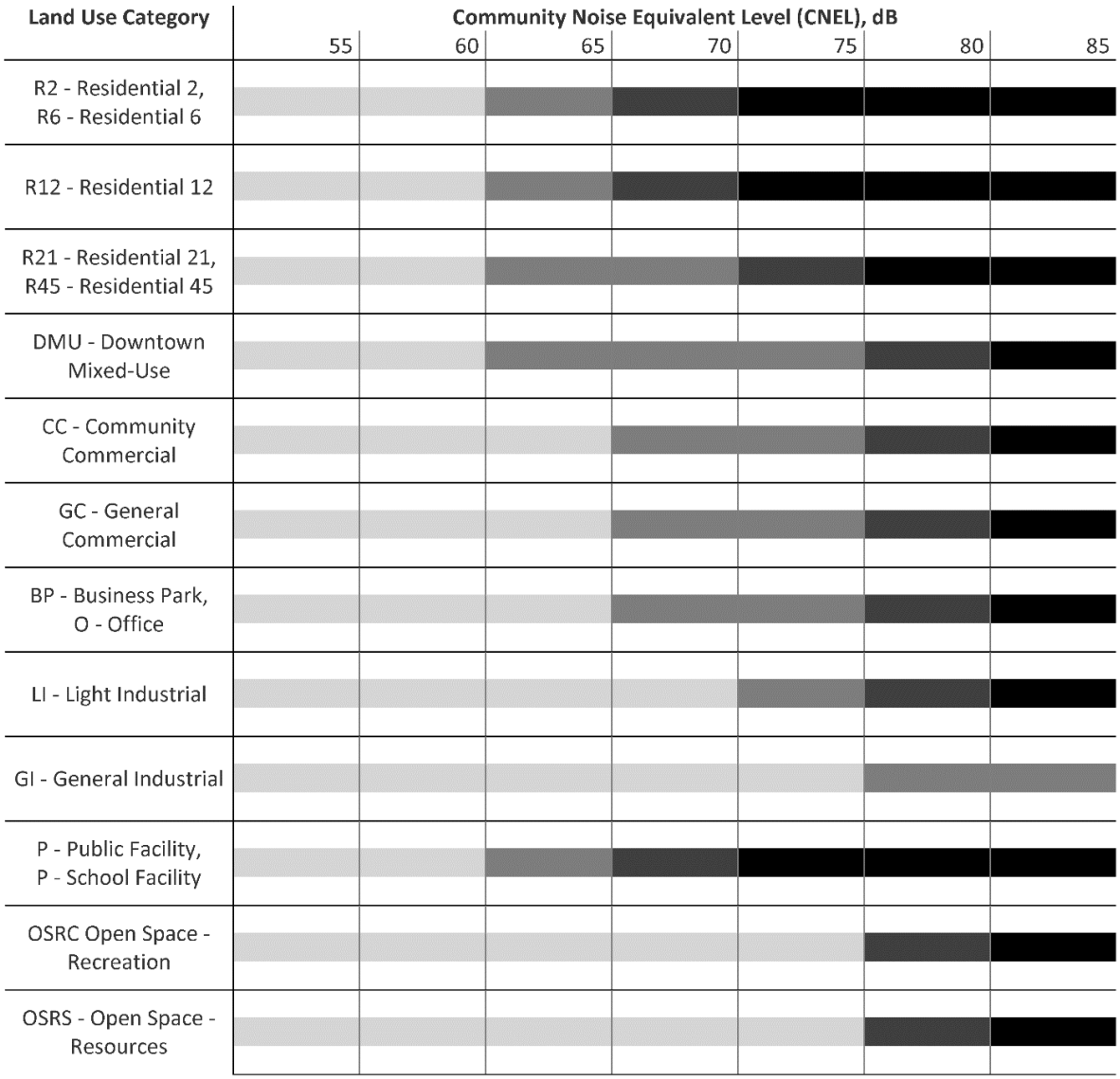
The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR) (9). The purpose of the Noise and safety Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF RIALTO GENERAL PLAN SAFETY & NOISE ELEMENT

The City of Rialto *General Plan Safety & Noise Element* establishes policies to guard against the creation of any new noise and land use conflicts, and to minimize the impact of existing noise sources on the community. (10) The *Safety & Noise Element* does not contain specific transportation-related noise standards, however, it does provide land use compatibility guidelines for future development and the future noise contour boundaries for major roadways in the City of Rialto.

The noise criteria identified in the City of Rialto Safety & Noise Element (Exhibit 5.5) are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City of Rialto with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. The *Rialto Noise Guidelines for Land Use Planning* matrix indicates that general industrial land uses, such as the Project site, are considered *normally acceptable* with exterior noise levels below 75 dBA CNEL, and *conditionally acceptable* with noise levels below 85 dBA CNEL. Noise-sensitive residential land uses are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL, and *conditionally acceptable* with noise levels below 65 dBA CNEL. For *conditionally acceptable* land uses, *new development should be undertaken only after detailed analysis of noise reduction requirements are made.* (10)

EXHIBIT 3-A: RIALTO NOISE GUIDELINES FOR LAND USE PLANNING



Source: City of Rialto General Plan Safety & Noise Element, Exhibit 5.5.

3.3 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the 160 N. Cactus Avenue Project, stationary-source (operational) noise such as the expected loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements are typically evaluated against standards established under a jurisdiction's Municipal Code. Section 9.50.050[B] of the City Rialto Municipal Code included in Appendix 3.1 restricts loading/unloading, the use of dollies, carts, forklifts, or wheeled equipment that causes any unnecessary noise within one thousand feet of a residence between the hours of 8:00 p.m. and 7:00 a.m. However, the City of Rialto Municipal Code does not identify specific exterior noise level standards (11). Therefore, the County of San Bernardino Development Code standards are used in this noise study to assess the potential impacts at adjacent sensitive receiver locations consistent with Section 9.50.050[B] of the City Rialto Municipal Code. The operational noise level standards used in this noise study are summarized on Table 3-1.

The San Bernardino County Code, Title 8 Development Code, Section 83.01.080[c] establishes the noise level standards for stationary noise sources. Since the Project's general industrial land use will potentially impact adjacent noise-sensitive uses in the Project study area, this noise study relies on the more conservative residential noise level standards to describe potential operational noise impacts. For residential properties, the exterior noise level shall not exceed 55 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.) for both the whole hour, and for not more than 30 minutes in any hour. (12)

The exterior noise level standards shall apply for a cumulative period of 30 minutes in any hour, as well as the standard plus 5 dBA cannot be exceeded for a cumulative period of more than 15 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or the standard plus 20 dBA for any period of time. Further, Section 83.01.080[e] indicates that if the existing ambient noise level already exceeds any of the exterior noise level limit categories, then the standard shall be adjusted to reflect the ambient conditions. The County of San Bernardino operational noise level standards are shown on Table 3-1 and included in Appendix 3.2.

TABLE 3-1: OPERATIONAL NOISE LEVEL STANDARDS

Time Period	Exterior Noise Level Standards (dBA)[1]				
	L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
Daytime (7:00 a.m. to 10:00 p.m.)	55	60	65	70	75
Nighttime (10:00 p.m. to 7:00 a.m.)	45	50	55	60	65

[1] County of San Bernardino Development Code, Title 8, Section 83.01.080 (Appendix 3.2). The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{50} is the noise level exceeded 50% of the time.

The percentile noise descriptors are provided to ensure that the duration of the noise source is fully considered. However, due to the relatively constant intensity of the Project operational activities, the L_{50} or average L_{eq} noise level metrics best describe the loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements. In addition, the L_{eq} noise level metric accounts for noise fluctuations over time by averaging the louder and quieter events and giving more weight to the louder events. In addition, due to the mathematical relationship between the median (L_{50}) and the mean (L_{eq}), the L_{eq} will always be larger than or equal to the L_{50}. The more variable the noise becomes, the larger the L_{eq} becomes in comparison to the L_{50}. Therefore, this noise study conservatively relies on the average L_{eq} sound level limits to describe the Project operational noise levels.

3.4 CONSTRUCTION NOISE STANDARDS

Section 9.50.050[F] of the City Rialto Municipal Code included in Appendix 3.1 restricts the use pile driver, steam or gasoline shovel, pneumatic hammer, steam or electric hoist or other similar devices and Section 9.50.050[G] restricts electrically operated compressor, fan or other similar devices between the hours of 8:00 p.m. and 7:00 a.m. In addition, Section 9.50.070 of the City of Rialto Municipal Code, states that construction activities are permitted between the hours of 7:00 a.m. to 5:30 p.m. Monday through Friday from October 1st to April 30th, 6:00 a.m. to 7:00 p.m. Monday through Friday from May 1st to September 30th, and 8:00 a.m. to 5:00 p.m. on Saturdays any time of year; with no activity allowed on Sundays or state holidays. (11) While the City establishes limits to the hours during which construction activity may take place, neither the City of Rialto or County of San Bernardino General Plans or Municipal Codes establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use with a nighttime exterior construction noise level of 70 dBA L_{eq} (8 p. 179).

3.5 CONSTRUCTION VIBRATION STANDARDS

To analyze vibration impacts originating from the operation and construction of the 160 N. Cactus Avenue, vibration-generating activities are typically evaluated against standards established under a jurisdiction's Municipal Code. Since the City of Rialto Municipal Code does not identify specific vibration level standards, the County Development Code vibration level standards are used in this analysis to assess potential impacts at nearby sensitive receiver locations.

The County Development Code, Section 83.01.090[a] states that vibration shall be no *greater than or equal to two-tenths inches per second measured at or beyond the lot line*. (12) Therefore, to determine if the vibration levels due to the operation and construction of the Project, the peak particle velocity (PPV) vibration level standard of 0.2 inches per second (in/sec) is used.

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4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

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

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

C. For a project 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, would the project expose people residing or working in the project area to excessive noise levels?

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (13) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged.

The Federal Interagency Committee on Noise (FICON) (14) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (13) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any

increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (15 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of the 160 N. Cactus Avenue are appropriately evaluated against the thresholds of significance outlined in the County of San Bernardino Development Code. Section 83.01.090[a] of the County's Development Code states that vibration shall be no *greater than or equal to two-tenths inches per second measured at or beyond the lot line*. (12) Therefore, to determine if the vibration levels due to the operation and construction of the Project, the peak particle velocity (PPV) vibration level standard of 0.2 inches per second (in/sec) is used.

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The Project site is not located within two miles of an airport or airstrip. The closest airport is the San Bernardino International Airport (SBD) located over 7 miles southeast of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Operational	Residential	Exterior Noise Level Limit[1]	55 dBA L_{eq}	45 dBA L_{eq}
	Noise-Sensitive[1]	if ambient is < 60 dBA L_{eq}	≥ 5 dBA L_{eq} Project increase	
		if ambient is 60 - 65 dBA L_{eq}	≥ 3 dBA L_{eq} Project increase	
		if ambient is > 65 dBA L_{eq}	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise-Sensitive	Noise Level Threshold[3]	80 dBA L_{eq}	70 dBA L_{eq}
		Vibration Level Threshold[4]	0.2 PPV in/sec	n/a

[1] County of San Bernardino Development Code, Title 8, Section 83.01.080 (Appendix 3.2)
[2] FICON, 1992.
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[4] Section 83.01.090(a) of the County of San Bernardino County Code.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m. "n/a" = construction activities are not planned during the nighttime hours; "PPV" = peak particle velocity.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at five locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, April 13, 2022. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (16)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location.

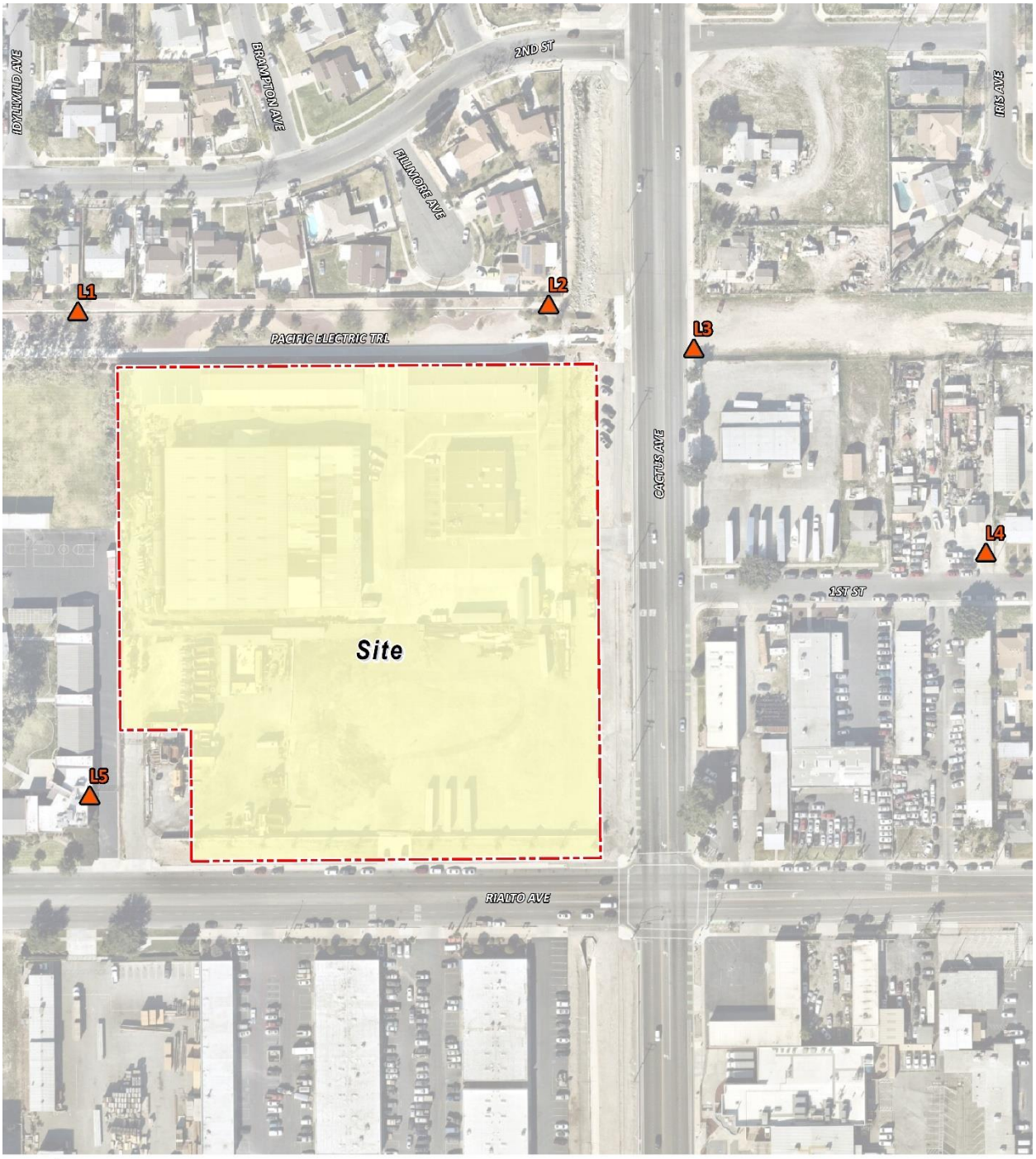
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located northwest of the Project site near single-family residence at 815 West Second Street.	50.0	48.0
L2	Located north of the Project site near single-family residence at 189 North Fillmore Avenue.	56.3	52.2
L3	Located northeast of the Project site near single-family residence at 141 North Cactus Avenue.	64.8	59.6
L4	Located east of the Project site near single-family residence at 622 West 1st Street.	60.9	56.8
L5	Located west of the Project site near Bob Murphy Community School at 149 North Arrowhead Avenue.	59.0	56.4

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 6-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, five receiver locations in the vicinity of the Project site were identified. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

R1: Location R1 represents existing residence 805 West 2nd Street, approximately 94 feet north of the Project site. Receiver R1 is placed in the private outdoor living areas (backyards) facing the Project site. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

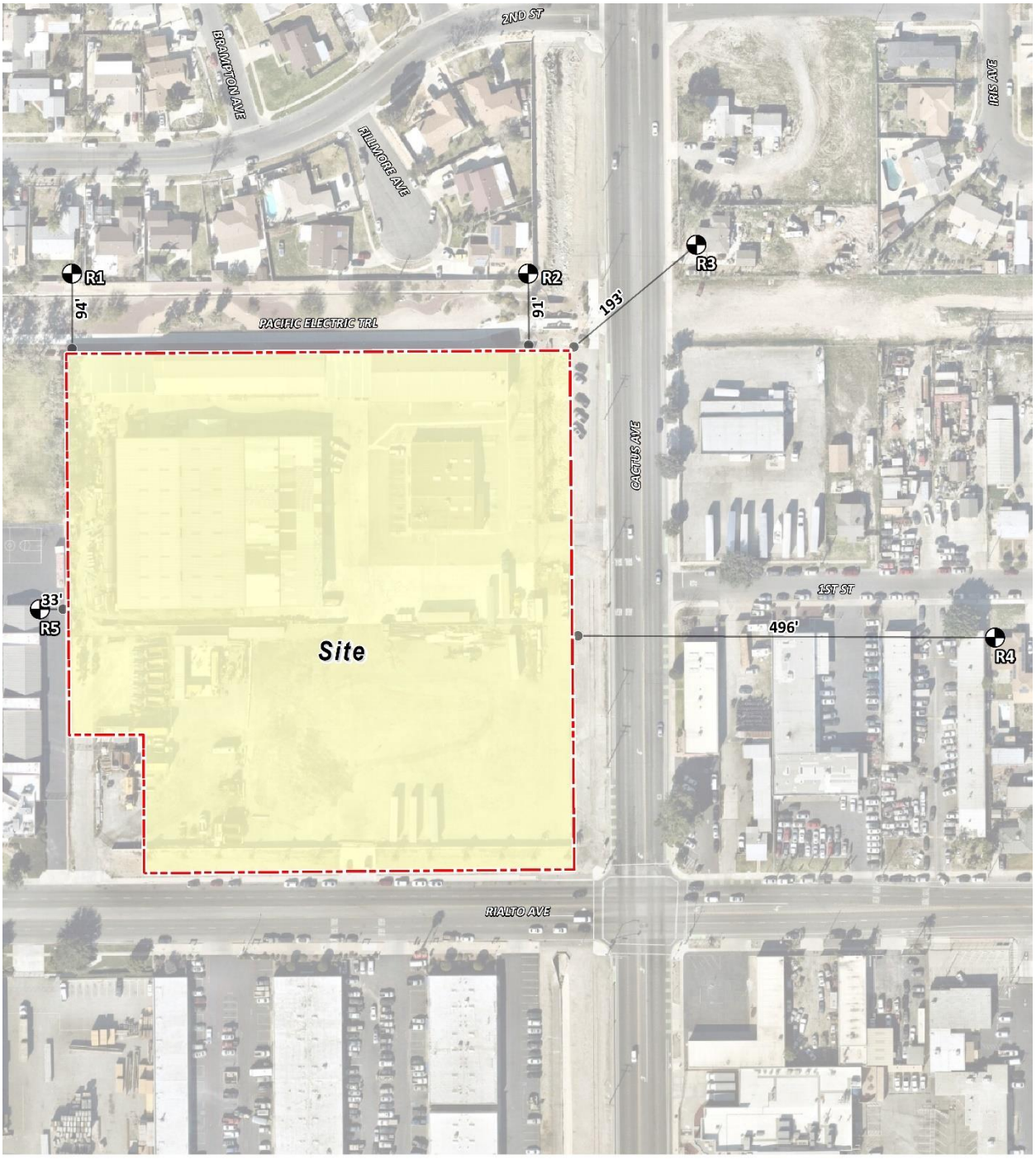
R2: Location R2 represents existing residence 189 N Fillmore Avenue, approximately 91 feet north of the Project site. Receiver R2 is placed in the private outdoor living areas (backyards) facing the Project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents existing residence at 141 N Cactus Avenue, approximately 193 feet northeast of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R3 is placed at the building façade. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents existing residence at 623 W 1st Street, approximately 496 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R4 is placed at the building façade. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents the Bob Murphy Community School at 149 N Arrowhead Avenue, approximately 33 feet west of the Project site. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.

EXHIBIT 6-A: SENSITIVE RECEIVER LOCATIONS



7 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 6, resulting from the operation of the proposed 160 N. Cactus Avenue Project. Exhibit 7-A identifies the noise source locations used to assess the operational noise levels. The operational noise analysis includes the planned 6 to 14-foot-high loading dock screenwall.

7.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the typical daytime and nighttime activities at the Project site. The on-site Project-related noise sources are expected to include: loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements.

7.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 7-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements all operating at the same time. These sources of noise activity will likely vary throughout the day.

7.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (16)

EXHIBIT 7-A: OPERATIONAL NOISE SOURCE LOCATIONS

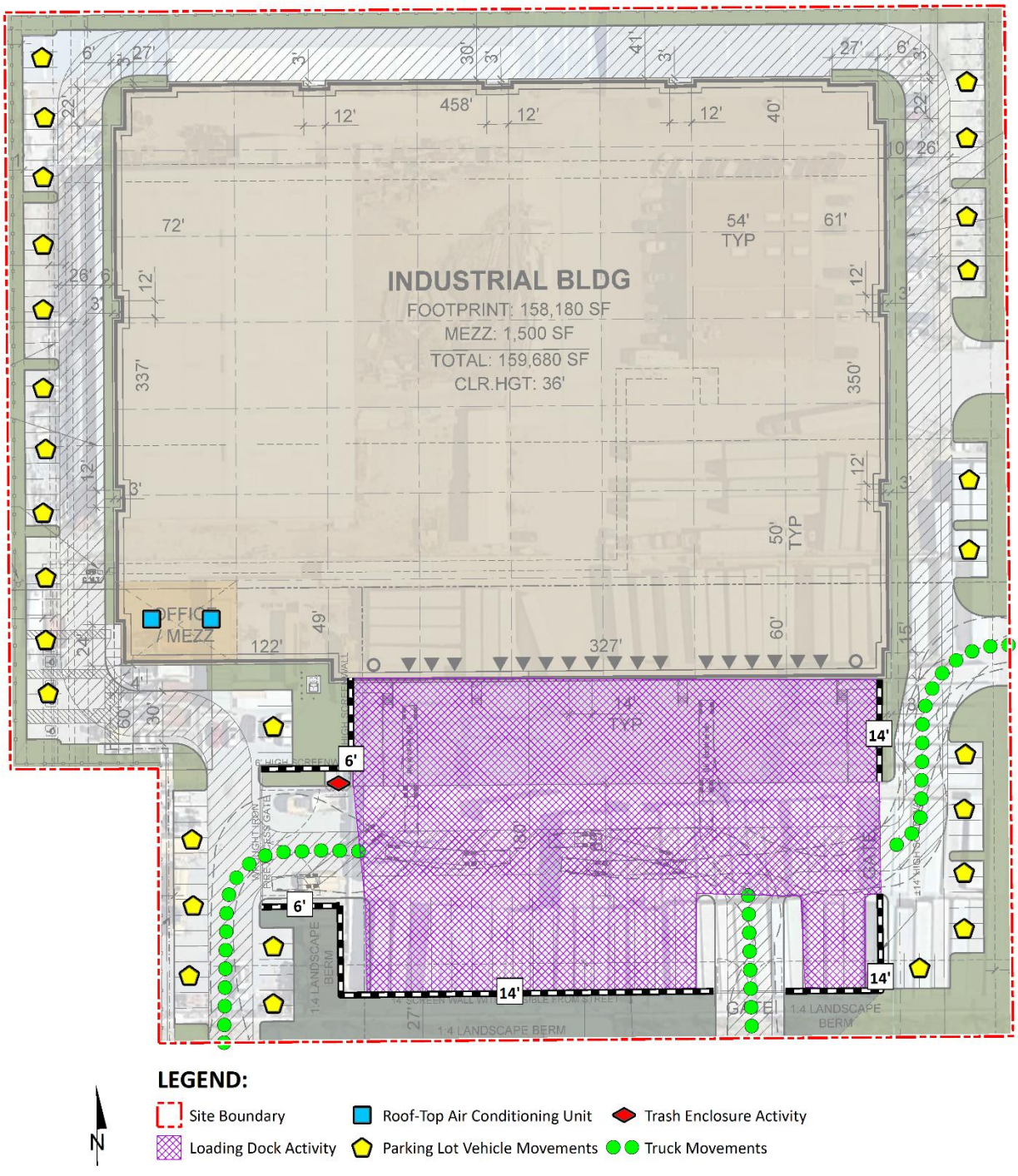


TABLE 7-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./ Hour[2]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[3]
		Day	Night		
Loading Dock Activity	8'	60	60	62.8	103.4
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Trash Enclosure Activity	5'	60	30	57.3	87.0
Parking Lot Vehicle Movements	5'	60	60	52.6	81.1
Truck Movements	8'	60	60	57.8	93.2

[1] As measured by Urban Crossroads, Inc.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.

7.2.2 LOADING DOCK ACTIVITY

The reference loading dock activities are intended to describe the typical operational noise source levels associated with the Project. This includes truck idling, deliveries, backup alarms, unloading/loading, docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background forklift operations. At a uniform reference distance of 50 feet, Urban Crossroads collected a reference noise level of 62.8 dBA L_{eq}. The loading dock activity noise level measurement was taken over a fifteen-minute period and represents multiple noise sources taken from the center of activity. The reference noise level measurement includes employees unloading a docked truck container included the squeaking of the truck's shocks when weight was removed from the truck, employees playing music over a radio, as well as a forklift horn and backup alarm. In addition, during the noise level measurement a truck entered the loading dock area and proceeded to reverse and dock in a nearby loading bay, adding truck engine, idling, air brakes noise, in addition to on-going idling of an already docked truck. Loading dock activity is estimated during all the daytime, evening, and nighttime hours.

7.2.3 ROOF-TOP AIR CONDITIONING UNITS

The noise level measurements describe a single mechanical roof-top air conditioning unit. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project building.

7.2.4 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, and trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project Site. The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for the Project's proposed building.

7.2.5 PARKING LOT VEHICLE MOVEMENTS

To describe the on-site parking lot activity, a long-term 27-hour reference noise level measurement was collected in the center of activity within the staff parking lot of an Amazon warehouse distribution center. At 50 feet from the center of activity, the parking lot produced a reference noise level of 52.6 dBA L_{eq}. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due cars pulling in and out of parking spaces in combination with car doors opening and closing.

7.2.6 TRUCK MOVEMENTS

The truck movements reference noise level measurement was collected over a period of 1 hour and 28 minutes and represents multiple heavy trucks entering and exiting the outdoor loading dock area producing a reference noise level of 57.8 dBA L_{eq} at 50 feet. The noise sources included at this measurement location account for trucks entering and existing the Project driveways and maneuvering in and out of the outdoor loading dock activity area.

7.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and

other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 7.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

7.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 7-2 shows the Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 37.2 to 52.2 dBA L_{eq}.

TABLE 7-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)				
	R1	R2	R3	R4	R5
Loading Dock Activity	23.1	24.2	33.2	41.8	40.3
Roof-Top Air Conditioning Units	29.4	22.3	23.2	24.4	40.8
Trash Enclosure Activity	9.0	8.2	8.0	22.8	19.9
Parking Lot Vehicle Movements	36.6	35.1	36.6	33.4	51.1
Truck Movements	18.4	32.0	36.4	38.2	42.1
Total (All Noise Sources)	**37.6**	**37.2**	**40.5**	**43.9**	**52.2**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

Tables 7-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 37.1 to 52.1 dBA L_{eq}. The minor differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 7-1 and Appendix 7.1.

TABLE 7-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)				
	R1	R2	R3	R4	R5
Loading Dock Activity	23.1	24.2	33.2	41.8	40.3
Roof-Top Air Conditioning Units	27.0	19.9	20.8	22.0	38.4
Trash Enclosure Activity	5.1	4.2	4.0	18.8	15.9
Parking Lot Vehicle Movements	36.6	35.1	36.6	33.4	51.1
Truck Movements	18.4	32.0	36.4	38.2	42.1
Total (All Noise Sources)	**37.3**	**37.1**	**40.5**	**43.8**	**52.1**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

7.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against the City of Rialto exterior noise level thresholds adjusted to reflect the ambient noise levels at the nearest noise-sensitive receiver locations. Table 7-4 shows the operational noise levels associated with 160 N. Cactus Avenue Project will satisfy the City of Rialto daytime and nighttime exterior noise level standards. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 7-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Measurement Location[2]	Project Operational Noise Levels (dBA Leq)[3]		Noise Level Standards (dBA Leq)[4]		Noise Level Standards Exceeded?[5]	
		Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	L1	37.6	37.3	50.0	48.0	No	No
R2	L2	37.2	37.1	56.3	52.2	No	No
R3	L3	40.5	40.5	64.8	59.6	No	No
R4	L4	43.9	43.8	60.9	56.8	No	No
R5	L5	52.2	52.1	59.0	56.4	No	No

[1] See Exhibit 7-A for the receiver locations.
[2] Reference noise level measurement locations as shown on Exhibit 5-A.
[3] Proposed Project operational noise level calculations are included in Appendix 7-1.
[4] Exterior noise level standards adjusted to reflect the ambient noise levels (see Table 5-1) per the County of San Bernardino Development Code, Title 8, Section 83.01.080 (Appendix 3-1).
[5] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

7.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (2) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 7-5 and 7-6, respectively. As indicated on Table 7-5, the Project will generate a daytime operational noise level increases ranging from 0.0 to 0.8 dBA L_{eq} at the nearest receiver locations. Table 7-6 shows that the Project will generate a nighttime operational noise level increases ranging from 0.1 to 1.4 dBA L_{eq} at the nearest receiver locations. Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented in Table 4-1, and, therefore, the increases at the sensitive receiver locations will be *less than significant.*

TABLE 7-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	37.6	L1	50.0	50.2	0.2	5.0	No
R2	37.2	L2	56.3	56.4	0.1	5.0	No
R3	40.5	L3	64.8	64.8	0.0	5.0	No
R4	43.9	L4	60.9	61.0	0.1	5.0	No
R5	52.2	L5	59.0	59.8	0.8	5.0	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 7-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 7-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	37.3	L1	48.0	48.4	0.4	5.0	No
R2	37.1	L2	52.2	52.3	0.1	5.0	No
R3	40.5	L3	59.6	59.7	0.1	5.0	No
R4	43.8	L4	56.8	57.0	0.2	5.0	No
R5	52.1	L5	56.4	57.8	1.4	5.0	No

[1] See Exhibit 7-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 7-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

8 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 8-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 8. According to Section 9.50.050[F] of the City Rialto Municipal Code the use pile driver, steam or gasoline shovel, pneumatic hammer, steam or electric hoist or other similar devices and 9.50.050[G] electrically operated compressor, fan or other similar devices are restricted between the hours of 8:00 p.m. and 7:00 a.m. Section 9.50.070 of the City of Rialto Municipal Code, states that construction activities are permitted between the hours of 7:00 a.m. to 5:30 p.m. Monday through Friday from October 1st to April 30th, 6:00 a.m. to 7:00 p.m. Monday through Friday from May 1st to September 30th, and 8:00 a.m. to 5:00 p.m. on Saturdays any time of year; with no activity allowed on Sundays or state holidays. (11)

In addition, since neither the City of Rialto General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes, a numerical construction threshold based on Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual is used for analysis of daytime construction impacts. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use with a nighttime exterior construction noise level of 70 dBA L_{eq} (8 p. 179).

8.1 CONSTRUCTION NOISE LEVELS

The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed during that stage. As a result of the equipment mix, each stage has its own noise characteristics; some stages have higher continuous noise levels than others, and some have higher impact noise levels than others. The Project construction activities are expected to occur in the following stages:

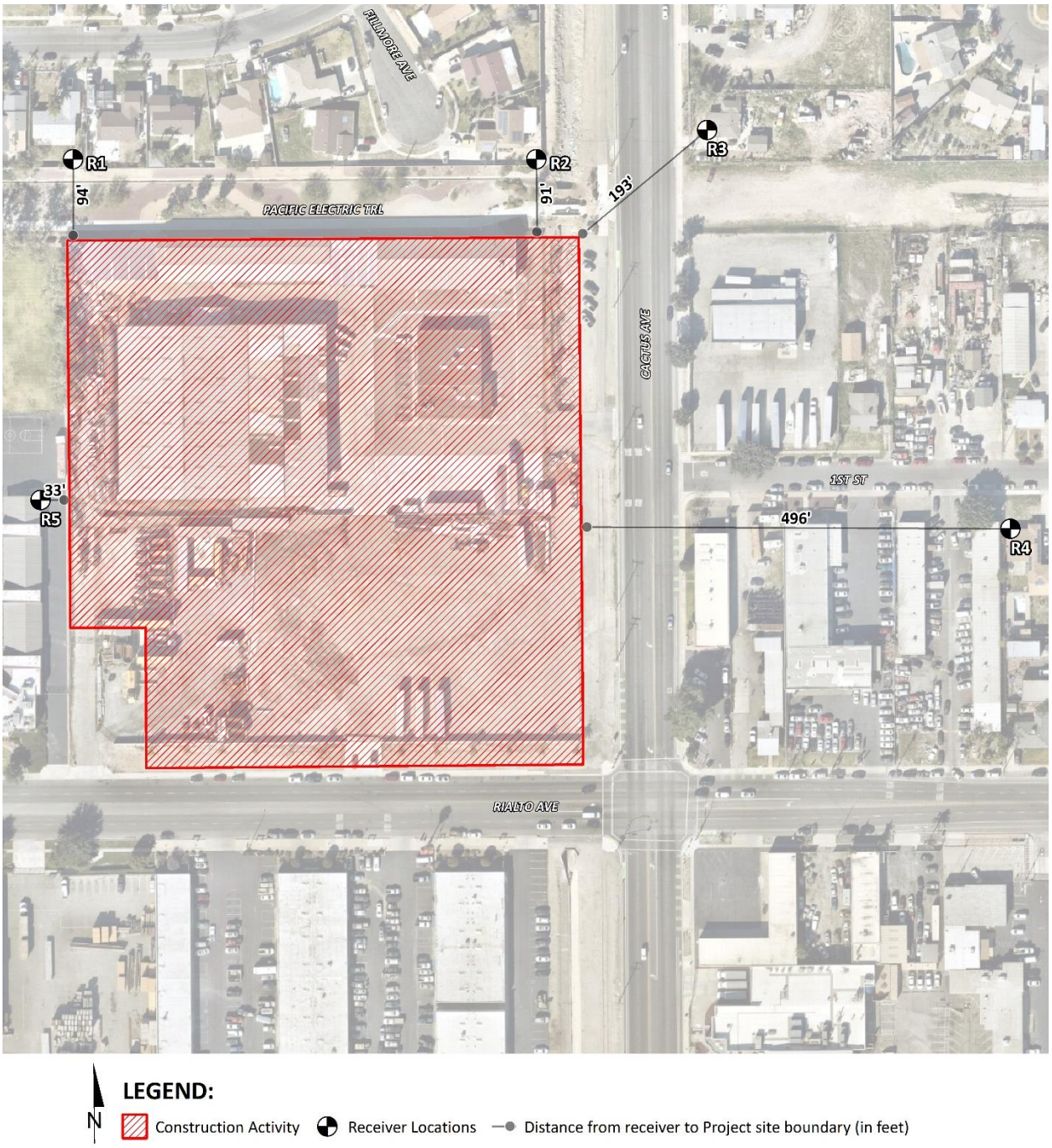
- Demolition/Crushing
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

8.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (21) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of

construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 8-A: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS



8.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Consistent with FTA guidance for general construction noise assessment, Table 8-1 presents the combined noise levels for the loudest construction equipment, assuming they operate at the same time. As shown on Table 8-2, the construction noise levels are expected to range from 59.7 to 76.4 dBA L_{eq} at the nearby receiver locations. Appendix 8.1 includes the detailed CadnaA construction noise model inputs.

TABLE 8-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity	Reference Noise Level @ 50 Feet (dBA L_{eq})[1]	Combined Noise Level (dBA L_{eq})[2]	Combined Sound Power Level (PWL)[3]
Demolition/ Crushing	Demolition Equipment	82	86	118
	Backhoes	74		
	Concrete Saw	83		
Site Preparation	Crawler Tractors	78	80	112
	Hauling Trucks	72		
	Rubber Tired Dozers	75		
Grading	Graders	81	83	115
	Excavators	77		
	Compactors	76		
Building Construction	Cranes	73	81	113
	Tractors	80		
	Welders	70		
Paving	Pavers	74	83	115
	Paving Equipment	82		
	Rollers	73		
Architectural Coating	Cranes	73	77	109
	Air Compressors	74		
	Generator Sets	70		

[1] FHWA Roadway Construction Noise Model (RCNM).
[2] Represents the combined noise level for all equipment assuming they operate at the same time consistent with FTA Transit Noise and Vibration Impact Assessment guidance.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calibrated using the CadnaA noise model at the reference distance to the noise source.

TABLE 8-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition/ Crushing	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	66.6	63.6	66.6	64.6	66.6	60.6	66.6
R2	67.2	64.2	67.2	65.2	67.2	61.2	67.2
R3	68.4	65.4	68.4	66.4	68.4	62.4	68.4
R4	65.7	62.7	65.7	63.7	65.7	59.7	65.7
R5	76.4	73.4	76.4	74.4	76.4	70.4	76.4

[1] Noise receiver locations are shown on Exhibit 8-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 8.1.

8.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 8-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 8-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	66.6	80	No
R2	67.2	80	No
R3	68.4	80	No
R4	65.7	80	No
R5	76.4	80	No

[1] Noise receiver locations are shown on Exhibit 8-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 8-2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

8.5 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

It is our understanding that nighttime concrete pouring activities may occur as a part of Project building construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building pad area. Since the nighttime concrete pours will take place outside the permitted City of Rialto Development Code, Section 9.50.070

hours of 7:00 a.m. to 5:30 p.m. Monday through Friday from October 1st to April 30th, 6:00 a.m. to 7:00 p.m. Monday through Friday from May 1st to September 30th, and 8:00 a.m. to 5:00 p.m. on Saturdays any time of year, the Project Applicant shall be required to obtain authorization for nighttime work from the City of Rialto. Any nighttime construction noise activities shall satisfy the FTA residential 70 dBA L_{eq} noise limit outlined in Table 4-1.

8.5.1 NIGHTTIME CONCRETE POUR REFERENCE NOISE LEVEL MEASUREMENTS

To estimate the noise levels due to nighttime concrete pour activities, sample reference noise level measurements were taken during a nighttime concrete pour at a construction site. Urban Crossroads, Inc. collected short-term nighttime concrete pour reference noise level measurements during the noise-sensitive nighttime hours between 1:00 a.m. to 2:00 a.m. at 27334 San Bernardino Avenue in the City of Redlands. The reference noise levels describe the expected concrete pour noise sources that may include concrete mixer truck movements and pouring activities, concrete paving equipment, rear mounted concrete mixer truck backup alarms, engine idling, air brakes, generators, and workers communicating/whistling. To describe the nighttime concrete pour noise levels associated with the construction of the 160 N. Cactus Avenue, this analysis relies on reference sound pressure level of 67.7 dBA L_{eq} at 50 feet represented by a sound power level of 100.3 dBA L_w. While the Project noise levels will depend on the actual duration of activities and specific equipment fleet in use at the time of construction, the reference sound power level of 100.3 dBA L_w is used to describe the expected Project nighttime concrete pour noise activities.

8.5.2 NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

As shown on Table 8-4, the noise levels associated with the nighttime concrete pour activities are estimated to range from 50.2 to 58.3 dBA L_{eq} and will satisfy the City of Rialto stationary-source nighttime exterior hourly average L_{eq} residential noise level threshold at all the receiver locations. Based on the results of this analysis, all nearest noise receiver locations will experience *less than significant* impacts due to the Project related nighttime concrete pour activities. Appendix 8.2 includes the CadnaA nighttime concrete pour noise model inputs.

TABLE 8-4: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Concrete Pour Construction Noise Levels (dBA L_{eq})		
	Exterior Noise Levels[2]	Nighttime Threshold[3]	Threshold Exceeded?[4]
R1	48.9	70	No
R2	49.5	70	No
R3	50.7	70	No
R4	48.0	70	No
R5	58.7	70	No

[1] Noise receiver locations are shown on Exhibit 8-A.
[2] Nighttime Concrete Pour noise model inputs are included in Appendix 8.2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

8.6 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 8-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for human response (annoyance) and building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 8-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Using the vibration source level of construction equipment provided on Table 8-5 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 8-6 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 33 to 496 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.001 to 0.059 PPV in/sec and will remain below the County of San Bernardino 0.2 PPV in/sec threshold for vibration at all receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during the construction activities at the Project site.

TABLE 8-6: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]					Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Highest Vibration Level		
R1	94'	0.000	0.005	0.010	0.012	0.012	0.2	No
R2	91'	0.000	0.005	0.011	0.013	0.013	0.2	No
R3	193'	0.000	0.002	0.004	0.004	0.004	0.2	No
R4	496'	0.000	0.000	0.001	0.001	0.001	0.2	No
R5	33'	0.002	0.023	0.050	0.059	0.059	0.2	No

[1] Receiver locations are shown on Exhibit 8-A.
[2] Distance from receiver location to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 8-5).
[4] County of San Bernardino Development Code, Section 83.01.090(a) (Appendix 3.2)
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

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9 REFERENCES

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8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
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8. **City of Rialto.** *General Plan Safety & Noise Element.* December 208.
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13. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
14. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
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16. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
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18. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
19. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
20. **Urban Crossroads.** *Rialto & Lilac Traffic Analysis.* November 2022.

21. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.

10 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed 160 N. Cactus Avenue Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.



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EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of San Diego • March, 2018
Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF RIALTO MUNICIPAL CODE

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Chapter 9.50 - NOISE CONTROL

Sections:

9.50.010 - Purpose and intent.

A. It is the purpose of these regulations to implement the goals and objectives of the noise element of the city's general plan to establish community-wide noise standards and to serve as a reference for locating other city regulations relating to noise in the community. It is further the purpose of these regulations to recognize that the existence of excessive noise within the city is a condition that is detrimental to the health, safety, welfare and quality of life of the citizens and shall be regulated in the public interest.

B. In furtherance of the foregoing purpose, it is found and declared as follows:

1. The making, creation or maintenance of such loud, unnecessary, unnatural or unusual noises that are prolonged, unusual, annoying, disturbing and unnatural in their time, place and use are a detriment to public health, comfort, convenience, safety, general welfare and the peace and quiet of the city and its inhabitants; and
2. The public necessity for the provisions and prohibitions contained in and enacted by this chapter is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions set forth in and enacted by this chapter are in pursuance of and for the purpose of securing and promoting the public health, comfort, convenience, safety, general welfare and property and the peace and quiet of the city and its inhabitants.

(Ord. 1417 § 1 (part), 2008)

9.50.020 - Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

"Construction equipment" means tools, machinery or equipment used in connection with construction operations, including all types of "special construction" equipment as defined in the pertinent sections of California Vehicle Code when used in the construction process on any construction site, home improvement site or property maintenance site, regardless of whether such site be located on highway or off highway.

"Enforcement officer" means a city code enforcement officer or peace officer authorized to enforce the provisions and prohibitions of this chapter pursuant to Section 9.50.080.

"Plainly audible" means any sound that can be detected by a person using his or her unaided hearing faculties. As an example, if the sound source under investigation is a portable or personal vehicular sound amplification or reproduction device, the investigating enforcement officer need not determine the title of a song, specific words, or the artist performing the song. The detection of the vibration from the rhythmic bass component of the music is sufficient to constitute a plainly audible sound.

"Public right-of-way" means any street, avenue, boulevard, highway, sidewalk, alley or similar place, owned or controlled by a government entity.

"Public space" means any real property or structures on real property, owned by a government entity and normally accessible to the public, including but not limited to parks and other recreation areas.

"Responsible person" means:

1. Any person who owns, leases or is lawfully in charge of the property or motor vehicle where the noise violation takes place; or
2. Any person who owns or controls the source of the noise or violation. If the responsible person is a minor, then the parent or guardian who has custody of the child at the time of the violation shall be the responsible person who is liable under this chapter.

(Ord. 1417 § 1 (part), 2008)

9.50.030 - Prohibited acts.

A. It is unlawful for any person to engage in the following activities:

1. Sounding any horn or signal device on any automobile, motorcycle, bus or other motor vehicle in any other manner or circumstances or for any other purpose than required or permitted by the Vehicle Code or other California laws.
2. Racing the engine of any motor vehicle while the vehicle is not in motion, except when necessary to do so in the course of repairing, adjusting or testing the same.
3. Operating or permitting the use of any motor vehicle on any public right-of-way or public place or on private property within a residential zone for which the exhaust muffler, intake muffler or any other noise abatement device has been modified or changed in a manner such that the noise emitted by the motor vehicle is increased above that emitted by the vehicle as originally manufactured.
4. Operating or permitting the use or operation of personal or commercial music or sound amplification or production equipment that is:
   a. Plainly audible across property boundaries;
   b. Plainly audible through partitions common to two residences within a building;
   c. Plainly audible at a distance of fifty feet in any direction from the source of music or sound between the hours of eight a.m. and ten p.m.; or
   d. Plainly audible at a distance of twenty-five feet in any direction from the source of music or sound between the hours of ten p.m. and eight a.m.
5. The intentional sounding or permitting the sounding outdoors of any fire, burglar, or civil defense alarm, siren, whistle, or any motor vehicle burglar alarm, except for emergency purposes or for testing, unless such alarm is terminated within fifteen minutes of activation.
6. Creating excessive noise adjacent to any school, church, court or library while the same is in use, or adjacent to any hospital or care facility, which unreasonably interferes with the workings of such institution, or which disturbs or unduly annoys patients in the hospital, students in the school, users of the court or library, provided conspicuous signs are displayed in such streets indicating the presence of a school, institution of learning, church, court or hospital.
7. Making or knowingly and unreasonably permitting to be made any unreasonably loud, unnecessary or unusual noise that disturbs the comfort, repose, health, peace and quiet or which causes discomfort or annoyance to any reasonable person of normal sensitivity. The characteristics and conditions that may be considered in determining whether this section has been violated, include, but are not limited to, the following:
   a. The level of noise;

b. Whether the nature of the noise is usual or unusual;

c. Whether the origin of the noise is natural or unnatural;

d. The level of the background noise;

e. The proximity of the noise to sleeping facilities;

f. The nature and zoning of the areas within which the noise emanates;

g. The density of the inhabitation of the area within which the noise emanates;

h. The time of day or night the noise occurs;

i. The duration of the noise;

j. Whether the noise is recurrent, intermittent or constant; and

k. Whether the noise is produced by a commercial or noncommercial activity.

B. A violation of this section is an infraction and a public nuisance.

C. A violation of this section may result in the following:

1. Issuance of an infraction citation;
2. Issuance of a notice of public nuisance;
3. Imposition of criminal and civil penalties; and
4. Confiscation and impoundment as evidence, of the components that are amplifying or transmitting the prohibited noise.

D. An enforcement officer who encounters a violation of this section may issue a written notice to the responsible person demanding immediate abatement of the violation (written notice). The written notice shall inform the recipient that a second violation of the same provision within a seventy-two-hour period may result in the issuance of a criminal citation and/or notice of public nuisance, the imposition of criminal and civil penalties, and confiscation and impoundment as evidence, of the components that are amplifying or transmitting the prohibited noise.

E. Any peace officer who encounters a second violation of this section within a seventy-two-hour period following issuance of a written notice is empowered to confiscate and impound as evidence, any or all of the components amplifying or transmitting the sound.

F. Any person claiming legal ownership of the items confiscated and impounded under this section may request the return of the item by filing a written request with the police department within seven calendar days of the confiscation. Such requests shall be processed in accordance with the procedures adopted by the department.

(Ord. 1417 § 1 (part), 2008)

9.50.040 - Excessive noise and vibration emanating from a motor vehicle.

A. No person shall operating or occupy a motor vehicle on any public right-of-way, public place or private property, while operating or permitting the use or operation of any radio, stereo receiver, musical instrument, television, computer, compact disc player, tape recorder, cassette player or any other device for the production or reproduction of sound from within the motor vehicle so that the sound is plainly audible at a distance of fifty feet from such vehicle, or in the case of a motor vehicle on private property, beyond the property line.

B. Pursuant to Section 9.50.130, a violation of this section is a misdemeanor offense and a public nuisance.

C. A violation of this section may result in the following:

1. Issuance of a misdemeanor citation;

2. Issuance of a notice of public nuisance;
3. Imposition of criminal and civil penalties; and
4. Immediate confiscation and impoundment as evidence, of the components that are amplifying or transmitting the prohibited noise or the immediate confiscation and impoundment of the motor vehicle to which the component is attached if the same may not be removed without causing harm to the vehicle or the component.

D. Any person claiming legal ownership of a motor vehicle confiscated and impounded under this section may request the return of the vehicle by filing a written request with the police department within seven calendar days of the confiscation. Such requests shall be processed in accordance with the procedures adopted by the department.

E. Any person claiming legal ownership of the items confiscated and impounded under this section, other than a motor vehicle, may request the return of the item by filing a written request with the police department, which shall be processed in accordance with the procedures adopted by the department.

(Ord. 1417 § 1 (part), 2008)

9.50.050 - Controlled hours of operation.

It is unlawful for any person to engage in the following activities other than between the hours of seven a.m. and eight p.m. in all zones:

A. Operate or permit the use of powered model vehicles and planes;

B. Load or unload any vehicle, or operate or permit the use of dollies, carts, forklifts, or other wheeled equipment that causes any impulsive sound, raucous or unnecessary noise within one thousand feet of a residence;

C. Operate or permit the use of domestic power tools, or machinery or any other equipment or tool in any garage, workshop, house or any other structure;

D. Operate or permit the use of gasoline or electric powered leaf blowers, such as commonly used by gardeners and other persons for cleaning lawns, yards, driveways, gutters and other property;

E. Operate or permit the use of privately operated street/parking lot sweepers or vacuums, except that emergency work and/or work necessitated by unusual conditions may be performed with the written consent of the city manager;

F. Operate or permit the use of pile driver, steam or gasoline shovel, pneumatic hammer, steam or electric hoist or other similar devices;

G. Operate or permit the use of electrically operated compressor, fan, and other similar devices;

H. Perform ground maintenance on golf course grounds and tennis courts contiguous to golf courses that creates a noise disturbance across a residential or commercial property line;

I. Operate or permit the use of any motor vehicle with a gross vehicle weight rating in excess of ten thousand pounds, or of any auxiliary equipment attached to such a vehicle, including but not limited to refrigerated truck compressors, for a period longer than fifteen minutes in any hour while the vehicle is stationary and on a public right-of-way or public space except when movement of the vehicle is restricted by other traffic;

J. Repair, rebuild, reconstruct or dismantle any motor vehicle or other mechanical equipment or devices in a manner so as to be plainly audible across property lines.

(Ord. 1417 § 1 (part), 2008)

9.50.060 - Exemptions.

The following activities and noise sources shall be exempt from the provisions of this chapter:

A. Those noise events in the community (e.g., airport noise, arterial traffic noise, railroad noise) that are more accurately measured by application of the general plan noise element policy, utilizing the community noise equivalent level (CNEL) method;

B. Activities conducted on the grounds of any public or private school during regular hours of operation;

C. Outdoor gatherings, public dances, shows and sporting and entertainment events provided the events are authorized by the city;

D. Activities conducted at public spaces during regular hours of operation;

E. Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work;

F. All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions;

G. Mobile noise sounds associated with agricultural operations provided such operations do not take place between the hours of eight p.m. and seven a.m. on weekdays, including Saturdays, or at any time on Sunday or a state holiday;

H. Mobile noise sources associated with agricultural pest control through pesticide application;

I. Warning devices necessary for the protection of the public safety, including, but not limited to, police, fire and ambulance sirens and train horns and sounds for the purpose of alerting persons to the existence of an emergency;

J. Construction, repair or excavation necessary for the immediate preservation of life or property;

K. Construction, operation, maintenance and repairs of equipment, apparatus or facilities of park and recreation departments, public work projects or essential public services and facilities, including trash collection and those of public utilities subject to the regulatory jurisdiction of the California Public Utilities Commission;

L. Construction, repair or excavation work performed pursuant to a valid written agreement with the city or any of its political subdivisions which agreement provides for noise mitigation measures;

M. Any activity to the extent regulation thereof has been preempted by state or federal law;

N. Any activity or noise source governed elsewhere in this code. Such activities include but are not limited to:

1. Security alarm systems (see Chapter 7.01 of this code),
2. Animal noise (see Title 6 of this code),
3. Sound trucks and advertising by sound (see Chapter 9 of this code),
4. Performance standards for various commercial and industrial uses (see Title 18 of this code);

O. Sounds generated in commercial and industrial zones that are necessary and incidental to the uses permitted therein;

P. Sounds generated from or incidental to emergency repairs to any public works function; and

Q. Sounds generated in connection with speech or communication protected by the U.S. Constitution or the California Constitution, expect to the extent such sounds are subject to permissible time, manner and place restrictions.

(Ord. 1417 § 1 (part), 2008)

9.50.070 - Disturbances from construction activity.

A. No person shall be engaged or employed, or cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours provided for by subsection B of this section.

B. The permitted hours for such construction work are as follows:

1. October 1st through April 30th.

Monday—Friday	7:00 a.m. to 5:30 p.m.
Saturday	8:00 a.m. to 5:00 p.m.
Sunday	No permissible hours
State holidays	No permissible hours

2. May 1st through September 30th.

Monday—Friday	6:00 a.m. to 7:00 p.m.
Saturday	8:00 a.m. to 5:00 p.m.
Sunday	No permissible hours
State holidays	No permissible hours

C. For purposes of this section, the following definitions shall apply:

1. "Building" means any structure used or intended for supporting or sheltering any use or occupancy.
2. "Structure" means that which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

D. For purposes of this section, the following exceptions shall apply:

1. Emergency repair of existing installations, equipment, or appliances; and
2. Such work that complies with the terms and conditions of a written early work permit issued by the city manager or his or her designee upon a showing of a sufficient need and justification for the permit due to hot or inclement weather, the use of an unusually long process material, or other circumstances of an unusual and compelling nature.

(Ord. 1417 § 1 (part), 2008)

9.50.080 - Administration.

Except as otherwise provided, the provisions and prohibitions of this chapter shall be jointly administered by and the responsibility of the city's police department and department of development services, code enforcement division. The chief of police may adopt administrative rules and regulations which are consistent with the provisions of this chapter for the purpose of implementing the same.

(Ord. 1417 § 1 (part), 2008)

9.50.090 - Cost recovery for second response.

A. Any and all personnel who may be deployed by the city pursuant to this chapter shall be deemed to be on regular duty under the general supervision of the chief of police, fire chief, the director of development services or other city department director, and any officer or employee in charge under their respective commands and shall be entitled to any and all benefits provided by law or ordinance for such personnel as employees of the city, except that the rate of pay for such special security services shall be set forth herein. The pay for each employee thus employed during such employment shall be at his or her actual rate of pay. The chief of police or other department director, as the case may be, shall report to the chief financial officer the name of the person, firm, organization or corporation requiring such personnel, the names of the employees so employed and the number of hours of employment of each. The chief financial officer shall thereupon bill the person.

B. Whenever any enforcement officer issues a written warning to a responsible person to discontinue a noise violation, the responsible person shall be liable for the actual cost of each subsequent response required to abate the violation within seventy-two hours of the issuance of the written warning (response charge).

C. The bill for the response charge shall be served upon the responsible person within thirty days after the violation. If the responsible person has no last known business or residence address, the location of the violation shall be deemed to be the proper address for service. The bill shall include a notice of the right of the person being charged to request a hearing to dispute the imposition of the response charge or the amount of the charge.

D. The response charge shall be deemed to be a civil debt to the city.

E. All responsible persons shall be jointly and severally liable for the response charge regardless of whether or not they received a written notice.

(Ord. 1417 § 1 (part), 2008)

9.50.100 - Public nuisance.

A violation of this chapter by any person responsible for committing, causing or maintaining such violation shall constitute a public nuisance that shall be subject to the provisions of Chapters 9.39 and 9.42 of this title.

(Ord. 1417 § 1 (part), 2008)

9.50.110 - Infraction violation.

A violation of Section 9.50.030, 9.50.050 or 9.50.070 of this chapter by any person responsible for committing, causing or maintaining such violation shall constitute an infraction violation and the violator shall be subject to the provisions set forth in Section 1.16.010 of this code, including but not limited to the imposition of any and all criminal penalties set forth therein.

(Ord. 1417 § 1 (part), 2008)

9.50.120 - Misdemeanor violation.

A violation of Section 9.50.040 of this chapter by any person responsible for committing, causing or maintaining such violation shall constitute a misdemeanor violation which shall be subject to the provisions set forth in Section 1.16.010 of this code, including but not limited to the imposition of any and all criminal penalties set forth therein.

(Ord. 1417 § 1 (part), 2008)

9.50.130 - Civil fines.

Any person convicted of an infraction or misdemeanor violation under this chapter shall, for each separate violation, be subject to: (A) a fine in an amount not to exceed two hundred fifty dollars for a first conviction of an offense; (B) a fine in an amount not to exceed five hundred dollars for a second conviction of the same offense within a twelve-month period from the date of the first offense; and (C) a fine in an amount not to exceed seven hundred fifty dollars for the third conviction of the same offense within a twelve-month period from the date of the first offense. The fine for a fourth and any subsequent convictions of the same offense within a twelve-month period from the date of the first offense shall be one thousand dollars.

(Ord. 1417 § 1 (part), 2008)

9.50.140 - Additional penalties.

Nothing in this chapter shall preclude the city from pursuing any other legal remedies provided by this code or otherwise available to the city at law or in equity.

(Ord. 1417 § 1 (part), 2008)

APPENDIX 3.2:

COUNTY OF SAN BERNARDINO DEVELOPMENT CODE

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§ 83.01.080 Noise.

This Section establishes standards concerning acceptable noise levels for both noise-sensitive land uses and for noise-generating land uses.

(a) *Noise Measurement.* Noise shall be measured:

(1) At the property line of the nearest site that is occupied by, and/or zoned or designated to allow the development of noise-sensitive land uses;

(2) With a sound level meter that meets the standards of the American National Standards Institute (ANSI § SI4 1979, Type 1 or Type 2);

(3) Using the “A” weighted sound pressure level scale in decibels (ref. pressure = 20 micronewtons per meter squared). The unit of measure shall be designated as dB(A).

(b) *Noise Impacted Areas.* Areas within the County shall be designated as “noise-impacted” if exposed to existing or projected future exterior noise levels from mobile or stationary sources exceeding the standards listed in Subdivision (d) (Noise Standards for Stationary Noise Sources) and Subdivision (e) (Noise Standards for Adjacent Mobile Noise Sources), below. New development of residential or other noise-sensitive land uses shall not be allowed in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels to these standards. Noise-sensitive land uses shall include residential uses, schools, hospitals, nursing homes, religious institutions, libraries, and similar uses.

(c) *Noise Standards for Stationary Noise Sources.*

(1) *Noise Standards.* Table 83-2 (Noise Standards for Stationary Noise Sources) describes the noise standard for emanations from a stationary noise source, as it affects adjacent properties:

Table 83-2

Noise Standards for Stationary Noise Sources

Affected Land Uses (Receiving Noise)	***7:00 a.m. - 10:00 p.m. Leq***	***10:00 p.m. - 7:00 a.m. Leq***
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)

Leq = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically one, eight or 24 hours.

dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.

Ldn = (Day-Night Noise Level). The average equivalent A-weighted sound level during a 24-hour day obtained by adding 10 decibels to the hourly noise levels measured during the night (from 10:00 p.m. to 7:00 a.m.). In this way Ldn takes into account the lower tolerance of people for noise during nighttime periods.

(2) *Noise Limit Categories.* No person shall operate or cause to be operated a source of sound at a location or allow the creation of noise on property owned, leased, occupied, or otherwise controlled by the person, which causes the noise level, when measured on another property, either incorporated or unincorporated, to exceed any one of the following:

(A) The noise standard for the receiving land use as specified in Subdivision (b) (Noise-Impacted Areas), above, for a cumulative period of more than 30 minutes in any hour.

(B) The noise standard plus five dB(A) for a cumulative period of more than 15 minutes in any hour.

(C) The noise standard plus ten dB(A) for a cumulative period of more than five minutes in any hour.

(D) The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour.

(E) The noise standard plus 20 dB(A) for any period of time.

(d) *Noise Standards for Adjacent Mobile Noise Sources.* Noise from mobile sources may affect adjacent properties adversely. When it does, the noise shall be mitigated for any new development to a level that shall not exceed the standards described in the following Table 83-3 (Noise Standards for Adjacent Mobile Noise Sources).

Table 83-3

Noise Standards for Adjacent Mobile Noise Sources

Land Use		***Ldn (or CNEL) dB(A)***	
Categories	***Uses***	***Interior*** (1)	***Exterior*** (2)
Residential	Single and multi-family, duplex, mobile homes	45	60(3)
Commercial	Hotel, motel, transient housing	45	60(3)
	Commercial retail, bank, restaurant	50	N/A
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	N/A
Institutional/Public	Hospital, nursing home, school classroom, religious institution, library	45	65
Open Space	Park	N/A	65

Notes:

(1) The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.

(2) The outdoor environment shall be limited to:
- Hospital/office building patios
- Hotel and motel recreation areas
- Mobile home parks

· Multi-family private patios or balconies · Park picnic areas · Private yard of single-family dwellings · School playgrounds
(3) An exterior noise level of up to 65 dB(A) (or CNEL) shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level shall necessitate the use of air conditioning or mechanical ventilation.
CNEL = (Community Noise Equivalent Level). The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.

(e) *Increases in Allowable Noise Levels.* If the measured ambient level exceeds any of the first four noise limit categories in Subdivision (d)(2), above, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category in Subdivision (d)(2), above, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

(f) *Reductions in Allowable Noise Levels.* If the alleged offense consists entirely of impact noise or simple tone noise, each of the noise levels in Table 83-2 (Noise Standards for Stationary Noise Sources) shall be reduced by five dB(A).

(g) *Exempt Noise.* The following sources of noise shall be exempt from the regulations of this Section:

(1) Motor vehicles not under the control of the commercial or industrial use.

(2) Emergency equipment, vehicles, and devices.

(3) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

(h) *Noise Standards for Other Structures.* All other structures shall be sound attenuated against the combined input of all present and projected exterior noise to not exceed the criteria.

Table 83-4

Noise Standards for Other Structures

Typical Uses	***12-Hour Equivalent Sound Level (Interior) in dBA Ldn***
Educational, institutions, libraries, meeting facilities, etc.	45
General office, reception, etc.	50
Retail stores, restaurants, etc.	55
Other areas for manufacturing, assembly, testing, warehousing, etc.	65

In addition, the average of the maximum levels on the loudest of intrusive sounds occurring during a 24-hour period shall not exceed 65 dBA interior.

(Ord. 4011, passed - -2007; Am. Ord. 4245, passed - -2014)

APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 14821 Study Area Photos



L1_E
34, 6' 5.570000"117, 23' 9.030000"



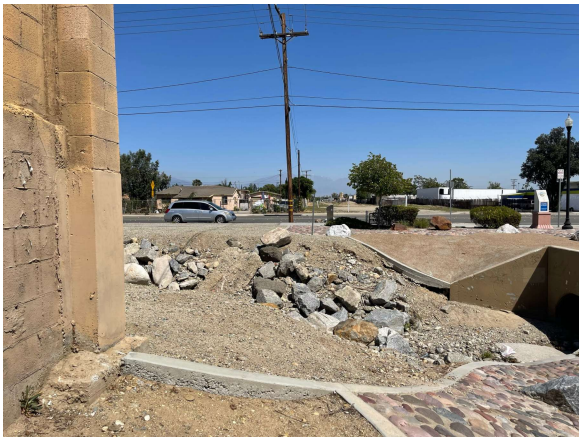
L1_N
34, 6' 5.430000"117, 23' 8.840000"



L1_S
34, 6' 5.410000"117, 23' 8.840000"



L1_W
34, 6' 5.560000"117, 23' 9.110000"



L2_E
34, 6' 5.490000"117, 23' 2.050000"



L2_N
34, 6' 5.490000"117, 23' 2.110000"

JN: 14821 Study Area Photos



L2_S
34, 6' 5.360000"117, 23' 2.190000"



L2_W
34, 6' 5.530000"117, 23' 2.110000"



L3_E
34, 6' 4.910000"117, 22' 59.970000"



L3_N
34, 6' 4.900000"117, 23' 0.080000"



L3_S
34, 6' 4.910000"117, 23' 0.020000"



L3_W
34, 6' 4.880000"117, 23' 0.020000"

JN: 14821 Study Area Photos



L4_E
34, 6' 2.340000"117, 22' 55.760000"



L4_N
34, 6' 2.440000"117, 22' 55.740000"



L4_S
34, 6' 2.360000"117, 22' 55.760000"



L4_W
34, 6' 2.290000"117, 22' 55.740000"



L5_E
34, 5' 59.500000"117, 23' 8.840000"



L5_N
34, 5' 59.470000"117, 23' 8.810000"

JN: 14821 Study Area Photos



L5_S
34, 5' 59.500000"117, 23' 8.860000"



L5_W
34, 5' 59.530000"117, 23' 8.840000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

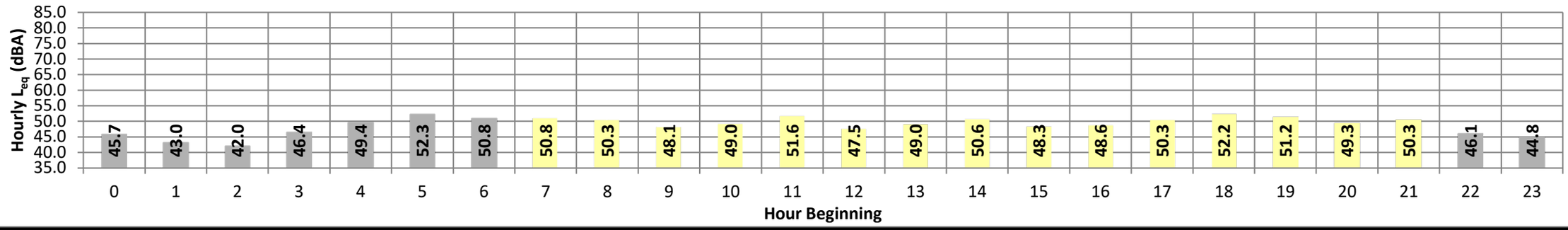
Date: Wednesday, April 13, 2022
Project: 160 N Cactus Avenue

Location: L1 - Located northwest of the Project site near single-
Source: family residence at 815 West Second Street.

Meter: Piccolo II

JN: 14821
Analyst: A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	45.7	53.2	40.9	52.6	51.7	50.1	49.0	46.2	44.3	41.8	41.5	41.1	45.7	10.0	55.7
	1	43.0	48.7	39.5	48.2	47.7	46.5	45.9	44.0	41.9	40.1	39.8	39.6	43.0	10.0	53.0
	2	42.0	47.0	39.5	46.5	46.0	45.1	44.5	42.3	41.2	40.1	39.9	39.7	42.0	10.0	52.0
	3	46.4	54.5	41.9	53.9	53.1	51.1	49.8	46.6	44.8	42.6	42.3	42.0	46.4	10.0	56.4
	4	49.4	57.0	45.8	56.5	55.9	53.7	52.7	49.4	47.9	46.4	46.2	45.9	49.4	10.0	59.4
	5	52.3	60.3	48.2	59.5	58.4	56.3	55.5	52.6	50.8	48.9	48.6	48.3	52.3	10.0	62.3
	6	50.8	55.2	48.5	54.8	54.4	53.2	52.7	51.3	50.3	49.1	48.8	48.6	50.8	10.0	60.8
Day	7	50.8	56.8	47.5	56.2	55.4	54.0	53.2	51.4	50.0	48.3	48.0	47.6	50.8	0.0	50.8
	8	50.3	56.6	44.0	56.2	55.9	54.8	54.2	52.1	47.8	44.9	44.6	44.2	50.3	0.0	50.3
	9	48.1	54.5	42.9	53.9	53.4	52.3	51.5	48.9	46.9	44.1	43.7	43.1	48.1	0.0	48.1
	10	49.0	55.8	43.9	55.3	54.5	53.5	52.7	49.5	47.5	45.1	44.7	44.1	49.0	0.0	49.0
	11	51.6	60.3	42.7	59.9	59.5	57.6	56.2	52.7	47.3	43.9	43.4	42.9	51.6	0.0	51.6
	12	47.5	55.1	42.1	54.3	53.6	52.4	51.5	48.1	45.7	43.3	42.9	42.2	47.5	0.0	47.5
	13	49.0	56.6	42.4	56.0	55.2	53.5	52.7	49.9	47.2	43.6	43.2	42.6	49.0	0.0	49.0
	14	50.6	66.2	45.3	65.9	65.7	63.9	62.5	55.1	49.2	46.3	45.9	45.5	50.6	0.0	50.6
	15	48.3	55.6	44.2	55.0	54.3	52.1	50.9	48.6	47.3	45.1	44.8	44.4	48.3	0.0	48.3
	16	48.6	73.5	44.2	73.2	72.5	69.8	67.2	57.1	49.8	45.3	44.7	44.3	48.6	0.0	48.6
	17	50.3	69.8	45.0	69.5	69.2	67.5	66.8	59.3	50.6	46.0	45.6	45.1	50.3	0.0	50.3
	18	52.2	74.1	46.7	73.8	73.4	71.8	69.3	57.1	51.0	47.7	47.3	46.9	52.2	0.0	52.2
	19	51.2	58.6	47.4	58.0	57.1	55.3	53.7	51.4	50.1	48.5	48.1	47.6	51.2	5.0	56.2
	20	49.3	56.4	44.6	55.7	54.6	53.0	52.4	50.0	48.0	45.7	45.3	44.8	49.3	5.0	54.3
	21	50.3	61.5	43.5	61.2	60.7	59.6	58.9	56.1	51.2	44.8	44.2	43.7	50.3	5.0	55.3
Night	22	46.1	55.5	39.0	55.1	54.5	53.4	52.2	48.9	45.3	40.2	39.8	39.2	46.1	10.0	56.1
	23	44.8	58.8	40.1	58.4	58.1	57.4	56.9	47.7	44.2	41.1	40.7	40.3	44.8	10.0	54.8

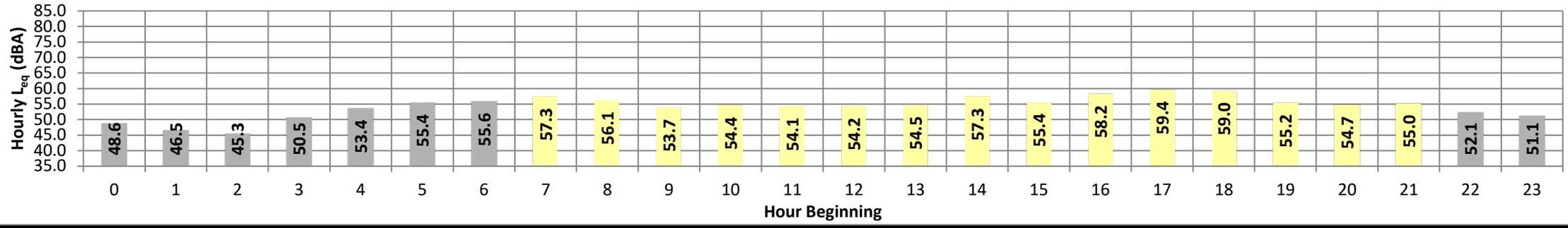
Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	47.5	54.5	42.1	53.9	53.4	52.1	50.9	48.1	45.7	43.3	42.9	42.2
	Max	52.2	74.1	47.5	73.8	73.4	71.8	69.3	59.3	51.2	48.5	48.1	47.6
Energy Average		50.0	Average:		60.3	59.7	58.1	56.9	52.5	48.7	45.5	45.1	44.6
Night	Min	42.0	47.0	39.0	46.5	46.0	45.1	44.5	42.3	41.2	40.1	39.8	39.2
	Max	52.3	60.3	48.5	59.5	58.4	57.4	56.9	52.6	50.8	49.1	48.8	48.6
Energy Average		48.0	Average:		53.9	53.3	51.9	51.0	47.7	45.6	43.4	43.1	42.7

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
49.4	50.0	48.0

24-Hour Noise Level Measurement Summary

Date: Wednesday, April 13, 2022 | *Location:* L2 - Located north of the Project site near single-family | *Meter:* Piccolo II | *JN:* 14821
Project: 160 N Cactus Avenue | *Source:* residence at 189 North Fillmore Avenue. | *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	48.6	59.1	40.0	58.5	57.5	54.8	52.9	48.2	44.8	41.4	40.8	40.2	48.6	10.0	58.6
	1	46.5	55.5	39.1	55.1	54.5	52.7	51.3	46.3	43.0	39.8	39.5	39.2	46.5	10.0	56.5
	2	45.3	54.3	38.4	53.9	53.1	51.3	49.8	45.4	41.9	39.1	38.7	38.5	45.3	10.0	55.3
	3	50.5	60.1	40.5	59.6	58.9	57.4	56.1	50.1	45.4	41.5	41.0	40.7	50.5	10.0	60.5
	4	53.4	64.3	44.2	63.7	62.1	59.6	57.6	53.2	49.4	45.4	45.0	44.4	53.4	10.0	63.4
	5	55.4	64.7	46.4	64.3	63.9	61.6	60.0	55.3	52.0	47.6	47.1	46.6	55.4	10.0	65.4
	6	55.6	62.5	48.7	62.1	61.7	60.4	59.5	56.6	54.0	49.9	49.4	48.8	55.6	10.0	65.6
Day	7	57.3	66.4	49.3	65.8	64.9	63.0	61.3	57.6	55.0	50.7	50.0	49.5	57.3	0.0	57.3
	8	56.1	62.9	47.8	62.4	62.0	60.9	59.8	57.1	54.6	50.0	49.1	48.1	56.1	0.0	56.1
	9	53.7	62.2	44.3	61.8	61.2	59.4	58.1	54.4	51.2	45.7	45.0	44.4	53.7	0.0	53.7
	10	54.4	61.2	46.4	60.7	60.2	59.0	58.1	55.6	52.7	48.3	47.5	46.7	54.4	0.0	54.4
	11	54.1	61.4	45.1	61.0	60.5	59.2	58.1	55.2	52.2	47.0	46.0	45.3	54.1	0.0	54.1
	12	54.2	62.5	44.9	62.0	61.4	59.6	58.4	54.8	52.3	46.8	45.9	45.1	54.2	0.0	54.2
	13	54.5	63.4	44.9	62.9	62.2	60.4	58.8	54.8	52.1	47.1	46.1	45.2	54.5	0.0	54.5
	14	57.3	67.3	45.9	66.8	66.1	63.8	61.7	57.1	53.4	48.0	46.9	46.0	57.3	0.0	57.3
	15	55.4	63.8	45.7	63.4	62.8	60.9	59.6	56.1	53.3	47.8	46.9	46.0	55.4	0.0	55.4
	16	58.2	66.6	47.3	66.3	66.0	64.5	63.4	58.5	54.5	49.1	48.3	47.5	58.2	0.0	58.2
	17	59.4	68.5	47.7	68.2	68.0	66.6	64.8	59.4	55.2	49.6	48.8	48.0	59.4	0.0	59.4
	18	59.0	67.5	47.3	67.3	67.0	66.0	64.5	58.5	55.0	49.3	48.3	47.6	59.0	0.0	59.0
	19	55.2	64.3	47.1	63.7	63.0	60.9	59.6	55.3	52.6	48.5	47.9	47.3	55.2	5.0	60.2
	20	54.7	65.5	45.3	64.8	63.6	60.5	58.6	54.7	51.0	46.6	46.1	45.5	54.7	5.0	59.7
	21	55.0	63.2	44.3	62.8	62.3	61.0	59.9	56.0	51.2	45.8	45.1	44.5	55.0	5.0	60.0
Night	22	52.1	60.6	40.8	60.2	59.8	58.7	57.3	52.6	48.5	42.6	42.0	41.0	52.1	10.0	62.1
	23	51.1	59.8	40.5	59.5	59.1	58.0	56.8	50.5	46.2	41.8	41.2	40.7	51.1	10.0	61.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	53.7	61.2	44.3	60.7	60.2	59.0	58.1	54.4	51.0	45.7	45.0	44.4
	Max	59.4	68.5	49.3	68.2	68.0	66.6	64.8	59.4	55.2	50.7	50.0	49.5
Energy Average		56.3	Average:		64.0	63.4	61.7	60.3	56.3	53.1	48.0	47.2	46.4
Night	Min	45.3	54.3	38.4	53.9	53.1	51.3	49.8	45.4	41.9	39.1	38.7	38.5
	Max	55.6	64.7	48.7	64.3	63.9	61.6	60.0	56.6	54.0	49.9	49.4	48.8
Energy Average		52.2	Average:		59.7	59.0	57.2	55.7	50.9	47.2	43.2	42.7	42.2

24-Hour	L_{eq} (dBA) Daytime (7am-10pm)	Nighttime (10pm-7am)
55.2	56.3	52.2

24-Hour Noise Level Measurement Summary

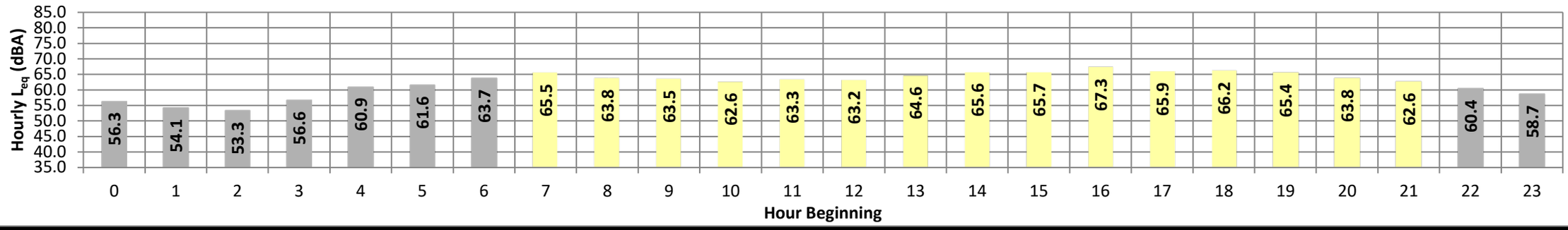
Date: Wednesday, April 13, 2022
Project: 160 N Cactus Avenue

Location: L3 - Located northeast of the Project site near single-family
Source: residence at 141 North Cactus Avenue.

Meter: Piccolo II

JN: 14821
Analyst: A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	56.3	66.8	42.2	66.5	65.8	63.5	61.8	55.3	50.1	44.1	43.2	42.4	56.3	10.0	66.3
	1	54.1	65.1	39.3	64.8	64.1	61.7	59.7	52.6	46.6	41.0	40.4	39.5	54.1	10.0	64.1
	2	53.3	64.4	38.8	64.1	63.4	60.8	58.8	51.9	45.8	40.0	39.4	38.9	53.3	10.0	63.3
	3	56.6	67.7	42.7	67.3	66.5	63.9	62.0	54.9	50.0	44.1	43.5	42.8	56.6	10.0	66.6
	4	60.9	71.8	47.3	71.3	70.7	67.8	65.7	60.4	55.3	48.9	48.1	47.4	60.9	10.0	70.9
	5	61.6	70.1	49.8	69.8	69.3	67.7	66.4	62.4	58.0	51.6	50.8	50.0	61.6	10.0	71.6
	6	63.7	72.4	52.8	72.0	71.5	69.5	68.2	64.5	60.4	54.5	53.6	52.9	63.7	10.0	73.7
Day	7	65.5	75.3	53.3	74.8	74.0	71.7	70.5	65.6	62.0	55.6	54.5	53.5	65.5	0.0	65.5
	8	63.8	71.8	53.0	71.5	70.9	69.2	68.1	64.8	61.5	55.5	54.2	53.2	63.8	0.0	63.8
	9	63.5	74.9	47.7	74.5	73.5	70.2	68.0	62.8	58.3	50.0	48.7	47.8	63.5	0.0	63.5
	10	62.6	71.2	48.8	70.8	70.2	68.3	67.3	63.6	59.3	51.4	50.2	49.1	62.6	0.0	62.6
	11	63.3	73.3	49.0	72.9	72.1	69.5	68.0	63.8	59.3	51.5	50.1	49.2	63.3	0.0	63.3
	12	63.2	72.9	49.0	72.6	71.8	69.3	67.5	63.6	60.0	52.1	50.6	49.3	63.2	0.0	63.2
	13	64.6	75.8	48.7	75.4	74.5	71.2	68.8	64.0	59.9	51.9	50.3	49.0	64.6	0.0	64.6
	14	65.6	76.0	49.5	75.6	74.7	72.0	70.2	65.7	61.8	52.7	50.9	49.7	65.6	0.0	65.6
	15	65.7	75.8	50.7	75.3	74.3	71.8	70.0	66.1	62.1	53.9	52.3	51.0	65.7	0.0	65.7
	16	67.3	78.5	54.6	78.1	77.2	74.3	72.2	66.4	62.3	56.5	55.6	54.8	67.3	0.0	67.3
	17	65.9	76.0	53.4	75.4	74.5	71.5	70.1	66.5	62.4	55.9	54.6	53.7	65.9	0.0	65.9
	18	66.2	76.3	51.9	75.8	74.9	72.6	70.9	66.3	62.0	54.8	53.5	52.1	66.2	0.0	66.2
	19	65.4	77.9	51.4	76.2	74.6	71.5	69.8	64.8	60.8	54.1	53.0	51.6	65.4	5.0	70.4
	20	63.8	75.1	48.3	74.3	73.2	70.2	68.9	63.4	58.2	50.3	49.3	48.4	63.8	5.0	68.8
	21	62.6	73.3	47.9	73.0	72.3	69.3	67.4	62.4	57.3	49.9	48.8	48.0	62.6	5.0	67.6
Night	22	60.4	71.7	44.9	71.3	70.4	67.6	65.4	58.9	54.1	46.9	45.8	45.1	60.4	10.0	70.4
	23	58.7	68.9	43.5	68.5	67.8	65.8	64.3	58.1	52.2	45.9	44.8	43.8	58.7	10.0	68.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	62.6	71.2	47.7	70.8	70.2	68.3	67.3	62.4	57.3	49.9	48.7	47.8
	Max	67.3	78.5	54.6	78.1	77.2	74.3	72.2	66.5	62.4	56.5	55.6	54.8
Energy Average		64.8	Average:		74.4	73.5	70.9	69.2	64.6	60.5	53.1	51.8	50.7
Night	Min	53.3	64.4	38.8	64.1	63.4	60.8	58.8	51.9	45.8	40.0	39.4	38.9
	Max	63.7	72.4	52.8	72.0	71.5	69.5	68.2	64.5	60.4	54.5	53.6	52.9
Energy Average		59.6	Average:		68.4	67.7	65.4	63.6	57.7	52.5	46.3	45.5	44.8

24-Hour	L_{eq} (dBA) Daytime (7am-10pm)	Nighttime (10pm-7am)
63.5	64.8	59.6

24-Hour Noise Level Measurement Summary

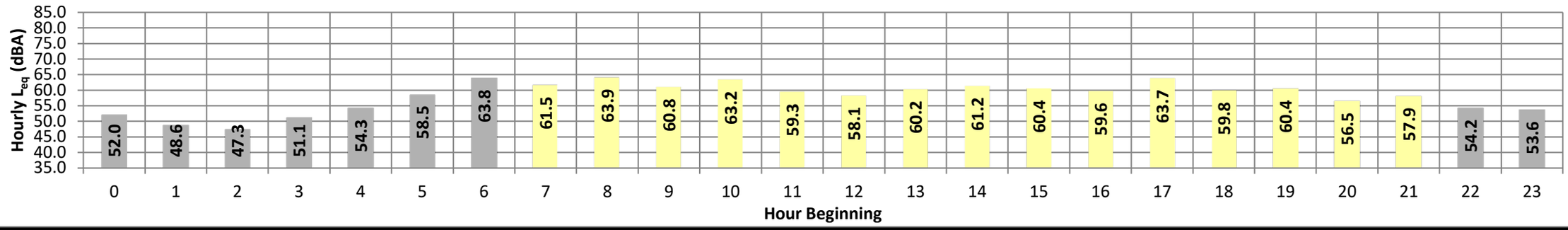
Date: Wednesday, April 13, 2022
Project: 160 N Cactus Avenue

Location: L4 - Located east of the Project site near single-family residence at 622 West 1st Street.
Source:

Meter: Piccolo II

JN: 14821
Analyst: A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*	*L_{eq}*	*Adj.*	*Adj. L_{eq}*
Night	0	52.0	61.7	42.7	61.3	60.8	58.9	56.9	51.7	47.8	44.0	43.4	42.9	52.0	10.0	62.0
	1	48.6	60.2	39.9	59.7	58.8	55.2	53.0	46.8	43.6	40.6	40.3	40.0	48.6	10.0	58.6
	2	47.3	57.3	39.7	56.9	56.3	53.8	52.0	46.3	43.3	40.5	40.1	39.8	47.3	10.0	57.3
	3	51.1	61.9	41.9	61.4	60.7	57.7	56.0	49.7	46.4	42.8	42.5	42.1	51.1	10.0	61.1
	4	54.3	63.9	45.7	63.5	62.7	60.6	59.0	54.0	50.3	46.8	46.4	45.8	54.3	10.0	64.3
	5	58.5	71.2	48.1	70.0	68.7	65.0	62.3	57.2	53.3	49.2	48.7	48.2	58.5	10.0	68.5
	6	63.8	76.4	60.8	76.2	75.7	74.5	73.0	68.7	65.4	62.3	61.5	61.0	63.8	10.0	73.8
Day	7	61.5	75.3	52.9	74.7	73.6	70.1	67.1	61.0	57.6	54.0	53.6	53.2	61.5	0.0	61.5
	8	63.9	77.5	59.9	76.9	76.3	75.2	74.5	72.2	69.9	63.1	61.6	60.3	63.9	0.0	63.9
	9	60.8	72.2	52.2	71.8	70.7	67.6	65.4	58.9	56.3	53.1	52.7	52.3	60.8	0.0	60.8
	10	63.2	71.9	54.4	71.2	70.5	68.9	67.9	63.7	60.5	56.1	55.3	54.7	63.2	0.0	63.2
	11	59.3	68.1	52.4	67.6	67.0	65.0	63.7	59.6	56.4	53.5	53.0	52.5	59.3	0.0	59.3
	12	58.1	70.6	47.1	69.7	68.3	64.4	61.8	56.6	53.7	49.0	48.1	47.3	58.1	0.0	58.1
	13	60.2	70.0	50.2	69.3	68.5	66.0	64.6	60.2	57.1	52.4	51.5	50.5	60.2	0.0	60.2
	14	61.2	72.6	47.3	72.1	71.4	68.0	65.4	60.6	55.9	49.4	48.5	47.5	61.2	0.0	61.2
	15	60.4	72.2	49.7	71.7	70.6	66.9	64.4	58.9	55.7	51.3	50.7	50.0	60.4	0.0	60.4
	16	59.6	69.3	51.5	68.8	68.0	66.0	64.2	59.3	55.8	52.6	52.1	51.6	59.6	0.0	59.6
	17	63.7	75.0	54.9	74.3	73.5	70.9	68.5	61.7	58.4	55.7	55.3	55.0	63.7	0.0	63.7
	18	59.8	78.1	49.0	77.0	75.7	71.8	67.0	59.9	56.4	51.0	50.0	49.2	59.8	0.0	59.8
	19	60.4	71.4	48.1	70.9	70.4	67.8	65.3	59.2	54.8	49.6	48.9	48.3	60.4	5.0	65.4
	20	56.5	65.5	46.9	65.1	64.5	62.8	61.4	56.7	52.7	48.2	47.6	47.1	56.5	5.0	61.5
	21	57.9	69.4	44.5	68.8	67.8	64.6	62.5	56.9	52.5	46.3	45.5	44.7	57.9	5.0	62.9
Night	22	54.2	65.5	40.7	65.1	64.4	61.5	59.2	52.7	48.0	42.6	41.7	40.8	54.2	10.0	64.2
	23	53.6	65.5	41.5	65.2	64.2	60.8	58.5	50.8	46.4	42.6	42.0	41.6	53.6	10.0	63.6

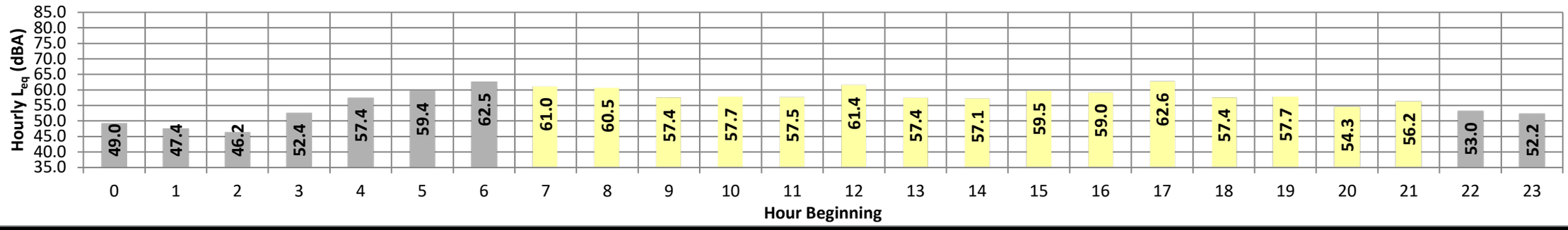
Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	56.5	65.5	44.5	65.1	64.5	62.8	61.4	56.6	52.5	46.3	45.5	44.7
	Max	63.9	78.1	59.9	77.0	76.3	75.2	74.5	72.2	69.9	63.1	61.6	60.3
Energy Average		60.9	Average:		71.3	70.5	67.7	65.6	60.4	56.9	52.3	51.6	50.9
Night	Min	47.3	57.3	39.7	56.9	56.3	53.8	52.0	46.3	43.3	40.5	40.1	39.8
	Max	63.8	76.4	60.8	76.2	75.7	74.5	73.0	68.7	65.4	62.3	61.5	61.0
Energy Average		56.8	Average:		64.4	63.6	60.9	58.9	53.1	49.4	45.7	45.2	44.7

L_{eq} (dBA)		
24-Hour	*Daytime (7am-10pm)*	*Nighttime (10pm-7am)*
59.8	**60.9**	**56.8**

24-Hour Noise Level Measurement Summary

Date: Wednesday, April 13, 2022 *Location:* L5 - Located west of the Project site near Bob Murphy *Meter:* Piccolo II *JN:* 14821
Project: 160 N Cactus Avenue *Source:* Community School at 149 North Arrowhead Avenue. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	49.0	59.8	40.7	59.3	58.6	55.8	53.5	47.8	44.3	41.5	41.1	40.8	49.0	10.0	59.0
	1	47.4	58.0	40.3	57.6	56.9	54.2	51.9	46.1	43.2	40.9	40.7	40.4	47.4	10.0	57.4
	2	46.2	58.1	38.8	57.6	56.9	53.4	50.6	42.9	40.6	39.3	39.1	38.8	46.2	10.0	56.2
	3	52.4	64.3	41.1	63.8	63.0	59.6	57.5	50.1	45.4	42.0	41.6	41.3	52.4	10.0	62.4
	4	57.4	68.7	48.4	68.2	67.4	64.5	62.5	55.1	51.4	49.2	48.8	48.5	57.4	10.0	67.4
	5	59.4	69.9	49.4	69.6	69.0	66.3	64.6	58.4	54.1	50.3	50.0	49.6	59.4	10.0	69.4
	6	62.5	70.6	53.1	70.1	69.6	68.1	66.8	63.8	59.8	54.4	53.9	53.4	62.5	10.0	72.5
Day	7	61.0	70.1	53.7	69.5	68.9	66.3	65.0	61.1	58.7	54.9	54.4	53.8	61.0	0.0	61.0
	8	60.5	69.4	52.1	69.0	68.4	66.1	64.5	60.8	58.1	53.6	53.0	52.3	60.5	0.0	60.5
	9	57.4	66.8	49.9	66.3	65.7	63.4	62.0	57.2	53.9	50.8	50.5	50.0	57.4	0.0	57.4
	10	57.7	66.3	50.9	66.0	65.5	63.6	62.1	57.8	54.7	51.7	51.4	51.1	57.7	0.0	57.7
	11	57.5	67.1	49.1	66.3	65.5	63.4	61.9	57.7	54.1	50.1	49.6	49.2	57.5	0.0	57.5
	12	61.4	73.4	49.3	72.9	71.9	68.5	65.9	59.0	55.0	50.7	50.1	49.5	61.4	0.0	61.4
	13	57.4	66.8	49.0	66.4	65.9	63.6	61.6	57.1	54.3	50.2	49.7	49.2	57.4	0.0	57.4
	14	57.1	66.2	48.3	65.7	65.0	62.9	61.6	57.3	54.1	49.6	49.0	48.4	57.1	0.0	57.1
	15	59.5	68.2	49.8	67.7	67.1	65.7	64.3	60.0	56.2	51.4	50.7	50.0	59.5	0.0	59.5
	16	59.0	70.1	44.2	69.6	69.1	66.1	64.0	57.6	53.8	46.5	45.4	44.4	59.0	0.0	59.0
	17	62.6	76.1	44.4	75.6	74.4	69.7	66.1	58.4	53.8	46.5	45.5	44.6	62.6	0.0	62.6
	18	57.4	68.2	43.9	67.7	67.0	64.3	62.4	57.0	52.1	45.7	44.9	44.2	57.4	0.0	57.4
	19	57.7	69.3	45.2	68.8	68.2	65.0	61.9	56.1	51.6	46.9	46.1	45.4	57.7	5.0	62.7
	20	54.3	64.3	41.5	63.9	63.3	61.6	60.1	53.5	48.0	42.8	42.2	41.7	54.3	5.0	59.3
	21	56.2	65.3	41.8	65.0	64.5	62.8	61.6	56.9	49.9	43.6	42.9	42.0	56.2	5.0	61.2
Night	22	53.0	64.3	39.4	63.8	63.3	60.7	58.3	51.3	45.0	40.3	40.0	39.6	53.0	10.0	63.0
	23	52.2	63.8	39.4	63.3	62.6	59.6	57.4	49.6	44.0	40.4	40.0	39.5	52.2	10.0	62.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	54.3	64.3	41.5	63.9	63.3	61.6	60.1	53.5	48.0	42.8	42.2	41.7
	Max	62.6	76.1	53.7	75.6	74.4	69.7	66.1	61.1	58.7	54.9	54.4	53.8
Energy Average		59.0	Average:		68.0	67.4	64.9	63.0	57.8	53.9	49.0	48.4	47.7
Night	Min	46.2	58.0	38.8	57.6	56.9	53.4	50.6	42.9	40.6	39.3	39.1	38.8
	Max	62.5	70.6	53.1	70.1	69.6	68.1	66.8	63.8	59.8	54.4	53.9	53.4
Energy Average		56.4	Average:		63.7	63.0	60.3	58.1	51.7	47.5	44.2	43.9	43.6

24-Hour	L_{eq} (dBA) Daytime (7am-10pm)	Nighttime (10pm-7am)
58.2	**59.0**	**56.4**

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APPENDIX 7.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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15203 - 160 N Cactus Avenue

CadnaA Noise Prediction Model: 15203_02.cna
Date: 27.01.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	37.6	37.3	44.0	50.0	48.0	0.0				5.00	a	6217855.02	2346342.56	5.00
RECEIVERS		R2	37.2	37.1	43.8	56.3	52.2	0.0				5.00	a	6218390.11	2346333.46	5.00
RECEIVERS		R3	40.5	40.5	47.2	64.8	59.6	0.0				5.00	a	6218587.86	2346363.81	5.00
RECEIVERS		R4	43.9	43.8	50.5	60.9	56.8	0.0				5.00	a	6218930.17	2345897.27	5.00
RECEIVERS		R5	52.3	52.1	58.8	59.0	56.4	0.0				5.00	a	6217810.78	2345949.36	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6217927.29	2345888.26	45.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6217962.61	2345887.66	45.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6218036.12	2345789.44	5.00
POINTSOURCE		CAR01	81.1	81.1	81.1	Lw	81.1					5.00	a	6217996.15	2345693.89	5.00
POINTSOURCE		CAR02	81.1	81.1	81.1	Lw	81.1					5.00	a	6217995.58	2345660.07	5.00
POINTSOURCE		CAR03	81.1	81.1	81.1	Lw	81.1					5.00	a	6217946.26	2345677.45	5.00
POINTSOURCE		CAR04	81.1	81.1	81.1	Lw	81.1					5.00	a	6217949.22	2345718.75	5.00
POINTSOURCE		CAR05	81.1	81.1	81.1	Lw	81.1					5.00	a	6217949.13	2345757.84	5.00
POINTSOURCE		CAR06	81.1	81.1	81.1	Lw	81.1					5.00	a	6217998.36	2345823.91	5.00
POINTSOURCE		CAR07	81.1	81.1	81.1	Lw	81.1					5.00	a	6218377.72	2345674.62	5.00
POINTSOURCE		CAR08	81.1	81.1	81.1	Lw	81.1					5.00	a	6218404.42	2345697.47	5.00
POINTSOURCE		CAR09	81.1	81.1	81.1	Lw	81.1					5.00	a	6218404.98	2345730.54	5.00
POINTSOURCE		CAR10	81.1	81.1	81.1	Lw	81.1					5.00	a	6218405.62	2345768.12	5.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		CAR11	81.1	81.1	81.1	Lw	81.1					5.00	a	6218406.92	2345800.42	5.00
POINTSOURCE		CAR12	81.1	81.1	81.1	Lw	81.1					5.00	a	6218411.23	2345921.38	5.00
POINTSOURCE		CAR13	81.1	81.1	81.1	Lw	81.1					5.00	a	6218411.93	2345962.71	5.00
POINTSOURCE		CAR14	81.1	81.1	81.1	Lw	81.1					5.00	a	6218413.29	2346086.73	5.00
POINTSOURCE		CAR15	81.1	81.1	81.1	Lw	81.1					5.00	a	6218413.08	2346118.31	5.00
POINTSOURCE		CAR16	81.1	81.1	81.1	Lw	81.1					5.00	a	6218413.87	2346164.90	5.00
POINTSOURCE		CAR17	81.1	81.1	81.1	Lw	81.1					5.00	a	6218414.43	2346197.97	5.00
POINTSOURCE		CAR18	81.1	81.1	81.1	Lw	81.1					5.00	a	6217868.31	2346221.54	5.00
POINTSOURCE		CAR19	81.1	81.1	81.1	Lw	81.1					5.00	a	6217869.21	2346186.19	5.00
POINTSOURCE		CAR20	81.1	81.1	81.1	Lw	81.1					5.00	a	6217867.86	2346150.88	5.00
POINTSOURCE		CAR21	81.1	81.1	81.1	Lw	81.1					5.00	a	6217867.18	2346111.05	5.00
POINTSOURCE		CAR22	81.1	81.1	81.1	Lw	81.1					5.00	a	6217866.53	2346072.72	5.00
POINTSOURCE		CAR23	81.1	81.1	81.1	Lw	81.1					5.00	a	6217865.74	2346026.13	5.00
POINTSOURCE		CAR24	81.1	81.1	81.1	Lw	81.1					5.00	a	6217866.63	2345990.03	5.00
POINTSOURCE		CAR25	81.1	81.1	81.1	Lw	81.1					5.00	a	6217864.48	2345952.48	5.00
POINTSOURCE		CAR26	81.1	81.1	81.1	Lw	81.1					5.00	a	6217865.33	2345914.12	5.00
POINTSOURCE		CAR27	81.1	81.1	81.1	Lw	81.1					5.00	a	6217864.71	2345877.30	5.00
POINTSOURCE		CAR28	81.1	81.1	81.1	Lw	81.1					5.00	a	6217865.67	2345845.71	5.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		TRUCK01	93.2	93.2	93.2	76.2	76.2	76.2	Lw	93.2									8	a
LINESOURCE		TRUCK02	93.2	93.2	93.2	75.9	75.9	75.9	Lw	93.2									8	a
LINESOURCE		TRUCK03	93.2	93.2	93.2	79.1	79.1	79.1	Lw	93.2									8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	TRUCK01	8.00	a			6218434.03	2345864.61	8.00	0.00
						6218425.61	2345864.51	8.00	0.00
						6218417.33	2345862.97	8.00	0.00
						6218409.43	2345860.04	8.00	0.00
						6218402.16	2345855.78	8.00	0.00
						6218395.72	2345850.35	8.00	0.00
						6218390.32	2345843.89	8.00	0.00
						6218386.10	2345836.59	8.00	0.00
						6218383.20	2345828.68	8.00	0.00
						6218381.70	2345820.40	8.00	0.00
						6218380.14	2345773.06	8.00	0.00
						6218380.28	2345768.90	8.00	0.00
						6218379.71	2345764.77	8.00	0.00
						6218378.45	2345760.80	8.00	0.00
						6218376.53	2345757.11	8.00	0.00
						6218374.01	2345753.79	8.00	0.00
						6218370.97	2345750.94	8.00	0.00
						6218367.49	2345748.65	8.00	0.00
						6218363.68	2345746.99	8.00	0.00
						6218359.63	2345745.99	8.00	0.00
						6218355.48	2345745.69	8.00	0.00
LINESOURCE	TRUCK02	8.00	a			6218048.14	2345749.00	8.00	0.00
						6218024.50	2345749.85	8.00	0.00
						6218000.86	2345749.44	8.00	0.00
						6217995.03	2345748.57	8.00	0.00
						6217989.45	2345746.71	8.00	0.00
						6217984.26	2345743.93	8.00	0.00
						6217979.62	2345740.31	8.00	0.00
						6217975.67	2345735.94	8.00	0.00
						6217972.52	2345730.97	8.00	0.00
						6217970.26	2345725.53	8.00	0.00
						6217968.97	2345719.78	8.00	0.00
						6217968.68	2345713.90	8.00	0.00
						6217965.87	2345637.26	8.00	0.00
LINESOURCE	TRUCK03	8.00	a			6218276.98	2345719.54	8.00	0.00
						6218277.83	2345634.52	8.00	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		DOCK01	103.4	103.4	103.4	66.5	66.5	66.5	Lw	103.4					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	DOCK01	8.00	a			6218045.31	2345851.57	8.00	0.00
						6218355.89	2345845.26	8.00	0.00
						6218355.37	2345718.47	8.00	0.00
						6218346.12	2345718.63	8.00	0.00
						6218345.70	2345662.04	8.00	0.00
						6218309.83	2345664.29	8.00	0.00
						6218308.02	2345718.19	8.00	0.00
						6218246.58	2345720.86	8.00	0.00
						6218245.09	2345664.84	8.00	0.00
						6218050.84	2345665.43	8.00	0.00
						6218050.67	2345719.30	8.00	0.00
						6218044.78	2345788.50	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						6.00	a		6218396.53	2346326.01	6.00	0.00
												6217488.61	2346336.03	6.00	0.00
BARRIEREXISTING			0						6.00	a		6218396.53	2346326.01	6.00	0.00
												6218398.20	2346556.54	6.00	0.00
BARRIERPLANNED			0						14.00	a		6218035.72	2345717.10	14.00	0.00
												6218035.47	2345664.14	14.00	0.00
												6218255.54	2345662.79	14.00	0.00
BARRIERPLANNED			0						14.00	a		6218298.08	2345662.07	14.00	0.00
												6218354.50	2345661.54	14.00	0.00
												6218354.82	2345718.48	14.00	0.00
BARRIERPLANNED			0						14.00	a		6218356.76	2345845.24	14.00	0.00
												6218355.64	2345785.01	14.00	0.00
BARRIERPLANNED			0						6.00	a		6218035.72	2345717.10	6.00	0.00
												6217989.49	2345717.02	6.00	0.00
BARRIERPLANNED			0						6.00	a		6217990.44	2345798.62	6.00	0.00
												6218043.83	2345798.36	6.00	0.00
												6218044.30	2345851.59	6.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		40.00	a	6217916.86	2346202.04	40.00	0.00
									6217944.12	2346204.84	40.00	0.00
									6218332.04	2346202.59	40.00	0.00
									6218360.77	2346196.12	40.00	0.00
									6218365.30	2346174.28	40.00	0.00
									6218361.33	2345845.15	40.00	0.00
									6218032.25	2345851.83	40.00	0.00
									6218031.35	2345862.73	40.00	0.00
									6217911.12	2345864.23	40.00	0.00
									6217909.89	2345888.19	40.00	0.00
									6217906.63	2345888.25	40.00	0.00
									6217909.96	2346179.84	40.00	0.00

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APPENDIX 8.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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15203 - 160 N Cactus Avenue

CadnaA Noise Prediction Model: 15203_02_Construction.cna
Date: 27.01.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	66.6	-40.4	63.6	50.0	48.0	0.0				5.00	a	6217855.02	2346342.56	5.00
RECEIVERS		R2	67.2	-39.8	64.2	56.3	52.2	0.0				5.00	a	6218390.11	2346333.46	5.00
RECEIVERS		R3	68.4	-38.6	65.4	64.8	59.6	0.0				5.00	a	6218587.86	2346363.81	5.00
RECEIVERS		R4	65.7	-41.3	62.7	60.9	56.8	0.0				5.00	a	6218930.17	2345897.27	5.00
RECEIVERS		R5	76.4	-30.6	73.4	59.0	56.4	0.0				5.00	a	6217810.78	2345949.36	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	125.0	18.0	18.0	79.9	-27.1	-27.1	PWL-Pt	118					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	CONSTRUCTION	8.00	a			6217927.40	2345637.60	8.00	0.00
						6217929.63	2345799.84	8.00	0.00
						6217842.45	2345800.93	8.00	0.00
						6217846.59	2346248.43	8.00	0.00
						6218437.35	2346242.44	8.00	0.00
						6218432.00	2345633.17	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						6.00	a		6218396.53	2346326.01	6.00	0.00
												6217488.61	2346336.03	6.00	0.00
BARRIEREXISTING			0						6.00	a		6218396.53	2346326.01	6.00	0.00
												6218398.20	2346556.54	6.00	0.00

APPENDIX 8.2:

CADNAA CONCRETE POUR CONSTRUCTION NOISE MODEL INPUTS

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15203 - 160 N Cactus Avenue

CadnaA Noise Prediction Model: 15203_02_Concrete.cna
Date: 27.01.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	48.9	-58.0	45.9	50.0	48.0	0.0				5.00	a	6217855.02	2346342.56	5.00
RECEIVERS		R2	49.5	-57.4	46.5	56.3	52.2	0.0				5.00	a	6218390.11	2346333.46	5.00
RECEIVERS		R3	50.7	-56.2	47.7	64.8	59.6	0.0				5.00	a	6218587.86	2346363.81	5.00
RECEIVERS		R4	48.0	-59.0	45.0	60.9	56.8	0.0				5.00	a	6218930.17	2345897.27	5.00
RECEIVERS		R5	58.7	-48.3	55.7	59.0	56.4	0.0				5.00	a	6217810.78	2345949.36	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONCRETE	107.3	0.3	0.3	62.2	-44.8	-44.8	PWL-Pt	100.3					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	CONCRETE	8.00	a			6217927.40	2345637.60	8.00	0.00
						6217929.63	2345799.84	8.00	0.00
						6217842.45	2345800.93	8.00	0.00
						6217846.59	2346248.43	8.00	0.00
						6218437.35	2346242.44	8.00	0.00
						6218432.00	2345633.17	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING			0						6.00	a		6218396.53	2346326.01	6.00	0.00
												6217488.61	2346336.03	6.00	0.00
BARRIEREXISTING			0						6.00	a		6218396.53	2346326.01	6.00	0.00
												6218398.20	2346556.54	6.00	0.00

Appendix J
Traffic Analysis

URBAN | CROSSROADS

160 N. CACTUS AVENUE (MCN 2022-0059)

TRAFFIC ANALYSIS

DRAFT

PREPARED BY: Charlene So | cso@urbanxroads.com
Aric Evatt | aevatt@urbanxroads.com

Reference Number	Agency	Date
15203-04 TA Report	City of Rialto	May 16, 2023

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Appendix 3.3: Existing (2023) Conditions Traffic Signal Warrant Analysis Worksheets

Appendix 5.1: EA (2024) Conditions Intersection Operations Analysis Worksheets

Appendix 5.2: EAP (2024) Conditions Intersection Operations Analysis Worksheets

Appendix 5.3: EA (2024) Conditions Traffic Signal Warrant Analysis Worksheets

Appendix 5.4: EAP (2024) Conditions Traffic Signal Warrant Analysis Worksheets

Appendix 6.1: EAPC (2024) Conditions Intersection Operations Analysis Worksheets

Appendix 6.2: EAPC (2024) Conditions Traffic Signal Warrant Analysis Worksheets

Appendix 8.1: Vehicle miles Traveled (VMT) Analysis

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
APN	Assessor's Parcel Number
CAMUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
NCHRP	National Cooperative Highway Research Program
OD	Origination-Destination
OPR	Office of Planning and Research
PHF	Peak Hour Factor
Project	160 N. Cactus Avenue
SBCTA	San Bernardino County Transportation Authority
SBTAM	San Bernardino Transportation Analysis Model
SCAG	Southern California Association of Governments
SED	Socio-economic Data
sf	Square Feet
TA	Traffic Analysis
TAZ	Traffic Analysis Zone
TPA	Transit Priority Area
v/c	Volume to Capacity
VMT	Vehicle Miles Traveled
vphgpl	Vehicles per Hour Green per Lane

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1 INTRODUCTION

This report presents the results of the Traffic Analysis (TA) for 160 N. Cactus Avenue (Project), which is located in the City of Rialto, as shown on Exhibit 1-1. The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with General Plan level of service goals and policies. This traffic study has been prepared in accordance with the City of Rialto's Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS), the San Bernardino County Congestion Management Program (CMP) Guidelines for CMP Traffic Impact Analysis Reports (Appendix B, 2016 Update), and consultation with City staff during the traffic study scoping process. (1) (2) The City approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TA.

1.1 SUMMARY OF FINDINGS

The Project is to construct the following improvements as design features in conjunction with development of the site:

- Project to install stop control on the southbound approach at Driveway 1 and construct a southbound shared left-right turn lane. Left turn access into the site will be accommodated via the existing painted median. Driveway 1 is the only full access driveway for the site and will serve both passenger cars and inbound trucks only (no turn restriction).
- Driveway 2 on Rialto Avenue is proposed to serve inbound trucks only (no outbound trucks as trucks are not permitted west on Rialto Avenue). The driveway will be restricted to right-in access only.
- Project to install stop control on the eastbound and construct an eastbound right turn lane at Driveway 3. Driveway 3 will serve passenger cars only and will be restricted to right-in/right-out access only.
- Project to install stop control on the eastbound and construct an eastbound right turn lane at Driveway 4. Driveway 4 will serve outbound trucks only and will be restricted to right-out access only.
- Project to construct Rialto Avenue at its ultimate half-section width as a Major Arterial (120-foot right-of-way) from the Project's western boundary to Cactus Avenue consistent with the City's standards.
- Project to construct Cactus Avenue at its ultimate half-section width as a Major Arterial (120-foot right-of-way) from the Project's northern boundary to Rialto Avenue consistent with the City's standards.

Additional details and intersection lane geometrics are provided in Section 1.6 *Recommendations* of this report. The proposed Project is anticipated to require the construction/implementation of off-site improvements. In addition, the Project Applicant's responsibility for the Project's contributions towards deficient off-site intersections to address near-term cumulative traffic conditions is fulfilled through fair share contributions and/or payment into pre-existing fee programs (if applicable) that would be assigned to the future construction of any future local/regional improvement needs. The Project Applicant would be required to pay requisite fees consistent with the City's requirements (see Section 7 *Local and Regional Funding Mechanisms*). The Project was evaluated consistent with the available screening criteria and the Project was found to meet the Low Vehicle Miles Traveled (VMT) Area screening step. Therefore, the proposed Project is presumed to result in a less than significant impact for VMT; no further VMT analysis required.

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EXHIBIT 1-1: LOCATION MAP



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1.2 PROJECT OVERVIEW

The Project is to consist of a single 159,700 square foot (SF) warehouse building. There are two points of access proposed on W. Rialto Avenue and two additional points of access proposed along N. Cactus Avenue. A preliminary site plan for the proposed Project is shown on Exhibit 1-2. As indicated on Exhibit 1-2, the following driveways will be assumed to provide access to the Project site:

- Driveway 1 on Rialto Avenue – Full Access (passenger cars and right-in trucks only)
- Driveway 2 on Rialto Avenue – Right-in Only Access (trucks only)
- Driveway 3 on Cactus Avenue – Right-in/Right-out Only Access (passenger cars only)
- Driveway 4 on Cactus Avenue – Right-out Only Access (trucks only)

Regional access to the Project site is available from the I-10 Freeway via Cedar Avenue interchange or to the I-210 Freeway via Ayala Drive (no trucks) or Alder Avenue. Exhibit 1-3 depicts the location of the proposed Project in relation to the existing roadway network and the study area intersections. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021) for Warehousing (ITE Land Use Code 150) was used. (3) The vehicle and truck mix are consistent with the City's traffic study guidelines. The Project is anticipated to generate a net total of 278 trip-ends per day with 32 AM peak hour trips and 34 PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report. The site is currently occupied by an existing use which was still active at the time this TA was prepared.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2023) Conditions
- Existing plus Ambient Growth (EA) (2024) Conditions
- Existing plus Ambient Growth plus Project (EAP) (2024) Conditions
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2024) Conditions

1.3.1 EXISTING (2023) CONDITIONS

Information for Existing (2023) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. For a detailed discussion on the existing traffic counts, see Section 3.6 *Existing Traffic Counts*.

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EXHIBIT 1-2: PRELIMINARY SITE PLAN



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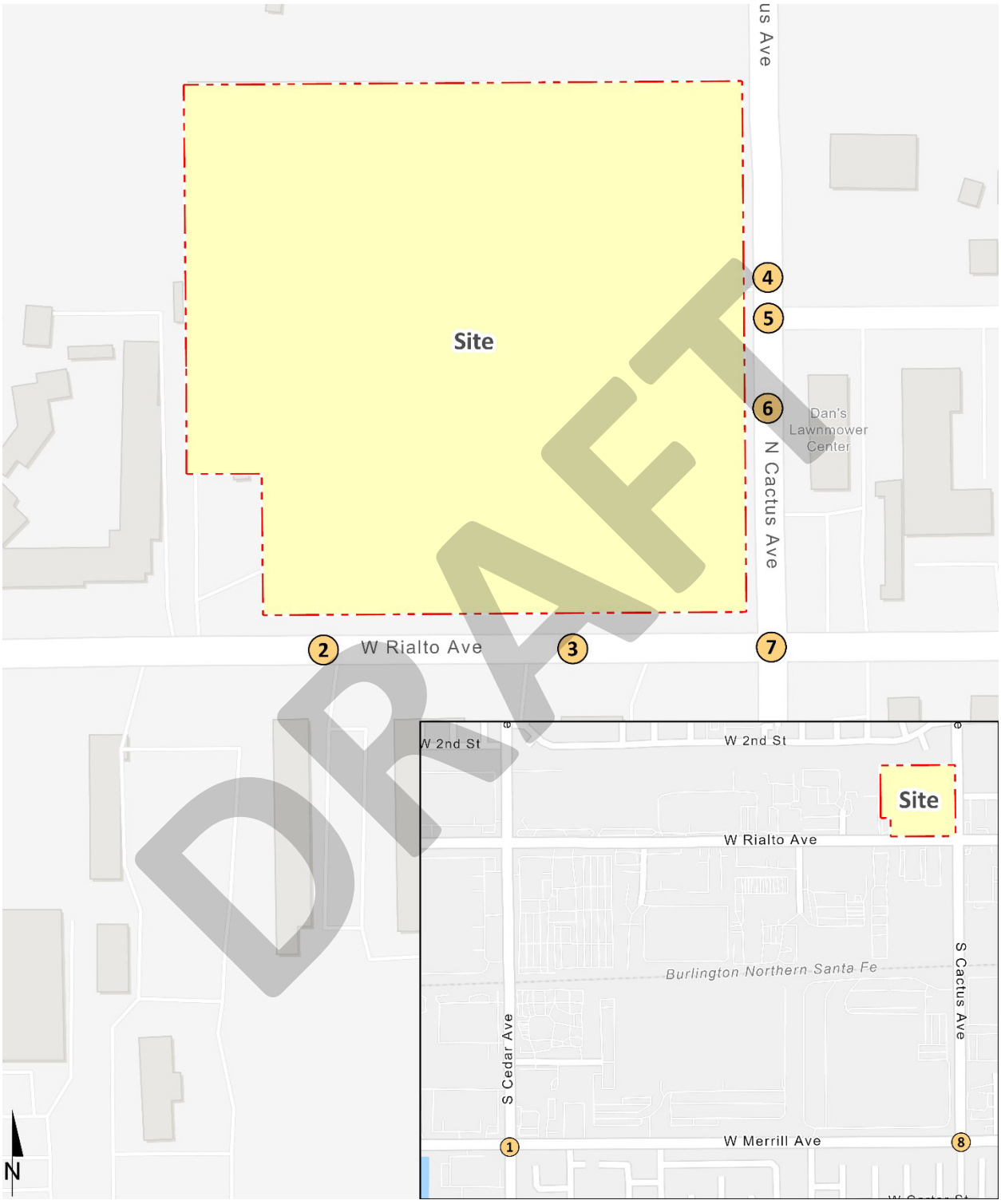
EXHIBIT 1-3: STUDY AREA



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1.3.2 EA & EAP (2024) CONDITIONS

A comparison of the Existing plus Ambient Growth (EA) and Existing plus Ambient Growth plus Project (EAP) conditions analysis scenarios determines traffic deficiencies that would occur on the existing roadway system due to the addition of Project traffic. To account for background traffic growth, an ambient growth factor from Existing conditions of 2.0% (2% per year, over 1 year) is included for EAP (2024) traffic conditions. The ambient growth is consistent with the growth used by other projects in the area within the City of Rialto. Traffic associated with other known cumulative development projects is not included in these analysis scenarios.

1.3.3 EAPC (2024) CONDITIONS

The Existing plus Project plus Ambient Growth plus Cumulative (EAPC) (2024) traffic conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth factor from Existing conditions of 2.0% is included for EAPC (2024) traffic conditions. The list of cumulative development projects was compiled from information provided by the City of Rialto and other near-by agencies.

The EAPC (2024) conditions analysis will be utilized to determine if near-term improvements funded through regional transportation fee programs, such as the City's Development Impact Fee (DIF) program, or other approved funding mechanisms can accommodate the near-term cumulative traffic at the target LOS identified by the City (lead agency). Other improvements needed beyond the "funded" improvements (such as localized improvements to non-DIF facilities) are identified as such.

1.4 STUDY AREA

To ensure that this TA satisfies the City of Rialto's traffic study requirements, Urban Crossroads, Inc. prepared a Project traffic study scoping package for review by City of Rialto staff prior to the preparation of this report. This agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology. The agreement approved by the City is included in Appendix 1.1 of this TA.

The 8 study area intersections shown on Exhibit 1-3 and listed in Table 1-1 were selected for evaluation in this TA based on consultation with City of Rialto staff. At a minimum, the study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips per the City's traffic study guidelines. (1) The "50 peak hour trip" criterion represents a minimum number of trips at which a typical intersection would have the potential to be affected by a given development proposal. The 50 peak hour trip criterion is a traffic engineering rule of thumb that is accepted and widely used within San Bernardino County (including the City of Rialto) for estimating a potential area of influence (i.e., study area).

The intent of a Congestion Management Program (CMP) is to more link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. The County of San Bernardino CMP became effective with the passage of Proposition 111 in 1990 and last updated in 2016 with an updated Nexus Study completed in 2020. (2) There are no CMP intersections within the study area as noted in Table 1-1.

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TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection	Jurisdiction	CMP?
1	Cedar Av. & Merrill Av.	Rialto	No
2	Driveway 1 & Rialto Av.	Rialto	No
3	Driveway 2 & Rialto Av.	Rialto	No
4	Cactus Av. & Driveway 3	Rialto	No
5	Cactus Av. & 1st St.	Rialto	No
6	Cactus Av. & Driveway 4	Rialto	No
7	Cactus Av. & Rialto Av.	Rialto	No
8	Cactus Av. & Merrill Av.	Rialto	No

1.5 DEFICIENCIES

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *EA and EAP (2024) Traffic Conditions*, and Section 6 *EAPC (2024) Traffic Conditions* include the detailed analysis. A summary of LOS results for all analysis scenarios is presented in Table 1-2. As shown, all study area intersections are currently operated at an acceptable LOS and will continue to operate acceptably through EAPC (2024) traffic conditions.

TABLE 1-2: SUMMARY OF LOS

		Existing		EA (2024)		EAP (2024)		EAPC (2024)	
#	Intersection	AM	PM	AM	PM	AM	PM	AM	PM
1	Cedar Av. & Merrill Av.								
2	Driveway 1 & Rialto Av.	N/A	N/A	N/A	N/A				
3	Driveway 2 & Rialto Av.	N/A	N/A	N/A	N/A				
4	Cactus Av. & Driveway 3	N/A	N/A	N/A	N/A				
5	Cactus Av. & 1st St.								
6	Cactus Av. & Driveway 4	N/A	N/A	N/A	N/A				
7	Cactus Av. & Rialto Av.								
8	Cactus Av. & Merrill Av.								

LOS=A-D LOS=E LOS=F

1.5.1 EXISTING (2023) CONDITIONS

The study area intersections are currently operating at an acceptable LOS during the weekday AM peak hours.

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1.5.2 EA AND EAP (2024) CONDITIONS

The study area intersections are anticipated to continue to operate at an acceptable LOS under EA (2024) traffic conditions. There are no study area intersections anticipated to operate at an unacceptable LOS under EAP (2024) traffic conditions with the addition of Project traffic.

1.5.3 EAPC (2024) CONDITIONS

The study area intersections are anticipated to continue to operate at an acceptable LOS under EAPC (2024) traffic conditions.

1.6 RECOMMENDATIONS

1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the minimum improvements needed to accommodate site access and maintain acceptable peak hour operations for the proposed Project. The site adjacent recommendations are shown on Exhibit 1-4. Queuing analysis results for the Project driveways are provided in Appendix 1.2. No site adjacent queues are anticipated with the proposed improvements.

Recommendation 1 **–** Driveway 1 & Rialto Avenue (#2) – The following improvement is necessary to accommodate site access:

- Project to install stop control on the southbound and construct a southbound shared left-right turn lane (Project Driveway 1). The driveway will accommodate full access and serve both passenger cars and inbound trucks only. The eastbound left turn into the Project will be accommodated via the existing painted median.

Recommendation 2 **–** Driveway 2 & Rialto Avenue (#3) – The following improvement is necessary to accommodate site access:

- Project Driveway 2 will operate as inbound truck access only. The driveway will be restricted to right-in access only.

Recommendation 3 **–** Cactus Avenue & Driveway 3 (#4) – The following improvement is necessary to accommodate site access:

- Project to install stop control on the eastbound and construct an eastbound right turn lane (Project Driveway 3). The driveway will accommodate right-in/right-out access only and will serve passenger cars only.

Recommendation 4 **–** Cactus Avenue & Driveway 4 (#6) – The following improvement is necessary to accommodate site access:

- Project to install stop control on the eastbound and construct an eastbound right turn lane (Project Driveway 4). The driveway will be restricted to right-out only traffic and will serve trucks only.

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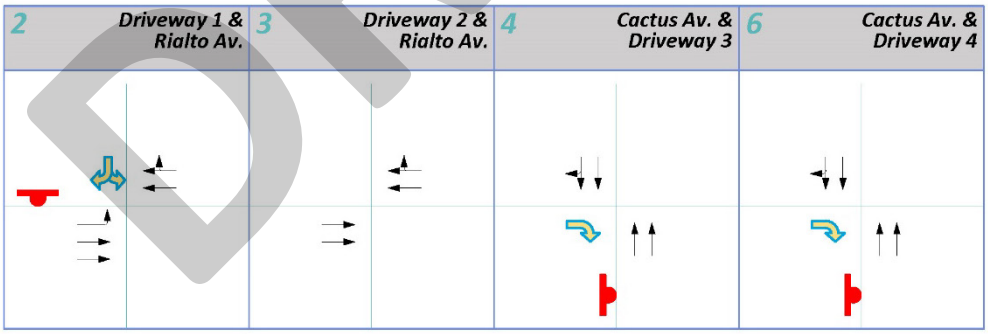
EXHIBIT 1-4: SITE ACCESS RECOMMENDATIONS





= Existing Intersection Analysis Location
= Future Intersection Analysis Location
= Stop Sign Improvement
= Existing Lane
= Lane Improvement

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No improvements are proposed at the intersection of Cactus Avenue Rialto Avenue. Existing lane geometrics and intersection control can adequately accommodate near-term cumulative traffic. No peak hour operational or queuing issues are anticipated.

Recommendation 5 – Cactus Avenue is a north-south oriented roadway located along the Project's eastern boundary. Cactus Avenue is designated as a Major Arterial (120-foot right-of-way) from the Project's northbound boundary to Rialto Avenue. Ultimate improvements to Cactus Avenue along the Project's frontage are to be constructed to City standards or as required by the City in the conditions of approval.

Recommendation 6 – Rialto Avenue is an east-west oriented roadway located along the Project's southern boundary. Rialto Avenue is designated as a Major Arterial (120-foot right-of-way) from the Project's western boundary to Cactus Avenue. Ultimate improvements to Cactus Avenue along the Project's frontage are to be constructed to City standards or as required by the City in the conditions of approval.

On-site traffic signing and striping should be implemented agreeable with the provisions of the California Manual on Uniform Traffic Control Devices (CA MUTCD) and in conjunction with detailed construction plans for the Project site.

1.6.2 OFF-SITE RECOMMENDATIONS

There are no off-site improvements needed as the study area intersections are all anticipated to operate at acceptable LOS during the peak hours. However, the Project Applicant will still contribute to future cumulative improvement needs through payment of fees (pre-existing fee programs).

1.7 TRUCK ACCESS

Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at each applicable Project driveway anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-5). A WB-67 truck (53-foot trailer) has been utilized for the purposes of this analysis. As shown on Exhibit 1-5, Driveway 1 on Rialto Avenue should be modified to accommodate a 30-foot radius on the northeast corner and driveway modifications are identified at Driveway 4 on Cactus Avenue to physically enforce the right-out turn turning movement.

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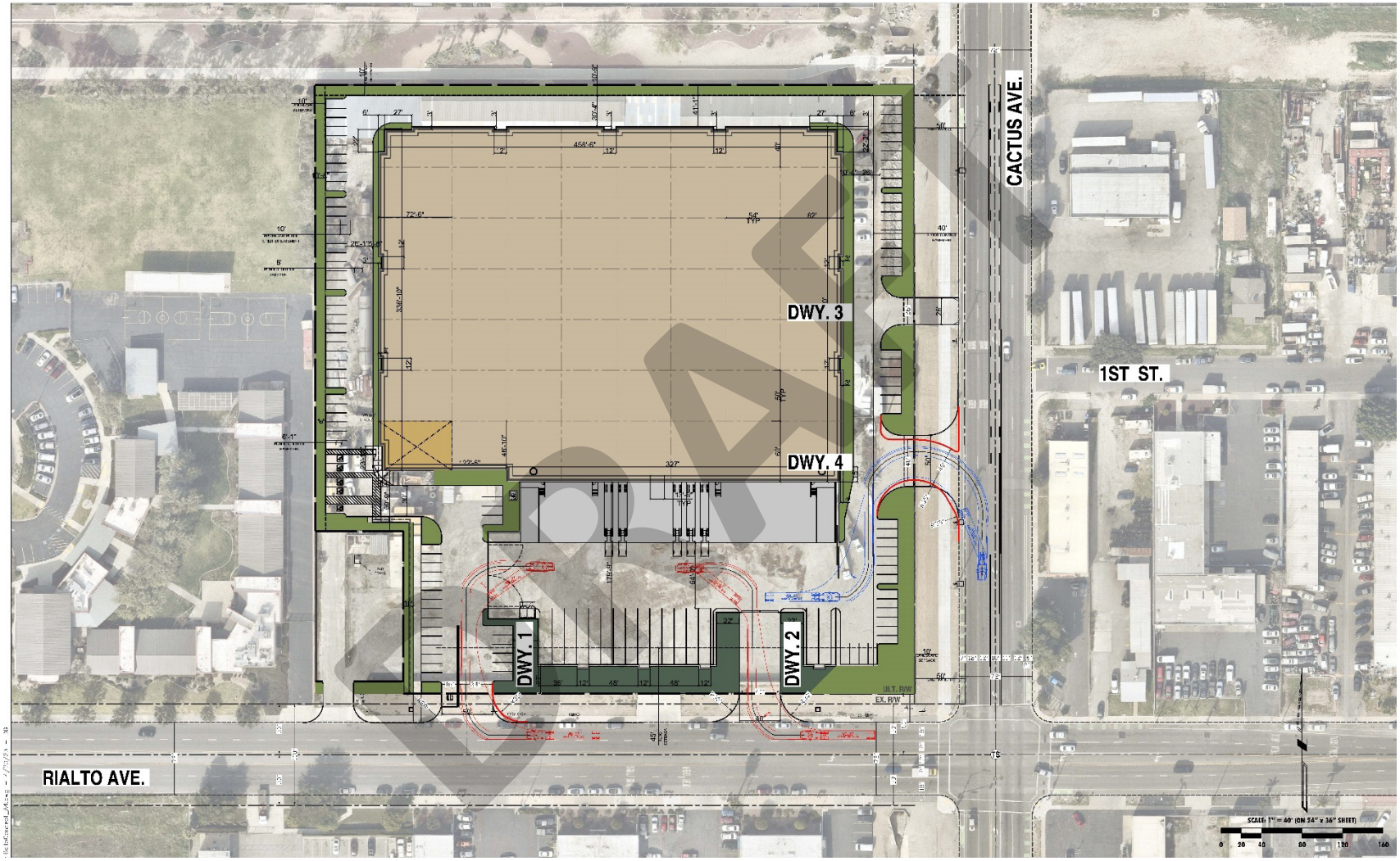
EXHIBIT 1-5: TRUCK ACCESS



1.8 QUEUING ANALYSIS

A queuing analysis was conducted at the Project driveways along Cactus Avenue and Rialto Avenue under EAPC (2024) traffic conditions to determine the turn pocket lengths and lane geometric necessary to accommodate near-term 95th percentile queues and recommend storage lengths for the turning movements shown on Exhibit 1-4. The analysis was conducted for the weekday AM and weekday PM peak hours using the SimTraffic modeling software. There are no queuing issues anticipated at the Project driveways with respect to each other and their proximity to 1st Street on Cactus Avenue and the intersection of Cactus Avenue and Rialto Avenue (see Table 1-3).

SimTraffic is designed to model networks of signalized and unsignalized intersections, with the primary purpose of checking and fine-tuning signal operations. SimTraffic uses the input parameters from Synchro (Version 11) to generate random simulations. The 95th percentile queue is not necessarily ever observed; it is simply based on statistical calculations (or Average Queue plus 1.65 standard deviations). The random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for each turn lane. A SimTraffic simulation has been recorded 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 15-minute periods with 60-minute recording intervals. The EAPC (2024) queuing results are provided in Appendix 1.2 of this TA.

TABLE 1-3: PROJECT DRIVEWAY QUEUING SUMMARY

#	Intersection	Movement	Available Stacking	95th Percentile Queue (Feet) AM Peak Hour	95th Percentile Queue (Feet) PM Peak Hour	Acceptable?[1] AM	Acceptable?[1] PM
2	Driveway 1 & Rialto Av.	EBL	100	22	9	Yes	Yes
		SBL/R	200	10	25	Yes	Yes
3	Driveway 2 & Rialto Av.	EBT	220	5	0	Yes	Yes
		WBT/R	170	5	0	Yes	Yes
4	Cactus Av. & Driveway 3	SBT/R	600	20	10	Yes	Yes
		EBR	70	8	26	Yes	Yes
5	Cactus Av. & Driveway 4	SBT/R	50	32	0	Yes	Yes
		EBR	65	42	39	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with City of Rialto's Traffic Study Guidelines.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term LOS. LOS is a qualitative description of traffic flow based on several factors, such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The 6th Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (4) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Rialto and County of San Bernardino require signalized intersection operations analysis based on the methodology described in the HCM. (4) Intersection LOS operations are based on an intersection's average control delay. Control delays include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1.

The traffic modeling and signal timing optimization software package Synchro (Version 11) has been utilized to analyze signalized intersections. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Customary practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g., PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to

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analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (4)

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F

Source: HCM, 6th Edition

[1] If V/C is greater than 1.0 then LOS is F per HCM.

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Rialto requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (4) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2). At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. Delay for the intersection is reported for the worst individual movement at a two-way stop-controlled intersection. For all-way stop controlled intersections, LOS is computed for the intersection as a whole (average delay).

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TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0[1]
Little or no delays.	0 to 10.00	A
Short traffic delays.	10.01 to 15.00	B
Average traffic delays.	15.01 to 25.00	C
Long traffic delays.	25.01 to 35.00	D
Very long traffic delays.	35.01 to 50.00	E
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F

Source: HCM, 6th Edition

[1] If V/C is greater than 1.0 then LOS is F per HCM.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the California Department of Transportation (Caltrans) and other public agencies to quantitatively justify or determine the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD). (5)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (5) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions and for all future analysis scenarios for existing unsignalized intersections. Warrant 3 is appropriate to use for this TA because it provides specialized warrant criteria for intersections with rural characteristics. For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection. Urban warrants have been used as posted speed limits on the major roadways with unsignalized intersections are 40 miles per hour or below and rural warrants have been used on roadways with speeds greater than 40 miles per hour.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets. Similarly, the speed limit has been used as the basis for determining the use of Urban and Rural warrants. Traffic signal warrant analyses were performed for the following study area intersection shown in Table 2-3.

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *EA and EAP (2024) Traffic Conditions*, and Section 6 *EAPC (2024) Traffic Conditions* of this report. It is important to note that a signal warrant defines the minimum condition under which the

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installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection	Jurisdiction
2	Driveway 1 & Rialto Av.	Rialto
5	Cactus Av. & 1st St.	Rialto

2.4 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

Minimum Acceptable LOS and associated definitions of intersection deficiencies have been obtained from each of the applicable surrounding jurisdictions.

2.4.1 CITY OF RIALTO

The following LOS will be utilized for study area intersections located within the City: The City of Rialto 2010 General Plan Update has established minimum LOS standards. Specifically, General Plan Policies 4-1.20 and 4-1.21 establish the minimum standards to be applied to any TIA, as follows:

- Policy 4-1.20: Design City streets so that signalized intersections operate at Level of Service (LOS) D or better during the morning and evening peak hours and require new development to mitigate traffic impacts that degrade LOS below that level.
- Policy 4-1.21: Design City streets so that unsignalized intersections operate with no vehicular movement having an average delay greater than 120 seconds during the morning and evening peak hours and require new development to mitigate traffic impacts that increase delay above that level. (1)

The City's Traffic Study Guidelines identifies LOS D as the minimum LOS for intersections and roadway segments, with the exception of Riverside Drive south of the Metrolink tracks to the City's southern border, which can operate at LOS E.

2.4.2 SAN BERNARDINO COUNTY CMP

The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document. However, for the purposes of this analysis, LOS D has been utilized for all study area intersections.

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2.5 DEFICIENCY CRITERIA

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies.

Per the City's Traffic Study Guidelines: In accordance with the City's General Plan Circulation Element, at intersections where the LOS falls below, or is expected to fall below an acceptable threshold with or without the addition of the project, feasible measures shall be identified to mitigate the project's impacts for all project scenario conditions. In all cases, the feasibility of the proposed improvements must be demonstrated, and the availability of right-of-way must be verified. Each mitigation measure shall include an estimated cost to design and construct the improvement. The TA will also calculate the project's fair share towards each mitigation measure.

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies at intersections within the City of Rialto. Consistent with the City's traffic study guidelines, new development is required to improve traffic deficiencies exceeding these levels. Deficiencies are deemed to occur at any intersection in which the Project causes the LOS to fall below LOS D or the peak hour delay to increase as follows:

- LOS A/B = By 10.0 seconds
- LOS C = By 8.0 seconds
- LOS D = By 5.0 seconds
- LOS E = By 2.0 seconds
- LOS F = By 1.0 seconds

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3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Rialto General Plan Circulation Network, and a review of existing peak hour intersection operations and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the agreement with City of Rialto staff (Appendix 1.1), the study area includes a total of 8 existing and future intersections as shown previously on Exhibit 1-3. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF RIALTO GENERAL PLAN CIRCULATION ELEMENT

As noted previously, the Project site is located within the City of Rialto. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the City of Rialto General Plan Circulation Element, are described subsequently. Exhibit 3-2 shows the City of Rialto General Plan Circulation Element and Exhibit 3-3 illustrates the City of Rialto General Plan roadway cross-sections.

The study area roadway that is classified as a Major Arterial is identified as having a 120-foot right-of-way and 94 to 96-foot curb-to-curb measurement. Major Arterials include three lanes of travel in each direction and a 14 to 16-foot curbed and/or landscaped median. The following study area roadways within the City of Rialto are classified as a Major Arterial:

- Cedar Avenue
- Rialto Avenue
- Cactus Avenue

The study area roadway that is classified as a Secondary Arterial is identified as having an 88-foot right-of-way and 64-foot curb-to-curb measurement. Secondary Arterial includes two lanes of travel in each direction with 8-foot shoulders. The following study area roadway within the City of Rialto is classified as a Secondary Arterial:

- Merrill Avenue

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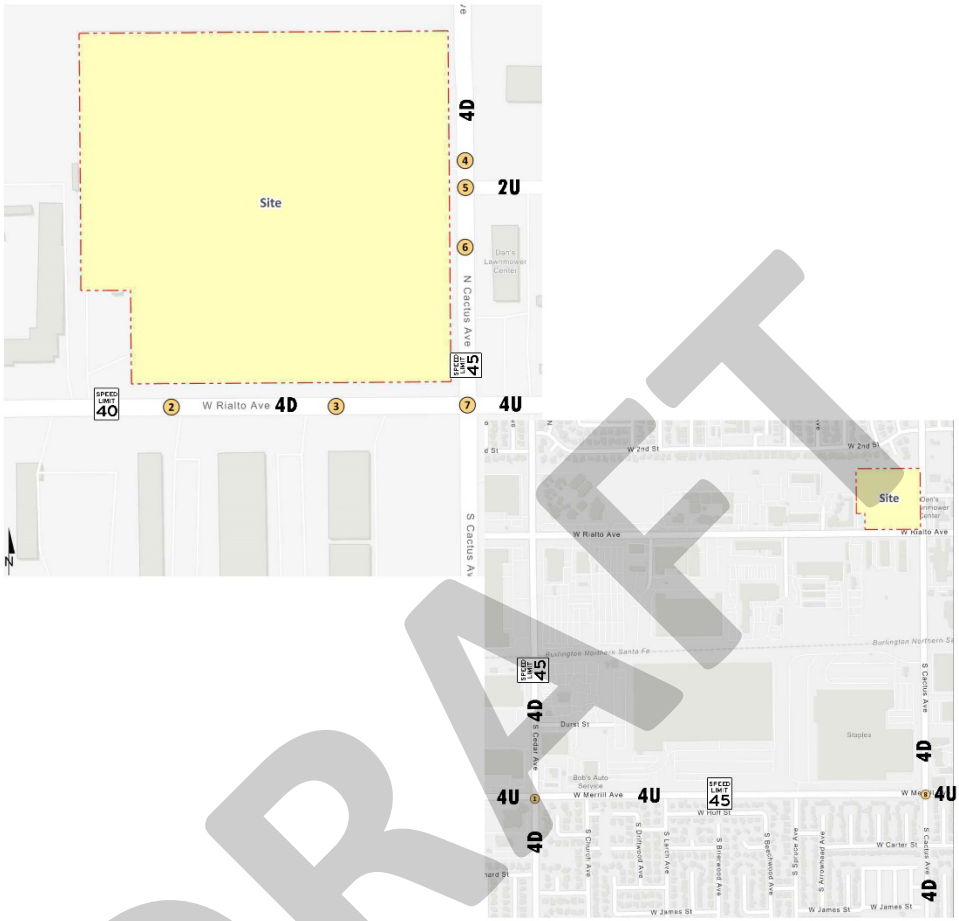
EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



1 Cedar Av. & Merrill Av.	2 Driveway 1 & Rialto Av.	3 Driveway 2 & Rialto Av.	4 Cactus Av. & Driveway 3	5 Cactus Av. & First St.
	Future Intersection	Future Intersection	Future Intersection	DEF

6 Cactus Av. & Driveway 4	7 Cactus Av. & Rialto Av.	8 Cactus Av. & Merrill Av.
Future Intersection	DEF DEF	DEF DEF

4 = Number of Lanes
D = Divided
U = Undivided
SPEED LIMIT 40 = Speed Limit (MPH)
= Traffic Signal
= Stop Sign
DEF = Defacto Right Turn

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EXHIBIT 3-2: CITY OF RIALTO GENERAL PLAN CIRCULATION ELEMENT

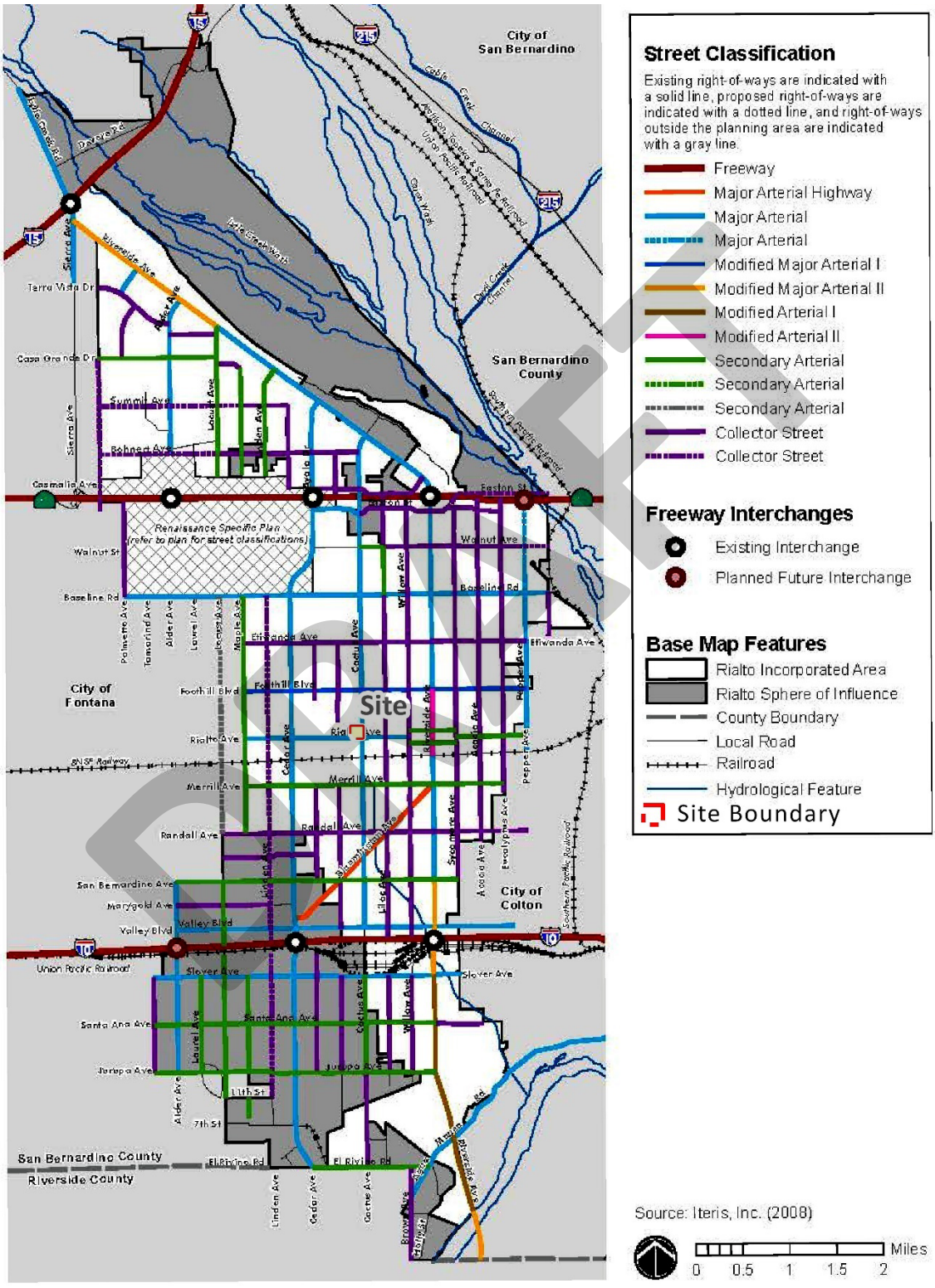
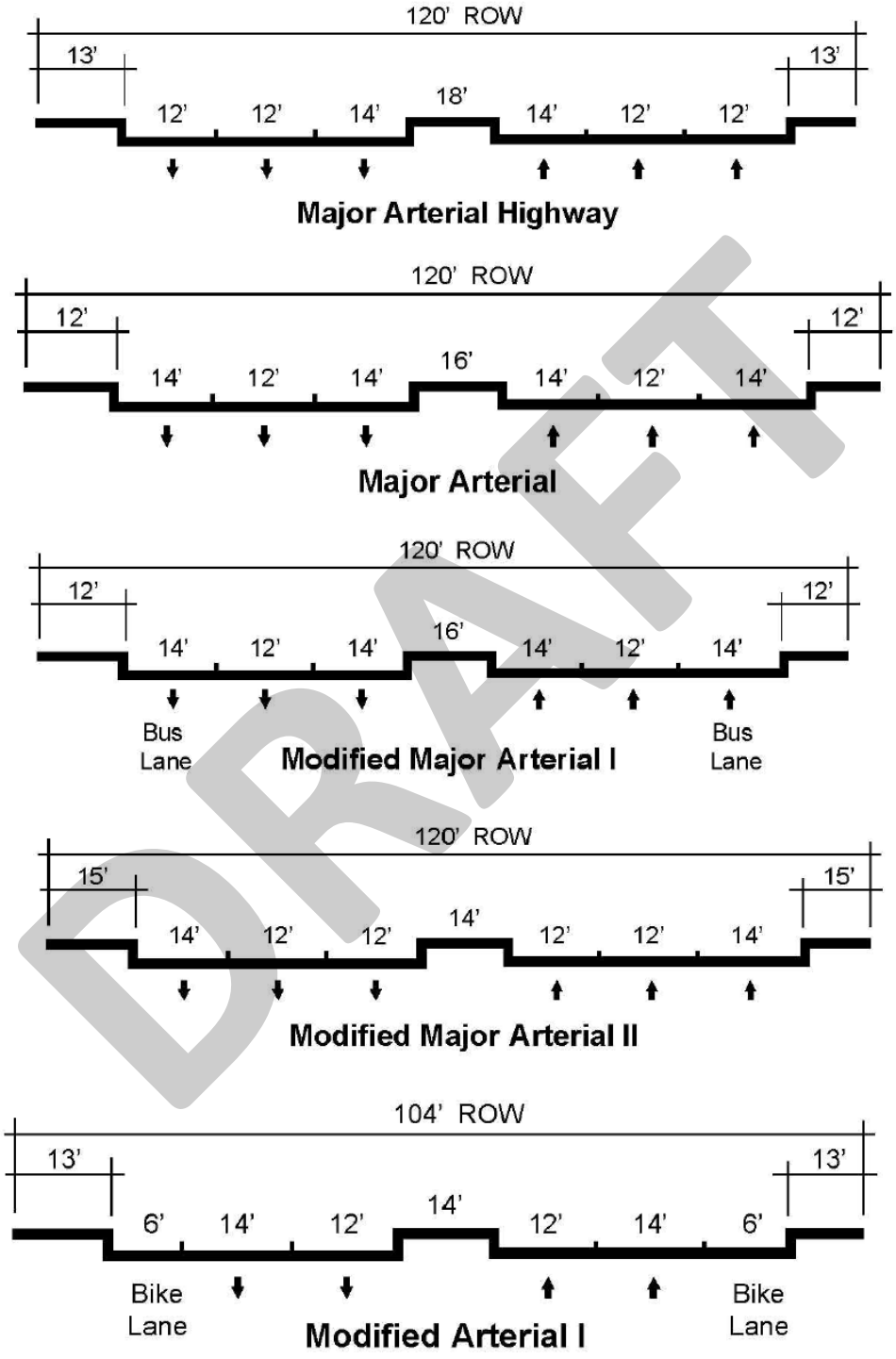


EXHIBIT 3-3: CITY OF RIALTO GENERAL PLAN ROADWAY CROSS-SECTIONS



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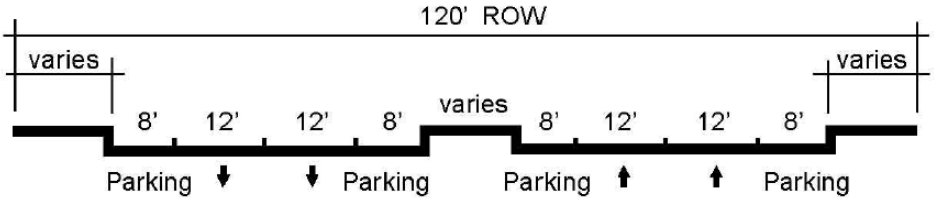
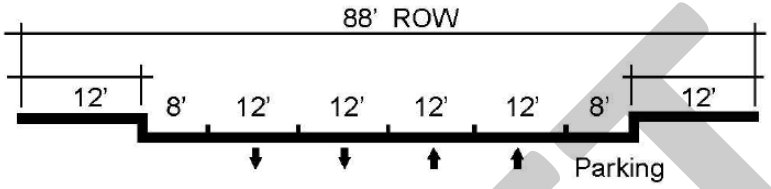
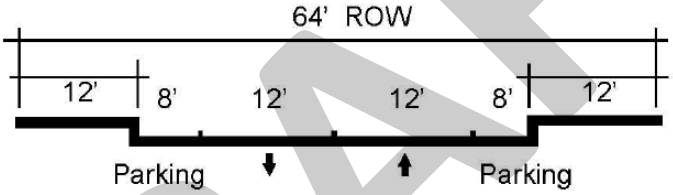


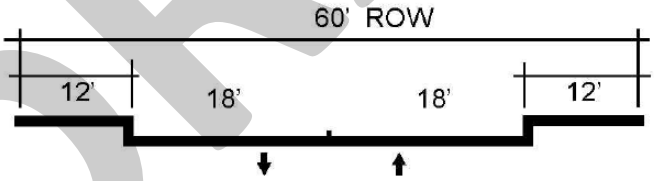
Modified Arterial II



Secondary Arterial



Collector



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3.3 TRUCK ROUTES

Exhibit 3-4 shows the City of Rialto truck routes. As shown, Cedar Avenue is identified as the nearest truck route. These truck routes have been utilized to route truck traffic associated with the proposed Project and future cumulative development projects for the purposes of this TA. An Interim Urgency Ordinance (No. 1673) was adopted by the City on December 13, 2022, which establishes a moratorium to prohibit truck traffic on all other streets within the City of Rialto except as otherwise noted on Exhibit 3-5 or as provided by law. Specifically, Exhibit 3-5 identifies the allowable truck routes and the previous truck routes that have been removed by the Interim Urgency Ordinance.

3.4 BICYCLE, EQUESTRIAN, & PEDESTRIAN FACILITIES

Exhibit 3-6 illustrates the City of Rialto existing and future planned bicycle facilities per the City's Bicycle and Pedestrian Master Plan (2016), which shows an existing Class I (off-road) bike path along the Pacific Electric Trail just north of the site and along the San Bernardino County Flood Channel to the east of Cactus Avenue. There are Class II bike lanes striped along Rialto Avenue and Cactus Avenue in close proximity to the site. Existing pedestrian facilities within the study area are shown on Exhibit 3-7. Field observations in April 2023 indicate moderate pedestrian and bicycle activity within the study area.

3.5 TRANSIT SERVICE

The City of Rialto is served by Omnitrans, a public transit agency serving various jurisdictions within San Bernardino County. Based on a review of the transit routes within the vicinity of the Project, Route 15 currently runs along Merrill Avenue, however, there are currently no routes that operate adjacent to the Project (see Exhibit 3-8). Transit service is reviewed and updated by Omnitrans periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. As such, it is recommended that the Project Applicant work in conjunction with Omnitrans to potentially provide bus service to the site.

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EXHIBIT 3-4: CITY OF RIALTO TRUCK ROUTES

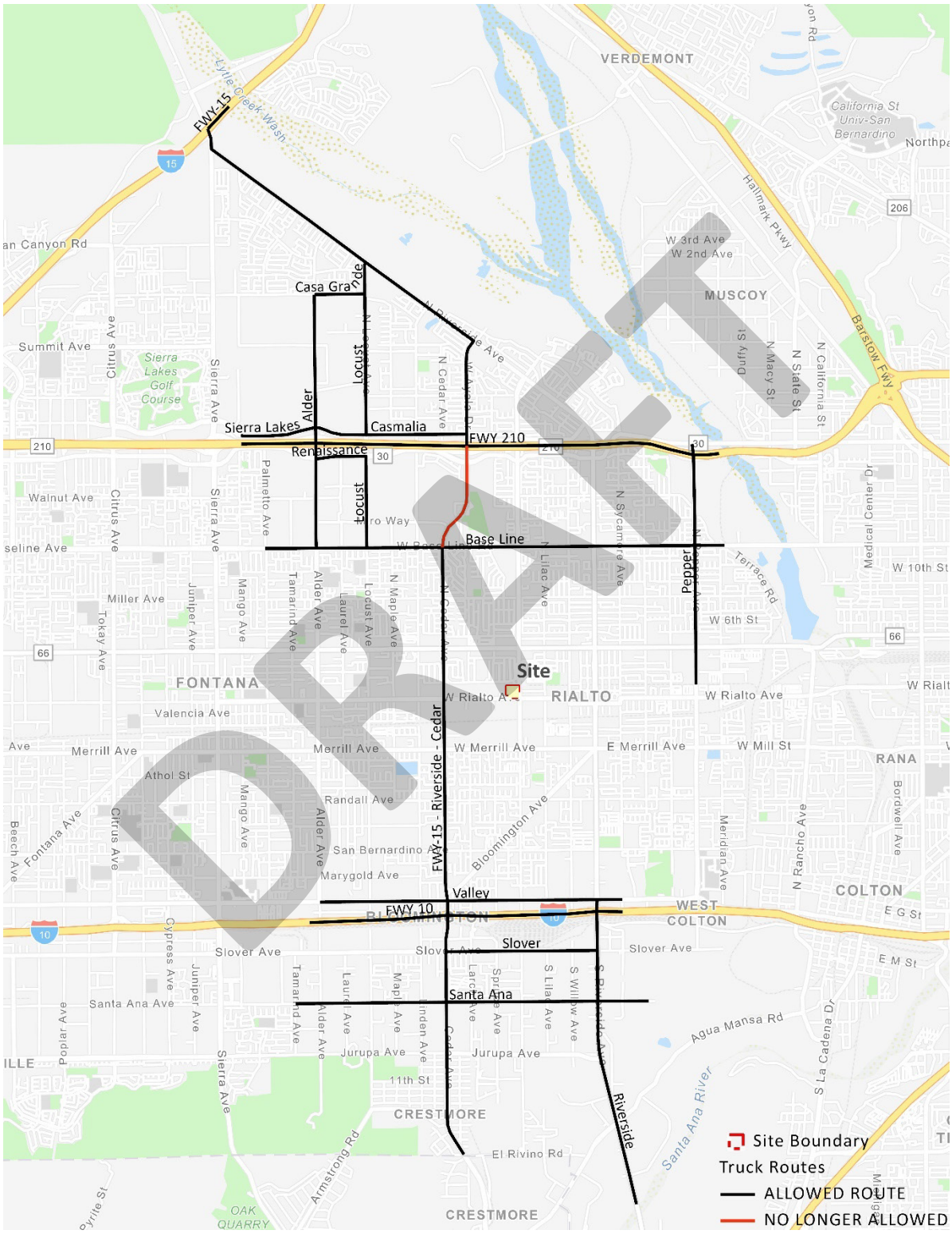

EXHIBIT 3-5: CITY OF RIALTO DECOMMISIONED TRUCK ROUTES

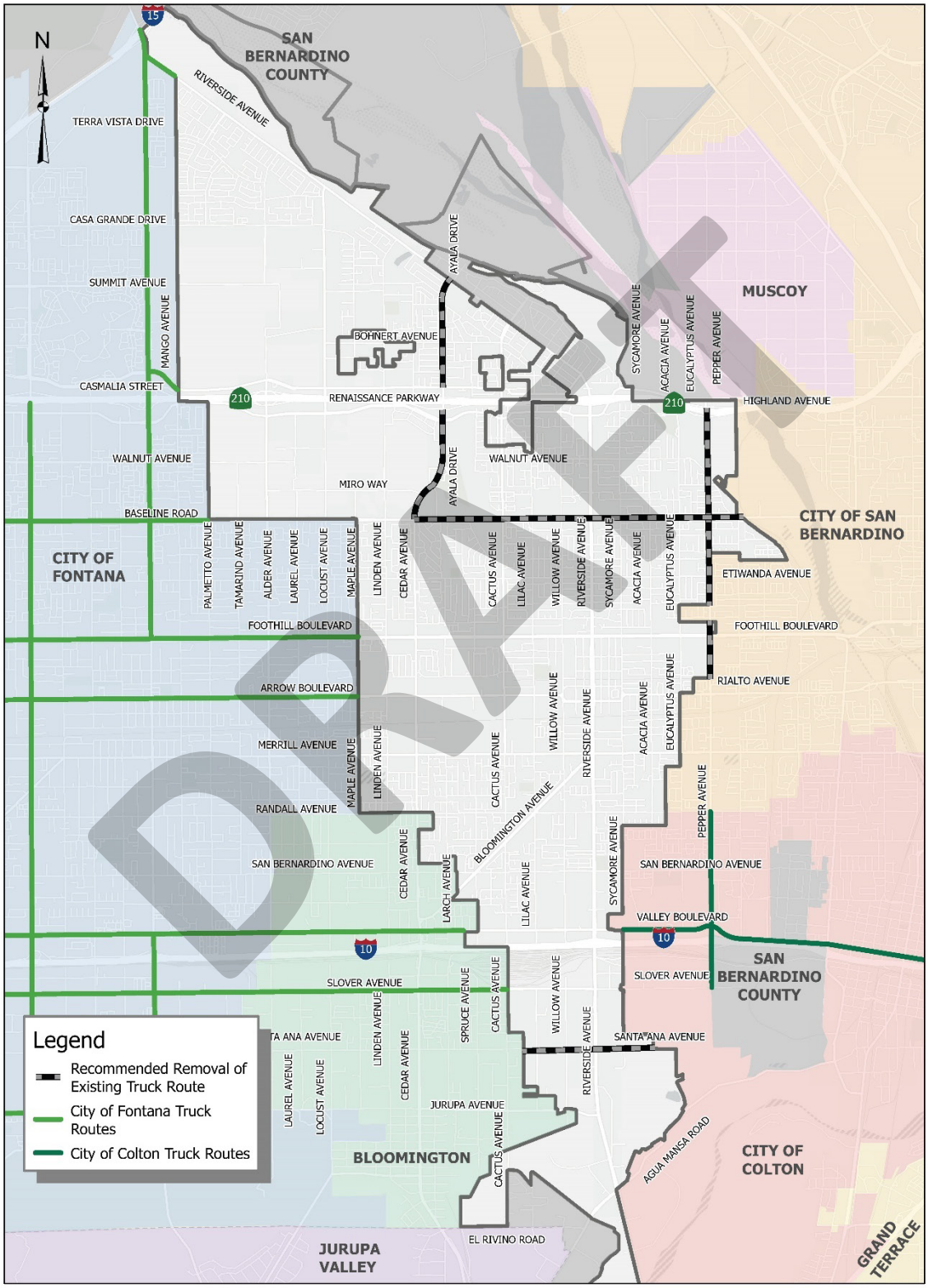

EXHIBIT 3-6: CITY OF RIALTO BICYCLE FACILITIES

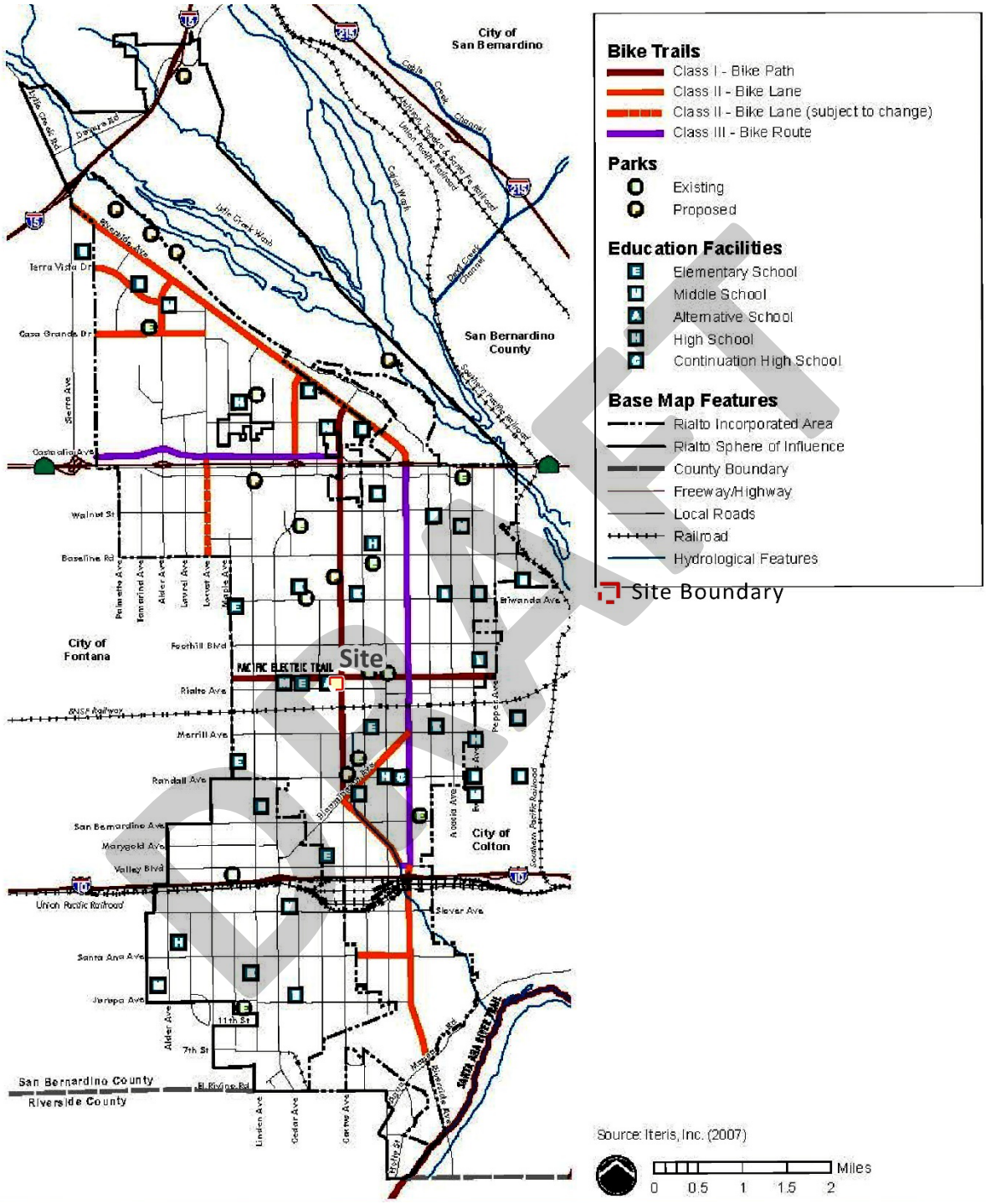

EXHIBIT 3-7: EXISTING PEDESTRIAN FACILITIES

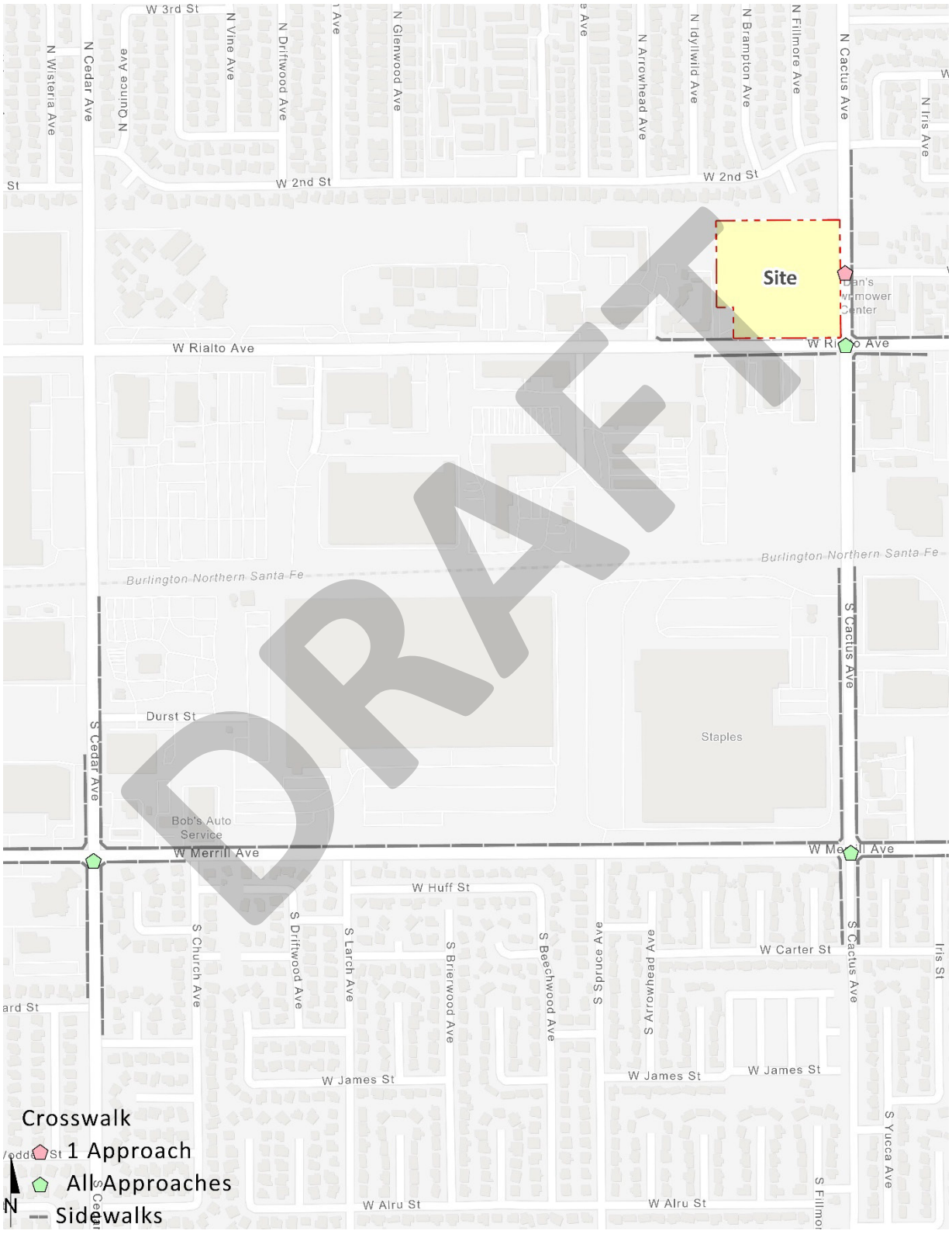

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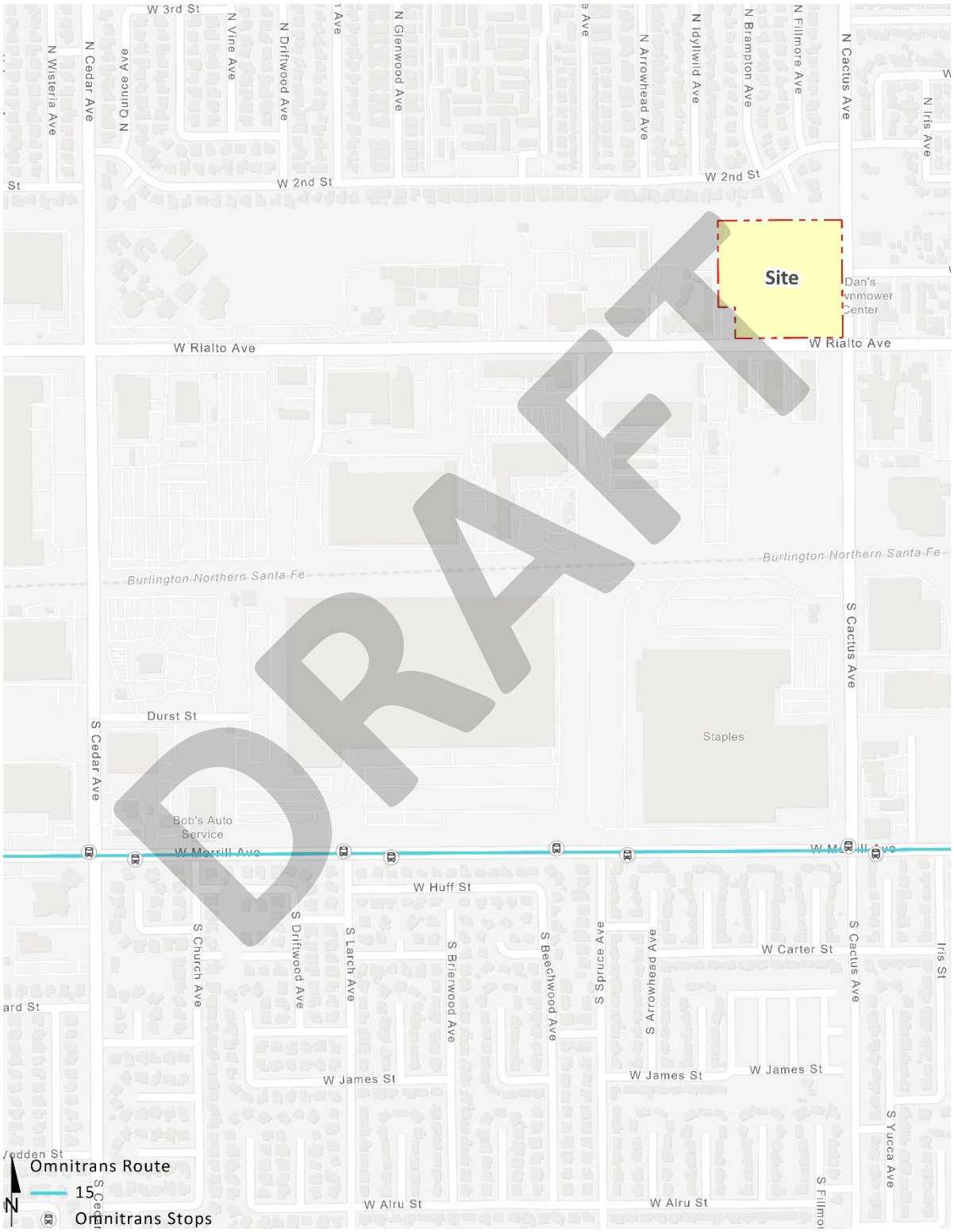
EXHIBIT 3-8: TRANSIT ROUTES



3.6 EXISTING (2023) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in April 2022. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. Existing weekday ADT volumes are shown on Exhibit 3-9. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 13.5 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 7.4 percent. As such, the above equation utilizing a factor of 13.5 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 6.9 percent (i.e., 1/0.074 = 13.5) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday peak hour intersection volumes are also shown on Exhibit 3-9 (in actual vehicles).

The traffic volumes shown on the exhibits within the TA are expressed in actual vehicles while the peak hour intersection operations analysis is based on the PCE traffic volumes per the City's guidelines. The traffic counts include the following vehicle classifications: Passenger Cars, 2-Axle Trucks, 3-Axle Trucks, and 4 or More Axle Trucks. To represent the effects large trucks, buses and recreational vehicles have on traffic flow; all trucks were converted into PCE. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For the purpose of this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the CMP and the City's Traffic Study Guidelines. The PCE volumes are included in Appendix 3.1 for all analysis scenarios.

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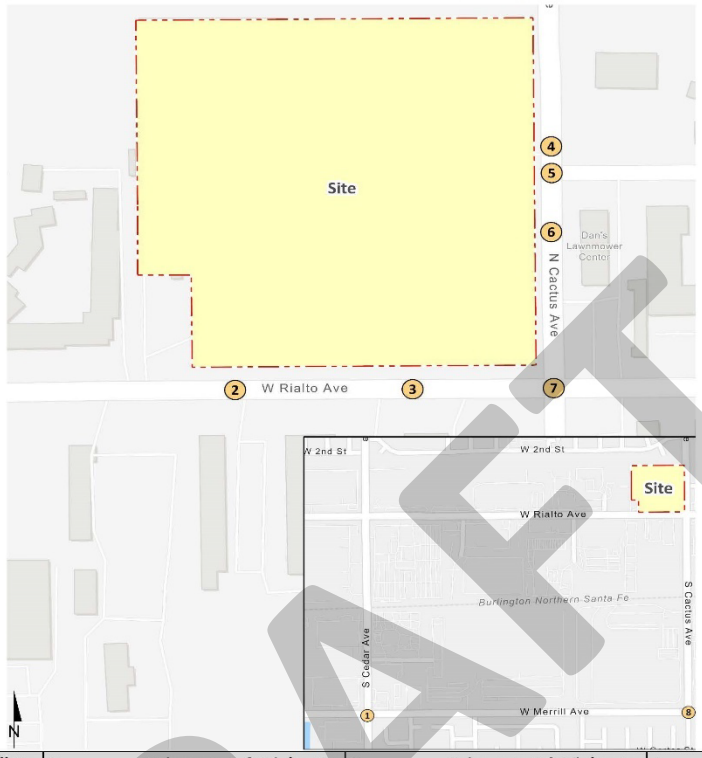
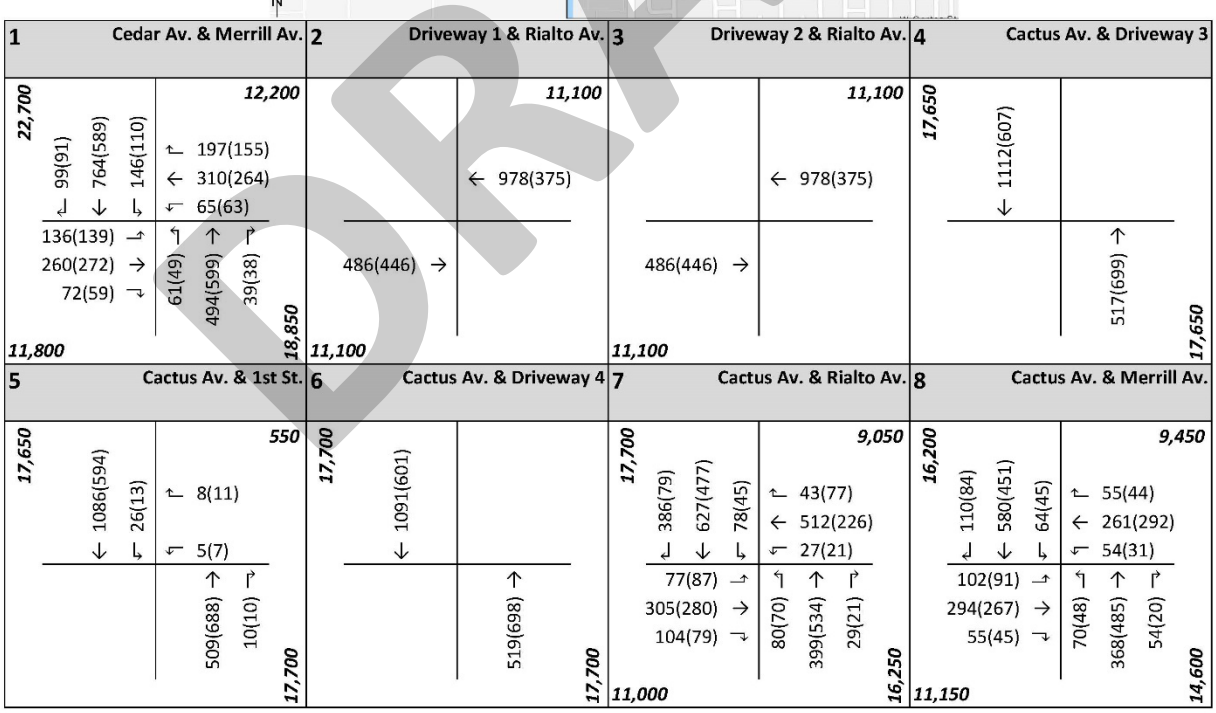
EXHIBIT 3-9: EXISTING (2023) TRAFFIC VOLUMES





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

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3.7 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1, which indicates that all existing study area intersections are currently operating at acceptable LOS during the peak hours. The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2022) CONDITIONS

#	Intersection	Traffic Control[1]	Delay[2] (secs.) AM	Delay[2] (secs.) PM	Level of Service AM	Level of Service PM
1	Cedar Av. & Merrill Av.	TS	26.4	24.2	C	C
2	Driveway 1 & Rialto Av.		Future Intersection			
3	Driveway 2 & Rialto Av.		Future Intersection			
4	Cactus Av. & Driveway 3		Future Intersection			
5	Cactus Av. & 1st St.	CSS	13.9	12.7	B	B
6	Cactus Av. & Driveway 4		Future Intersection			
7	Cactus Av. & Rialto Av.	TS	21.2	9.1	C	A
8	Cactus Av. & Merrill Av.	TS	15.7	13.1	B	B

[1] TS = Traffic Signal; CSS = Cross-Street Stop

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

3.8 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. There are no existing study area intersections that currently warrant a traffic signal under Existing traffic conditions. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

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4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. The Project is to consist of a single 159,700 square foot (SF) warehouse building. There are two points of access proposed on W. Rialto Avenue and two additional points of access proposed along N. Cactus Avenue. The following driveways will be assumed to provide access to the Project site:

- Driveway 1 on Rialto Avenue – Full Access (passenger cars and right-in trucks only)
- Driveway 2 on Rialto Avenue – Right-in Only Access (trucks only)
- Driveway 3 on Cactus Avenue – Right-in/Right-out Only Access (passenger cars only)
- Driveway 4 on Cactus Avenue – Right-out Only Access (trucks only)

Regional access to the Project site is available from the I-10 Freeway via Cedar Avenue interchange or to the I-210 Freeway via Ayala Drive (no trucks) or Alder Avenue.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

4.1.1 EXISTING TRAFFIC

The site is currently occupied by an existing use that is currently active. In an effort to understand the existing traffic associated with the current use, traffic counts were collected at the driveways on April 12 through 14, 2022 (Tuesday through Thursday). See Appendix 1.1 for driveway count data worksheets. Table 4-1 below summarizes the average existing trip generation based on the count data collected over three consecutive days. The existing use on the site currently generates an average of 181 two-way trips per day, with 17 trips during the AM peak hour and 19 trips during the PM peak hour. Trip generation for the existing use has been reflected in both actual vehicles and PCE on Table 4-1. The existing use on the site currently generates an average of 213 two-way PCE trips per day, with 18 PCE AM peak hour trips and 20 PCE PM peak hour trips.

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TABLE 4-1: SUMMARY OF EXISTING DRIVEWAY COUNTS

	AM Peak Hour			PM Peak Hour			
Land Use	In	Out	Total	In	Out	Total	Daily
Actual Vehicles:							
Existing Use							
Passenger Cars:	11	4	15	4	14	18	148
2-axle Trucks:	1	1	2	1	0	1	21
3-axle Trucks:	0	0	0	0	0	0	3
4+-axle Trucks:	0	0	0	0	0	0	9
Total Trucks:	1	1	2	1	0	1	33
Total Trips (Actual Vehicles)[1]	**12**	**5**	**17**	**5**	**14**	**19**	**181**
Passenger Car Equivalent (PCE):							
Existing Use							
Passenger Cars:	11	4	15	4	14	18	148
2-axle Trucks:	2	2	3	2	0	2	32
3-axle Trucks:	0	0	0	0	0	0	6
4+-axle Trucks:	0	0	0	0	0	0	27
Total Trucks (PCE):	2	2	3	2	0	2	65
Total Trips (PCE)[1]	**13**	**6**	**18**	**6**	**14**	**20**	**213**

[1] Total Trips = Passenger Cars + Truck Trips.

4.1.2 PROPOSED PROJECT

In order to develop the traffic characteristics of the proposed Project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021) for Warehousing (ITE Land Use Code 150) were used. (3) The vehicle and truck mix were sourced from the City Guidelines. Table 4-2 presents the trip generation rates. Table 4-3 shows the resulting Project trip generation summary, which shows the Project is anticipated to generate a total of 278 two-way trips per day with 32 AM peak hour trips and 34 PM peak hour trips. The Project is anticipated to generate 460 two-way PCE trips per day with 50 PCE AM peak hour trips and 54 PCE PM peak hour trips.

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TABLE 4-2: TRIP GENERATION RATES

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles:									
Warehousing[3]	150	TSF	0.131	0.039	0.170	0.050	0.130	0.180	1.710
Passenger Cars (60.0%)			0.095	0.007	0.102	0.013	0.095	0.108	1.026
2-Axle Trucks (0.8%)			0.001	0.000	0.001	0.001	0.000	0.001	0.014
3-Axle Trucks (11.2%)			0.010	0.009	0.019	0.010	0.010	0.020	0.192
4+-Axle Trucks (28.0%)			0.025	0.023	0.048	0.026	0.024	0.050	0.479
Passenger Car Equivalent (PCE):									
Warehousing[3]	150	TSF	0.131	0.039	0.170	0.050	0.130	0.180	1.710
Passenger Cars (60.0%)			0.095	0.007	0.102	0.013	0.095	0.108	1.026
2-Axle Trucks (0.8%) (PCE = 1.5)[4]			0.002	0.001	0.003	0.002	0.001	0.003	0.021
3-Axle Trucks (11.2%) (PCE = 2.0)[4]			0.020	0.018	0.038	0.020	0.020	0.040	0.383
4+-Axle Trucks (28.0%) (PCE = 3.0)[4]			0.075	0.068	0.143	0.078	0.073	0.151	1.436

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

[2] TSF = thousand square feet

[3] Vehicle and Truck Mix Source: City of Rialto Traffic Impact Analysis Guidelines for VMT and LOS Assessment (October 2021).

[4] PCE rates are per City of Rialto's Traffic Study Guidelines.

TABLE 4-3: PROJECT TRIP GENERATION SUMMARY

Project Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles:									
Warehouse	159.700	TSF							
Passenger Cars:			16	2	18	3	16	19	164
2-axle Trucks:			1	1	2	1	1	2	4
3-axle Trucks:			2	2	4	2	2	4	32
4+-axle Trucks:			4	4	8	5	4	9	78
Total Trucks:			7	7	14	8	7	15	114
Total Net Trips (Actual Vehicles)			**23**	**9**	**32**	**11**	**23**	**34**	**278**
Passenger Car Equivalent (PCE):									
Warehouse	159.700	TSF							
Passenger Cars:			16	2	18	3	16	19	164
2-axle Trucks:			1	1	2	1	1	2	4
3-axle Trucks:			4	3	7	4	4	8	62
4+-axle Trucks:			12	11	23	13	12	25	230
Total Trucks (PCE):			17	15	32	18	17	35	296
Total Net Trips (PCE)			**33**	**17**	**50**	**21**	**33**	**54**	**460**

[1] TSF = thousand square feet

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4.1.3 TRIP GENERATION COMPARISON

Table 4-4 shows the trip generation comparison between the existing uses and the proposed warehouse project. The resulting net new trips are identified in Table 4-4. As shown, the Project is anticipated to generate 247 net new PCE two-way trips per day with 32 net new PCE AM peak hour trips and 35 net new PCE PM peak hour trips. However, for the purposes of this traffic analysis, the Project's PCE-based trip generation shown in Table 4-3 has been utilized for the purposes of this TA.

TABLE 4-4: TRIP GENERATION COMPARISON

	AM Peak Hour			PM Peak Hour			
Land Use	In	Out	Total	In	Out	Total	Daily
Proposed Project							
Passenger Cars:	16	2	18	3	16	19	164
Total Truck Trips (PCE):	17	15	32	18	17	35	296
Proposed Project Total Trips (PCE)[1]	**33**	**17**	**50**	**21**	**33**	**54**	**460**
Existing Use							
Passenger Cars:	11	4	15	4	14	18	148
Total Truck Trips (PCE):	2	2	3	2	0	2	65
Existing Use Total Trips (PCE)[1]	**13**	**6**	**18**	**6**	**14**	**20**	**213**
Variance							
Passenger Cars:	5	-2	3	-1	2	1	16
Total Truck Trips (PCE):	16	14	29	17	17	34	231
Variance Total Trips (PCE)[1]	**21**	**12**	**32**	**16**	**19**	**35**	**247**

[1] Total Trips = Passenger Cars + Truck Trips.

4.2 PROJECT TRIP DISTRIBUTION

The trip distribution pattern is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. The Project trip distribution patterns are graphically depicted on Exhibit 4-1 for passenger cars and Exhibit 4-2 for trucks.

An Interim Urgency Ordinance (No. 1673) was adopted by the City on December 13, 2022, which establishes a moratorium to prohibit truck traffic on all other streets within the City of Rialto, which prohibits truck traffic on Rialto Avenue. Specifically, Project truck traffic will be restricted to utilizing Cactus Avenue to and from Merrill Avenue in order to access the truck route along Cedar Avenue.

4.3 MODAL SPLIT

The potential for Project trips (non-truck) to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes.

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EXHIBIT 4-1: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

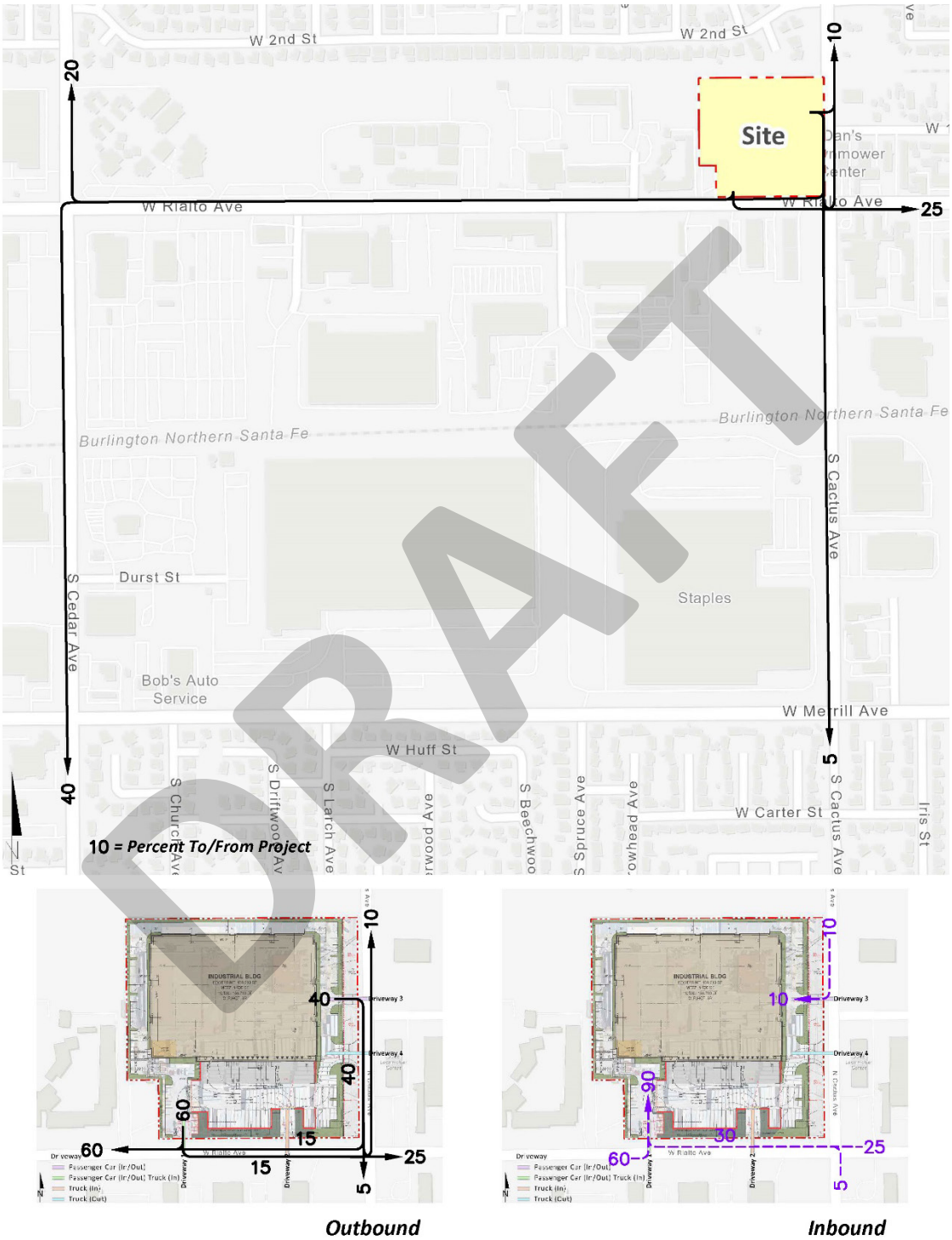

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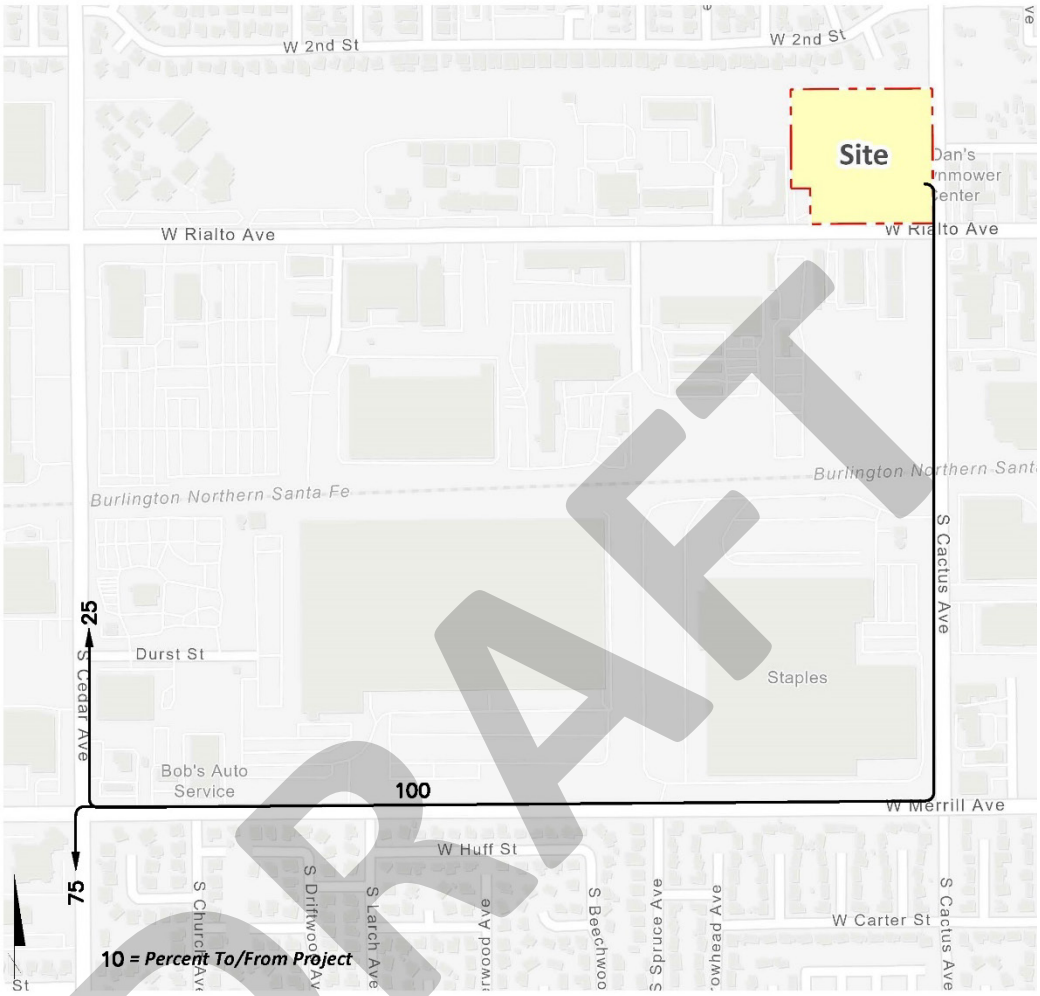
EXHIBIT 4-2: PROJECT (TRUCK) TRIP DISTRIBUTION



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4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project weekday ADT and weekday peak hour intersection turning movement volumes are shown on Exhibit 4-3.

4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth at 2% per year for 2024 traffic conditions. The total ambient growth is 2.0% for 2024 traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in conjunction with traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies. EAPC (2024) traffic volumes are provided in Section 4.6 of this report. The traffic generated by the proposed Project was then manually added to the base volume to determine EA/EAP/EAPC forecasts.

The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- EA (2024)
  - Existing (2023) volumes
  - Ambient growth traffic (2.0%)
- EAP (2024)
  - Existing (2023) volumes
  - Ambient growth traffic (2.0%)
  - Project Traffic
- EAPC (2024)
  - Existing (2023) volumes
  - Ambient growth traffic (2.0%)
  - Project Traffic
  - Cumulative Development traffic

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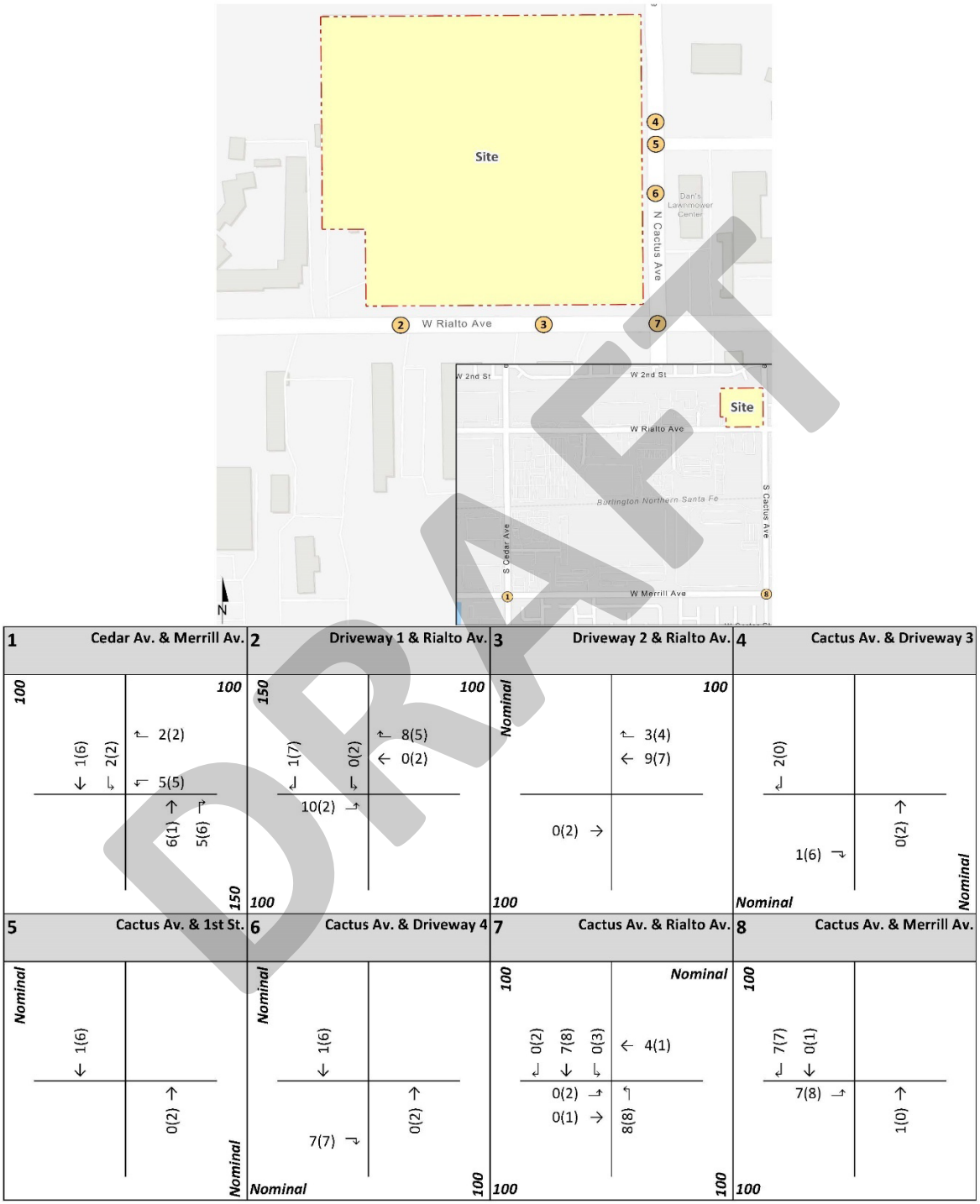
EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES



##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

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4.6 CUMULATIVE DEVELOPMENT TRAFFIC

A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Rialto. The cumulative projects listed are those that would generate traffic and would contribute traffic to study area intersections. Cumulative projects from the neighboring jurisdictions of Fontana and County of San Bernardino have also been included.

Exhibit 4-4 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown in Table 4-5. If applicable, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative forecasts to ensure that traffic generated by the listed cumulative development projects in Table 4-5 are reflected as part of the background traffic. In an effort to conduct a conservative analysis, the cumulative projects are added in conjunction with the ambient growth identified in Section 4.5 *Background Traffic*. Cumulative ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5.

4.7 NEAR-TERM CONDITIONS

The "buildup" approach has been utilized which combines existing traffic counts with a background ambient growth factor to forecast the EA (2024), EAP (2024), and EAPC (2024) traffic conditions. An ambient growth factor of 2.0% accounts for background (area-wide) traffic increases that occur over time up to the year 2024 from the year 2023 (2.0% per year). Project traffic is added to assess EA (2024), EAP (2024), and EAPC (2024) traffic conditions. Traffic volumes generated by cumulative development projects are included to assess the EAPC (2024) traffic conditions. The 2024 roadway networks are similar to the existing conditions roadway network with the exception of future roadways and intersections proposed to be developed by the Project.

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EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

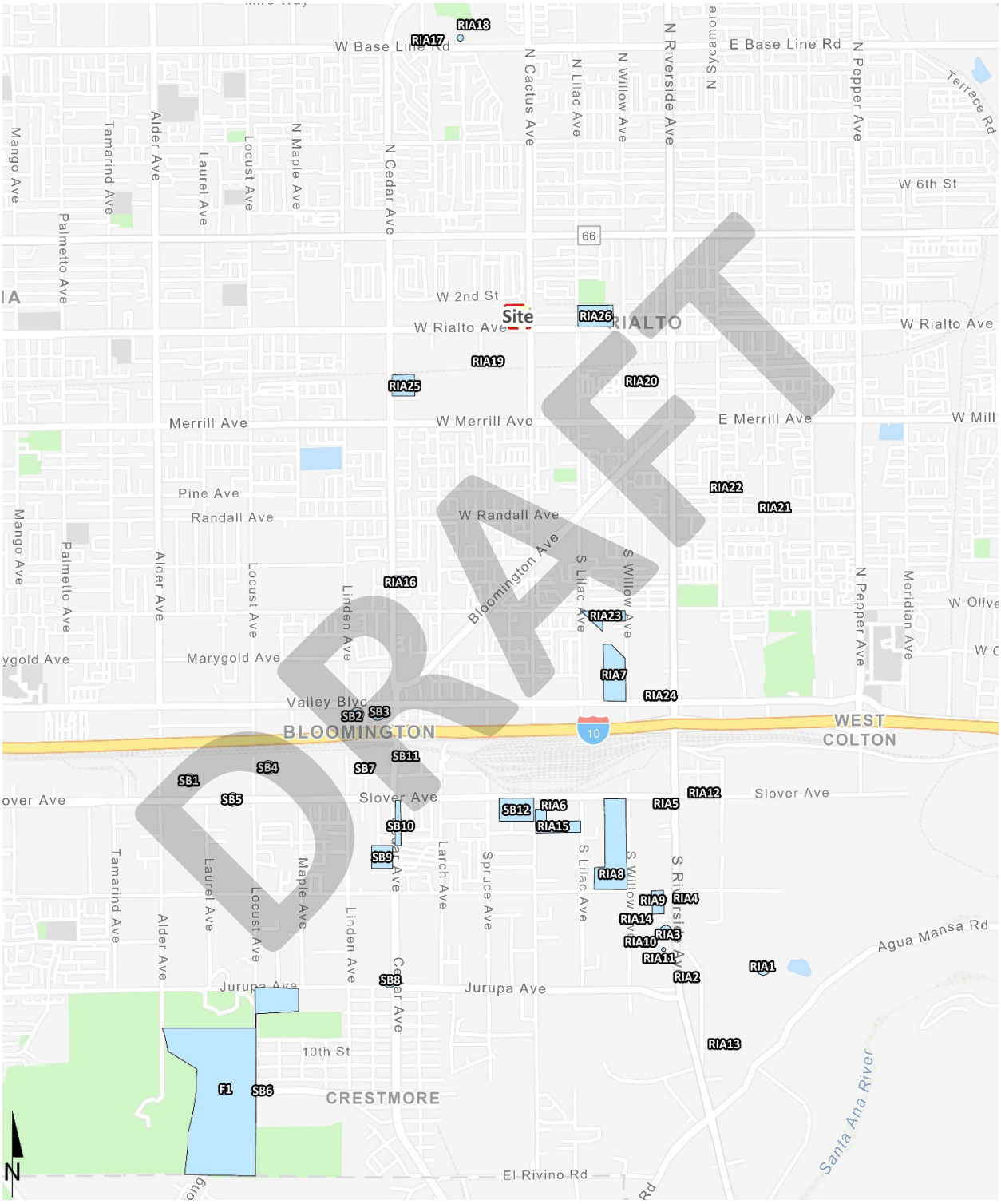
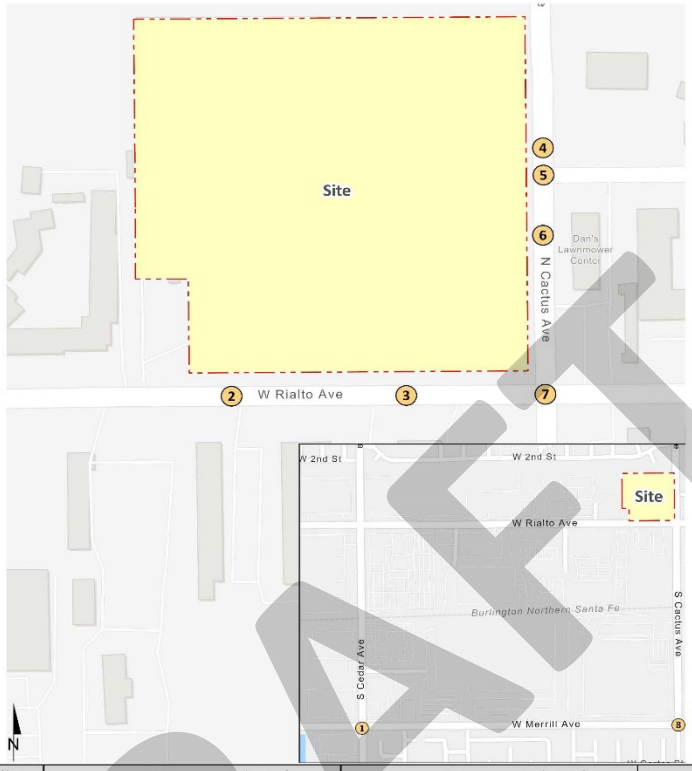
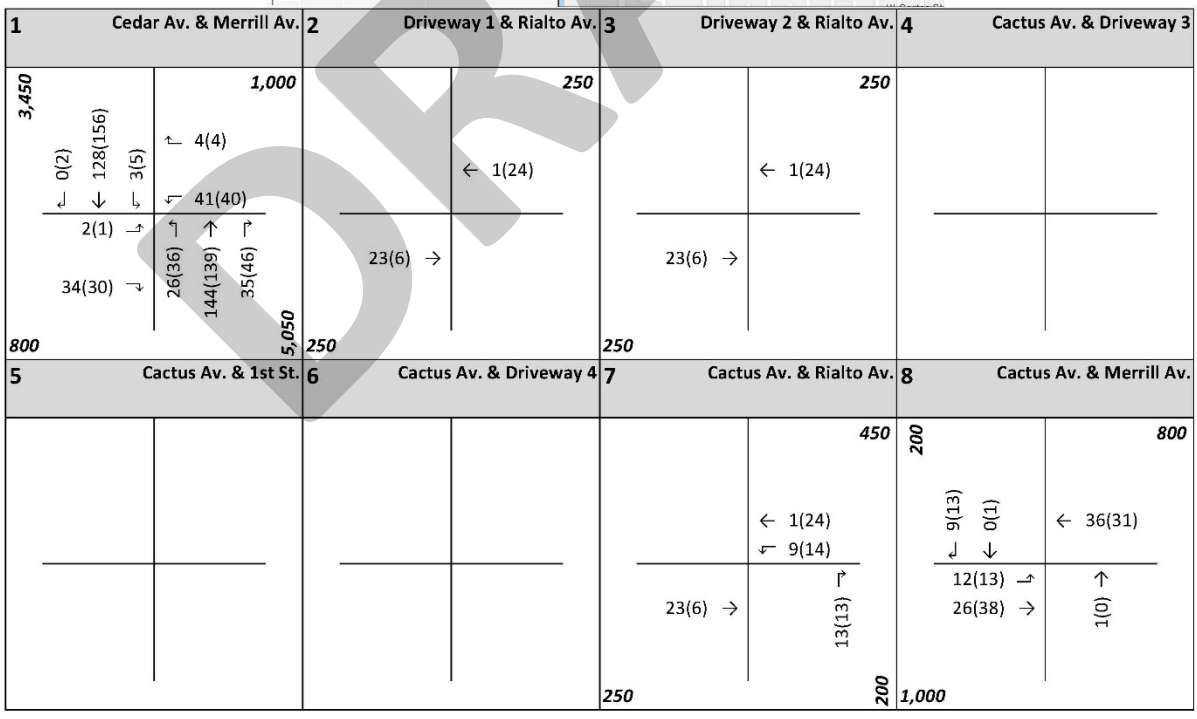


EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

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TABLE 4-5: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

ID	Project Name	Land Use	Quantity	Units[1]
City of Rialto:				
RIA1	South of Santa Ana Av., East of Riverside Av.	Warehouse	370.000	TSF
RIA2	SEC of Riverside Av. and Industrial Dr.	Trucking	3.580	AC
RIA3	NWC of Riverside Av. and Industrial Dr.	Truck Drop	3.360	AC
RIA4	SEC of Riverside Av. and Santa Ana Av.	Super Convenience Market/Gas Station	16	VFP
		Diesel Station	2	VFP
RIA5	SWC of Riverside Av. & Slover Av.	Fast Food w/ Drive-Thru	5.200	TSF
RIA6	Flyers Energy Addition	Warehouse	9.350	TSF
RIA7	Valley/Willow Warehouse	Warehousing	492.410	TSF
RIA8	Old Dominion Expansion	Parking Lot (407 spaces)	17.780	AC
RIA9	SC Fuels	Fuel Storage/Service	54.460	TSF
RIA10	Lynn Trucking	Truck Parking Yard	3.070	AC
		Car Wash/Repair	8.827	TSF
RIA11	Riverside Pallet Yard	Pallet Yard	3.580	AC
RIA12	Onyx Paving	Contractor's Yard	0.770	AC
RIA13	Angelus Black - Concrete Block	Manufacturing	178.475	TSF
RIA14	Bakery Addition	Bakery	14.000	TSF
RIA15	Lilac Avenue Warehouse	Truck Terminal	47.609	TSF
RIA16	Cedar Villas	Single Family Residential	22.000	DU
RIA17	Olive Avenue Development Project	Warehouse	679.607	TSF
RIA18	Fitzgerald Avenue Warehouse	Warehouse	45.659	TSF
RIA19	165 S. Spruce Avenue	Warehouse	86.050	TSF
RIA20	Tract 20199 – The Depot	Single Family Residential	56	DU
RIA21	Tract 20237 – Seasons at Acacia	Single Family Residential	52	DU
RIA22	Tract 20108 – Sycamore Glen	Single Family Residential	30	DU
RIA23	Willow Avenue Warehouse Project	Warehouse	128.819	TSF
RIA24	Rialto/Gateway Phase 2	3 drive-thrus, 1 car wash, retail	120	TSF
RIA25	Durst Warehouse	Warehouse	235.000	TSF
RIA26	Rialto & Lilac Center	Warehouse	300.304	TSF

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ID	Project Name	Land Use	Quantity	Units[1]
County of San Bernardino:				
SB1	NWC of Slover Av. and Locust Av.	Fast Food Restaurant With Drive-Thru	3.265	TSF
		Retail Store	7.200	TSF
		Warehouse	20.750	TSF
SB2	SEC of Linden Av. and Valley Bl.	Fast Food Restaurant	1.500	TSF
SB3	Valley Bl., West of Linden Av.	Office Building	0.250	AC
SB4	Linden Av., north of Slover Av.	Tire Store	3.000	TSF
SB5	Slover Av. between Locust Av. and Laurel Av.	High-Cube Warehouse	344.000	TSF
SB6	Locust Av. and 7th St.	Single Family Residential	198	DU
SB7	NEC and NWC of Cedar Av. and Orange St.	Warehouse	395.000	TSF
SB8	NWC of Cedar Av. and Jurupa Av.	High-Cube Warehouse	677.000	TSF
SB9	Cedar Truck Yard	Truck Storage	8.940	AC
SB10	Cedar / Slover Retail	Super Convenience Market/Gas Station	12	VFP
		Automated Car Wash	1.000	Tunnel
		Fast Food Restaurant With Drive-Thru	9.907	TSF
SB11	Cedar Avenue Technology Center	Warehouse	184.770	TSF
SB12	Cactus and Slover Warehouse	Warehouse	257.855	TSF
City of Fontana:				
F1	West Valley Logistics Center	High-Cube Transload & Short-Term Storage	3183.100	TSF
		Warehouse	290.590	TSF

[1] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres; VFP = Vehicle Fueling Positions

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5 EA & EAP (2024) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Ambient Growth s(EA) and Existing plus Ambient Growth plus Project (EAP) conditions and the resulting intersection operations and traffic signal warrant analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EA (2024) and EAP (2024) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAP (2024) conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

5.2 EA TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 2.0%. The weekday ADT and weekday peak hour intersection turning movement volumes which can be expected for EA (2024) traffic conditions are shown on Exhibit 5-1.

5.3 EAP TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 2.0% and the addition of Project traffic. The weekday ADT and weekday peak hour intersection turning movement volumes which can be expected for EAP (2024) traffic conditions are shown on Exhibit 5-2.

5.4 INTERSECTION OPERATIONS ANALYSIS

EA and EAP (2024) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TA. The intersection analysis results are summarized in Table 5-1 for EA and EAP (2024) traffic conditions, which indicates all of the study area intersections are anticipated to continue to operate at an acceptable LOS under EA (2024) and EAP (2024) traffic conditions. The intersection operations analysis worksheets for EA and EAP (2024) traffic conditions are included in Appendix 5.1 and Appendix 5.2 of this TA, respectively.

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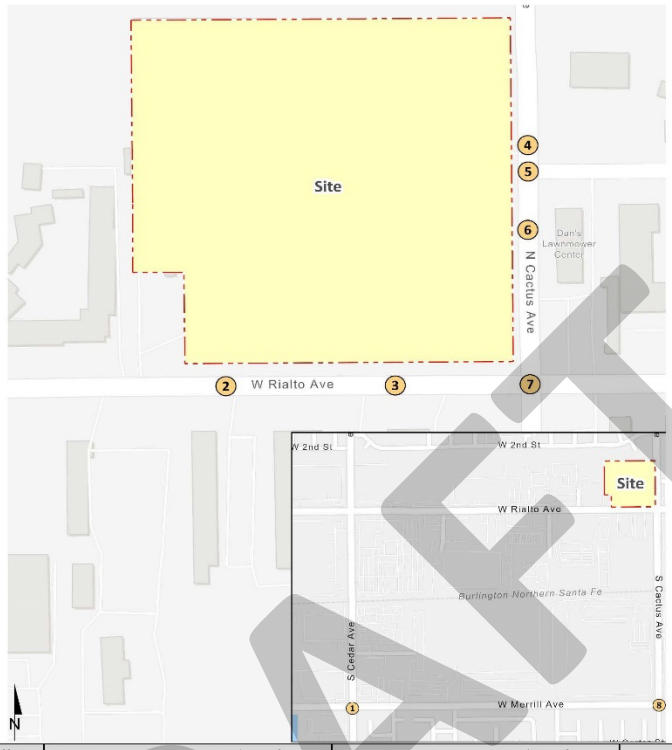
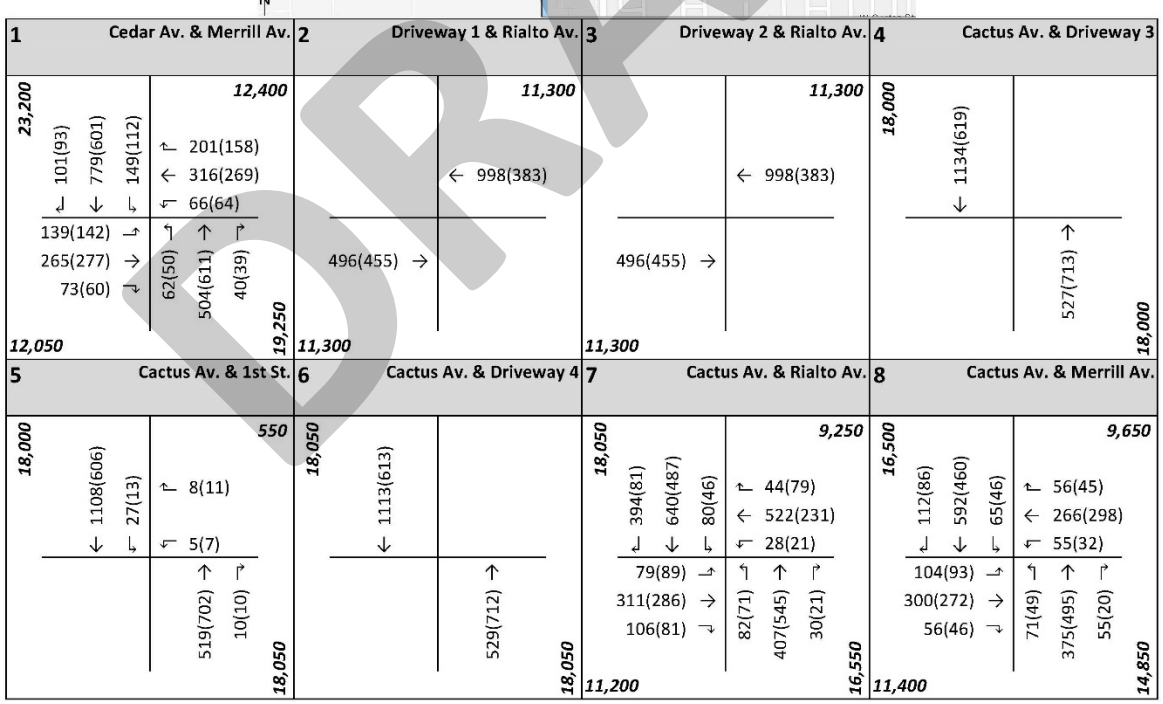
EXHIBIT 5-1: EA (2024) TRAFFIC VOLUMES





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

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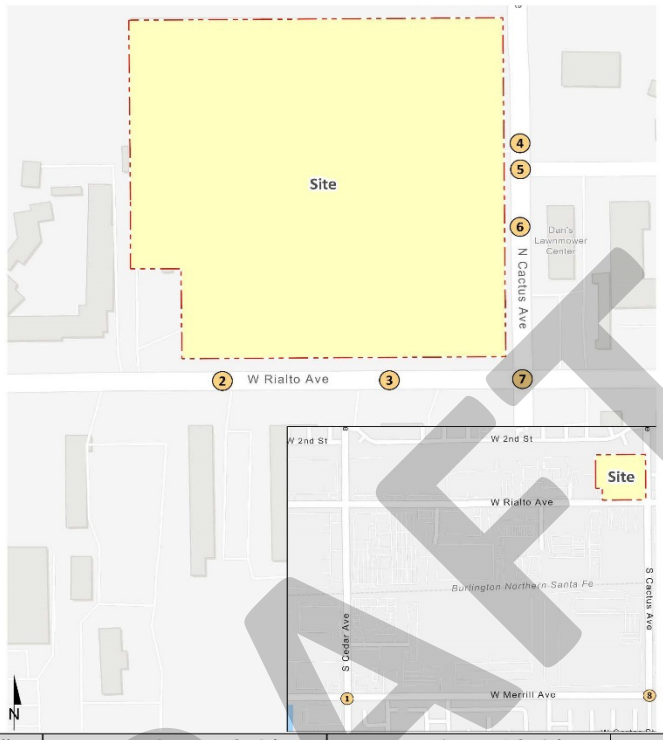
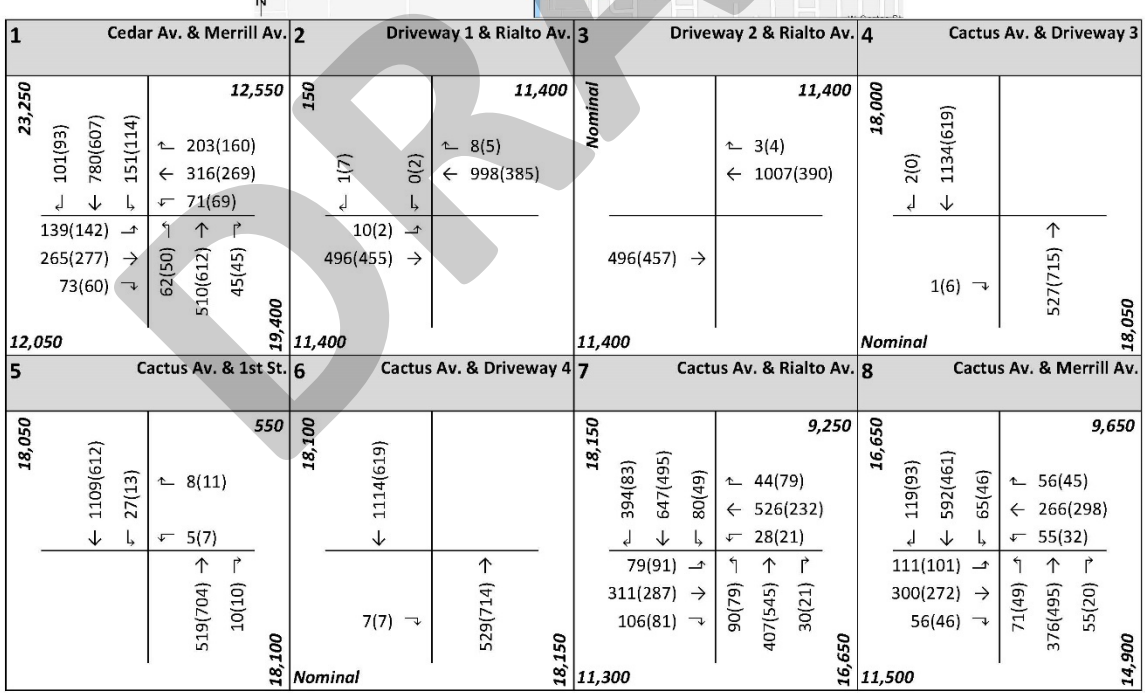
EXHIBIT 5-2: EAP (2024) TRAFFIC VOLUMES





##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

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TABLE 5-1: INTERSECTION ANALYSIS FOR EA & EAP (2024) CONDITIONS

#	Intersection	Traffic Control[1]	EA (2024) Delay[2] (secs.) AM	EA (2024) Delay[2] (secs.) PM	EA (2024) Level of Service AM	EA (2024) Level of Service PM	EAP (2024) Delay[2] (secs.) AM	EAP (2024) Delay[2] (secs.) PM	EAP (2024) Level of Service AM	EAP (2024) Level of Service PM
1	Cedar Av. & Merrill Av.	TS	26.9	24.5	C	C	27.2	24.7	C	C
2	Driveway 1 & Rialto Av.	**CSS**	Future Intersection				12.7	10.1	B	B
3	Driveway 2 & Rialto Av.	**CSS**	Future Intersection				0.0	0.0	A	A
4	Cactus Av. & Driveway 3	**CSS**	Future Intersection				13.7	10.6	B	B
5	Cactus Av. & 1st St.	CSS	14.1	12.8	B	B	14.1	12.8	B	B
6	Cactus Av. & Driveway 4	**CSS**	Future Intersection				13.9	10.7	B	B
7	Cactus Av. & Rialto Av.	TS	22.7	9.2	C	A	26.0	9.3	C	A
8	Cactus Av. & Merrill Av.	TS	15.9	13.2	B	B	16.3	13.5	B	B

[1] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

5.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for EA and EAP (2024) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. No study area intersections are anticipated to meet either peak hour volume or ADT volume-based warrants under EA or EAP (2024) traffic conditions (see Appendix 5.3 and Appendix 5.4).

5.7 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

All study area intersections are anticipated to operate at an acceptable LOS during the peak hours under EAP (2024) traffic conditions. The addition of Project traffic is not anticipated to exceed the City's thresholds for the net increase in delay. As such, no improvements have been recommended for EAP traffic conditions.

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6 EAPC (2024) TRAFFIC CONDITIONS

This section discusses the methods used to develop Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2024) traffic forecasts, and the resulting intersection operations and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAPC (2024) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for EAPC conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- If applicable, driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for EAPC conditions only.

6.2 EAPC (2024) TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 2.0% plus traffic from pending and approved but not yet constructed known development projects in the area along with the addition of Project traffic. The weekday ADT and weekday peak hour volumes which can be expected for EAPC (2024) traffic conditions are shown on Exhibit 6-1.

6.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAPC (2024) traffic conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, the study area intersections are anticipated to continue to operate at an acceptable LOS under EAPC (2024) traffic conditions. The intersection operations analysis worksheets for EAPC (2024) traffic conditions are included in Appendix 6.1 of this TA.

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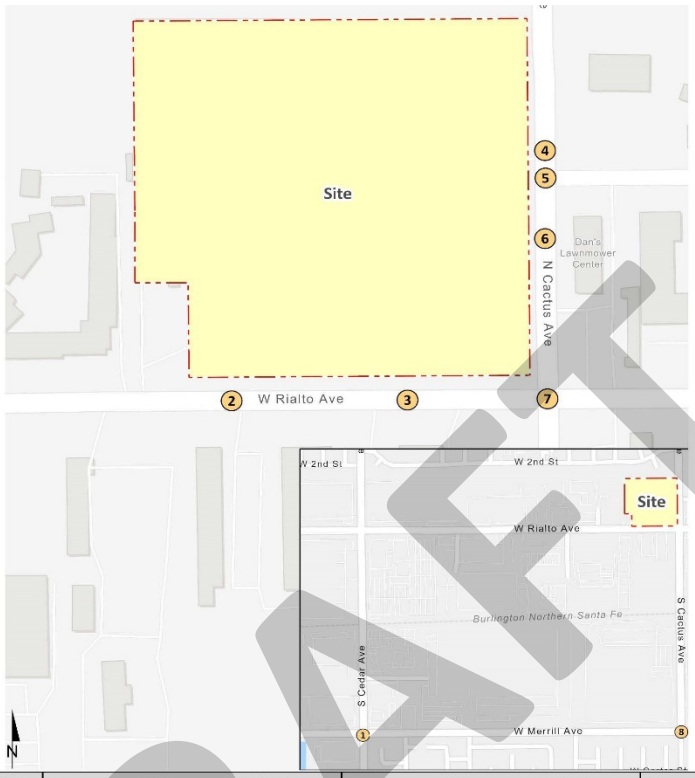
EXHIBIT 6-1: EAPC (2024) TRAFFIC VOLUMES



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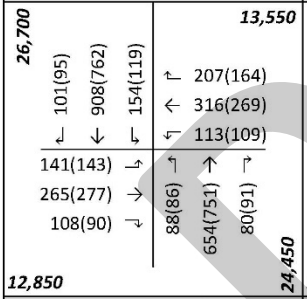
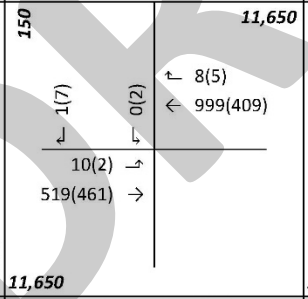
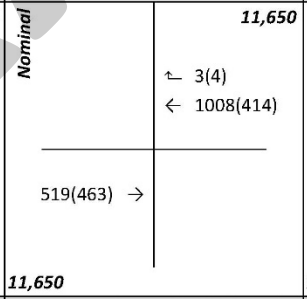
1 Cedar Av. & Merrill Av.



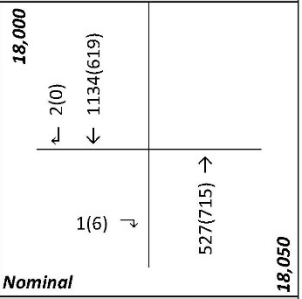
2 Driveway 1 & Rialto Av.



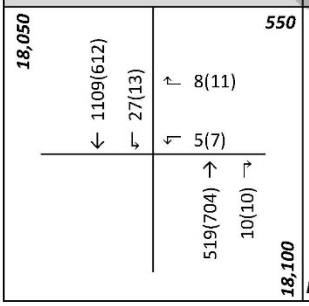
3 Driveway 2 & Rialto Av.



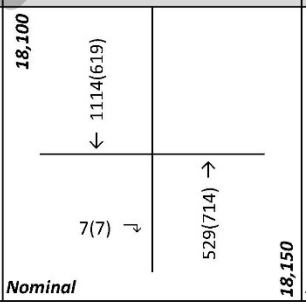
4 Cactus Av. & Driveway 3



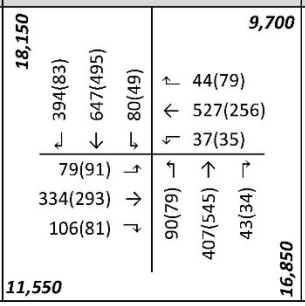
5 Cactus Av. & 1st St.



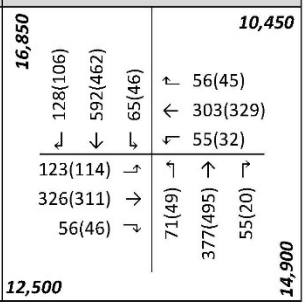
6 Cactus Av. & Driveway 4



7 Cactus Av. & Rialto Av.



8 Cactus Av. & Merrill Av.



##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 6-1: INTERSECTION ANALYSIS FOR EAPC (2024) CONDITIONS

#	Intersection	Traffic Control[1]	Delay[2] (secs.) AM	Delay[2] (secs.) PM	Level of Service AM	Level of Service PM
1	Cedar Av. & Merrill Av.	TS	31.5	28.5	C	C
2	Driveway 1 & Rialto Av.	**CSS**	12.7	10.3	B	B
3	Driveway 2 & Rialto Av.	**CSS**	0.0	0.0	A	A
4	Cactus Av. & Driveway 3	**CSS**	13.7	10.6	B	B
5	Cactus Av. & 1st St.	CSS	14.1	12.8	B	B
6	Cactus Av. & Driveway 4	**CSS**	13.9	10.7	B	B
7	Cactus Av. & Rialto Av.	TS	26.1	9.7	C	A
8	Cactus Av. & Merrill Av.	TS	17.6	14.2	B	B

[1] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

6.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for EAPC (2024) traffic conditions are based on the peak hour volumes or planning level ADT volume-based traffic signal warrants. No study area intersections are anticipated to meet either peak hour volume or ADT volume-based warrants for EAPC traffic conditions (see Appendix 6.2).

6.6 NEAR-TERM DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

The study area intersections are anticipated to operate at an acceptable LOS during the peak hours under EAPC (2024) traffic conditions. As such, no improvements have been recommended for EAPC traffic conditions.

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7 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Rialto are funded through a combination of project mitigation, development impact fee programs or fair share contributions, such as the City of Rialto Development Impact Fee (DIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

7.1 CITY OF RIALTO DEVELOPMENT IMPACT FEE PROGRAM

In 2006, the City of Rialto adopted their DIF program incorporating the regional component of Measure I. The fee schedule was updated in June 2021. Fees from new residential, commercial, and industrial development are collected to fund Measure I compliant regional facilities. Under the City's DIF program, the City may grant developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

After the City's DIF fees are collected, they are placed in a separate interest-bearing account pursuant to the requirements of Government Code sections 66000 et seq. The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of the improvements listed in its facilities list.

7.2 MEASURE "I" FUNDS

In 2004, the voters of San Bernardino County approved the 30-year extension of Measure "I", a one-half of one percent sales tax on retail transactions, through the year 2040, for transportation projects including, but not limited to, infrastructure improvements, commuter rail, public transit, and other identified improvements. The Measure "I" extension requires that a regional traffic impact fee be created to ensure development is paying its fair share. A regional Nexus study was prepared by the San Bernardino County Transportation Authority (SBCTA) and concluded that each jurisdiction should include a regional fee component in their local programs in order to meet the Measure "I" requirement. The regional component assigns specific facilities and cost sharing formulas to each jurisdiction and was most recently updated in November 2021. Revenues collected through these programs are used in tandem with Measure "I" funds to deliver projects identified in the Nexus Study. While Measure "I" is a self-executing sales tax administered by SBCTA, it bears discussion here because the funds raised through Measure "I" have funded in the past and will continue to fund new transportation facilities in San Bernardino County.

7.3 FAIR SHARE CONTRIBUTION

Project improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion). There are no recommended improvements at the study area intersections. As such, fair share calculations have not been calculated.

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8 VEHICLE MILES TRAVELED

The California Environmental Quality Act (CEQA) requires all lead agencies to adopt VMT as the measure for identifying transportation impacts for land use projects. To comply with CEQA, the City of Rialto adopted their Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS) (October 2021). (1) This VMT analysis has been developed based on the adopted City Guidelines.

8.1 VMT SCREENING EVALUATION

The City Guidelines provide details on appropriate screening criteria that can be used to identify when a proposed land use project is anticipated to result in a less-than-significant impact without conducting a more detailed analysis. It is our understanding the City of Rialto utilizes the San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool (Screening Tool). The Screening Tool allows users to select an assessor's parcel number (APN) to determine if a project's location meets one or more of the screening criteria for land use projects identified in the City Guidelines. The Screening criteria are broken into the following three types:

- Step 1: Transit Priority Area (TPA) Screening
- Step 2: Low VMT Area Screening
- Step 3: Project Type Screening

A land use project needs only to meet one of the above screening thresholds to result in a less than significant impact.

8.1.1 TPA SCREENING

Consistent with guidance identified in the City Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"[1] or an existing stop along a "high-quality transit corridor"[2]) may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

[1] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a 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 commute periods.").
[2] Pub. Resources Code, § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").

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The Project site is not located within ½ mile of an existing major transit stop, or along a high-quality transit corridor (see Appendix 8.1).

TPA screening criteria is not met.

8.1.2 LOW VMT AREA SCREENING

As noted in the City Guidelines, "Residential and office projects located within a low VMT generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment related uses and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker, or per service population that is similar to the existing land uses in the low VMT area." The Screening Tool uses the sub-regional San Bernardino Transportation Analysis Model (SBTAM) to measure VMT performance within individual traffic analysis zones (TAZ's) within the region. The Project's physical location based on parcel number is selected in the Screening Tool to determine the TAZ in which the Project will reside. The Project's TAZ VMT per service population was compared to the County of San Bernardino baseline average VMT per service population or 33.3. The parcel containing the proposed Project was selected and the Screening Tool was run for Origin-Destination (OD) VMT per service population. The Project TAZ 53748501 was found to have a VMT per service population of 21.9 and, therefore, the Project is located within a low VMT generating area (see Appendix 8.1).

Low VMT Area screening criteria is met.

8.1.3 PROJECT TYPE SCREENING CRITERIA

The City Guidelines states that projects generating less than 110 daily vehicle trips are presumed to have a less than significant impact on VMT. The Project is estimated to generate 274 trips per day (see Appendix 8.1) and would therefore exceed the City's 110 daily vehicle trip threshold.

Project Type Screening criteria is not met.

8.2 CONCLUSION

In summary, the Project was evaluated consistent with the available screening criteria and the Project was found to meet the Low VMT Area screening step. Therefore, the proposed Project is presumed to result in a less than significant impact for VMT; no further VMT analysis required.

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9 REFERENCES

1. **City of Rialto.** *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS),.* Rialto : s.n., October 2021.
2. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated June 2016.
3. **Institute of Transportation Engineers.** *Trip Generation Manual.* 11th Edition. 2021.
4. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
5. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (CA MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CA MUTCD).* 2014, Updated March 30, 2021 (Revision 6).

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APPENDIX 1.1: APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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Exhibit A

SCOPING AGREEMENT FOR TRAFFIC IMPACT ANALYSIS

This following form shall be used to acknowledge preliminary approval of the scope for the traffic impact analysis (TIA) of the following project. The TIA must follow the City of Rialto Traffic Impact Analysis – Report Guidelines and Requirements, adopted by the City Council on _____.

City of Rialto

Traffic Impact Analysis

Scoping Agreement

Case No. _____

Related Cases -

SP No. _____

EIR No. _____

GPA No. _____

ZC No. _____

Project Name: 160 N. Cactus Avenue

Project Address: 160 N. Cactus Avenue

Project Description: 159,700 square foot warehouse

	Consultant	Developer
Name:	Urban Crossroads - Charlene So	Lincoln Property Company
Address:	1133 Camelback St. #8329, Newport Beach, CA 92658	915 Wilshire Bl., Suite 2050, Los Angeles
Telephone:	949-861-0177	
Fax:	cso@urbanxroads.com	

1. Trip Generation Source: ITE 11th Ed Trip Gen Manual (2021) + Rialto Truck Mix

Existing GP Land Use Light Industrial Proposed Land Use Light Industrial

Current Zoning: Light Industrial (M-1) Proposed Zoning: Light Industrial (M-1)

Total Daily Project Trips: _____

	Current Trip Generation In PCE			Proposed Trip Generation In PCE		
	In	Out	Total	In	Out	Total
AM Trips	13	6	18	33	17	50
PM Trips	6	14	20	21	54	54

Internal Trip Allowance Yes X No (0 % Trip Discount)

Pass-By Trip Allowance Yes X No (0 % Trip Discount)

For appropriate land uses, a pass-by trip discount may be allowed not to exceed 25%. Discount trips shall be indicated on a report figure for intersections and access locations.

2. Trip Geographic Distribution: N % S % E % W %

(Detailed exhibits of trip distribution must be attached with Trucks as a separate exhibit) Varies

3. Background Growth Traffic

Project Completion Year: 2024 Annual Background Growth Rate: 2.0% per year%

Other Phase Years Not applicable

Other area projects to be considered: Updated projects to be provided by the City

(Contact Planning for Lists. Correlate projects to exhibit map and also indicate which projects have been included in study area forecasts for existing + background growth + project + cumulative)

Model/Forecast methodology: Not Applicable

4. Study Intersections: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies received.)

1. Cedar & Merrill
2. Driveway 1 & Rialto
3. Driveway 2 & Rialto
4. Cactus & Driveway 3
5. Cactus & 1st
6. Cactus & Driveway 4
7. Cactus & Rialto
8. Cactus & Merrill
9. _____
10. _____

5. Study Roadway Segments: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies received.)

1. Not Applicable
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

6. Other Jurisdictional Impacts

Is this project within any other Agency's Sphere of Influence or within one-mile of another jurisdictional boundary?

_____ YES
X NO

If so, name of Jurisdiction: _____

7. Site Plan (please attach 11" x 17" legible copy)

8. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (to be filled out by the City of Rialto Public Works Department) (NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing un-signalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

See attached scoping memo.

9. Existing Conditions

Traffic count data must be new or within one year. Provide traffic count dates if using other than new counts.

Date of counts: Traffic counts to be collected once the traffic study scope has been approved. Spring Break has already occurred.

NOTE Fees are due and must be submitted with, or prior to submittal of this form. The City will not process the Scoping Agreement prior to the receipt of the processing fee.

Fees Paid: _____ Date _____

Recommended:

Scoping Agreement Submittal date 1/12/2023

Scoping Agreement Resubmittal date 3/28/2023

Charlene So 3/28/2023

Applicant/Engineer Date

Land Use Concurrence:

Development Services Department Date

Approved by:

Justin N. Schlafli 4/25/23

Public Works Department Date

NOTE:

The Applicant/Engineer acknowledges that the Scoping Agreement is intended to assist in the preparation of any required TIA. It is preliminary in nature and the City does not have sufficient data to determine the ultimate conditions that may be imposed for the project. It does not provide nor limit the requirements imposed on the Project but is intended only to provide initial input into the parameters for review of the traffic generated by the Project and the initial areas to be considered and studied. Subsequent changes to scope of required analysis to be included in the TIA may be required by the Transportation Commission, Planning Commission, and/or the City Council upon Public Works Director/City Engineer review and approval.

MEMORANDUM

URBAN | CROSSROADS

DATE: March 28, 2023
TO: Daniel Rosas, City of Rialto
FROM: Charlene So, Urban Crossroads, Inc.
JOB NO: 15203-02 TA Scope

160 N. CACTUS AVENUE TRAFFIC SCOPING AGREEMENT

Urban Crossroads, Inc. is pleased to provide the following Traffic Scoping Agreement for the 160 N. Cactus Avenue development (**Project**), which is located on the northwest corner of North Cactus Avenue and W. Rialto Avenue in the City of Rialto. This letter describes the draft proposed project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed project study area and analysis locations for the focused traffic assessment. It should be noted that the focused traffic assessment will be prepared in accordance with the City's Draft Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS) (dated October 2021) (**City Guidelines**).

PROPOSED PROJECT

It is our understanding that the Project is to consist of a single 159,700 square foot (sf) warehouse building. A preliminary site plan is shown on Exhibit 1. There are two points of access proposed on W. Rialto Avenue and two additional points of access proposed along N. Cactus Avenue. The westerly driveway on Rialto Avenue will serve passenger cars (full access) and trucks (inbound only) while the easterly driveway on Rialto Avenue will serve inbound trucks only. The northerly driveway on Cactus Avenue will serve passenger cars only and will be restricted to right-in/right-out access only. The southerly driveway on Cactus Avenue will serve outbound trucks only.

EXHIBIT 1: PRELIMINARY SITE PLAN



TRIP GENERATION

EXISTING TRAFFIC

The site is currently occupied by existing uses that are currently active. In an effort to understand the existing traffic associated with the current uses, traffic counts were collected at the driveways on April 12 through 14, 2022 (Tuesday through Thursday). A summary of the count data collected is shown on Table A-1 of Attachment A. Table A-1 provides a detailed summary of the counts collected at all driveway locations, by day. See Attachment A for driveway count data worksheets.

Table 1 below summarizes the average existing trip generation based on the count data collected over three consecutive days. The existing use on the site currently generates an average of 181 two-way trips per day, with 17 trips during the AM peak hour and 19 trips during the PM peak hour. Trip generation for the existing use has been reflected in both actual vehicles and passenger car equivalent (PCE) on Table 1.

Passenger car equivalent (PCE) factors were applied to the trip generation rates for heavy trucks (large 2-axles, 3-axles, 4+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in the City's guidelines and with those used for other projects within the City. The existing use on the site currently generates an average of 213 two-way PCE trips per day, with 18 PCE AM peak hour trips and 20 PCE PM peak hour trips.

TABLE 1: EXISTING TRIP GENERATION

	AM Peak Hour			PM Peak Hour			
Land Use	In	Out	Total	In	Out	Total	Daily
Actual Vehicles:							
Existing Use							
Passenger Cars:	11	4	15	4	14	18	148
2-axle Trucks:	1	1	2	1	0	1	21
3-axle Trucks:	0	0	0	0	0	0	3
4+-axle Trucks:	0	0	0	0	0	0	9
Total Trucks:	1	1	2	1	0	1	33
Total Trips (Actual Vehicles)[1]	**12**	**5**	**17**	**5**	**14**	**19**	**181**
Passenger Car Equivalent (PCE):							
Existing Use							
Passenger Cars:	11	4	15	4	14	18	148
2-axle Trucks:	2	2	3	2	0	2	32
3-axle Trucks:	0	0	0	0	0	0	6
4+-axle Trucks:	0	0	0	0	0	0	27
Total Trucks (PCE):	2	2	3	2	0	2	65
Total Trips (PCE)[1]	**13**	**6**	**18**	**6**	**14**	**20**	**213**

[1] Total Trips = Passenger Cars + Truck Trips.

PROPOSED PROJECT

In order to develop the traffic characteristics of the proposed Project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition, 2021) for Warehousing (ITE Land Use Code 150) were used. The vehicle and truck mix were sourced from the City Guidelines. Table 2 presents the trip generation rates. Table 3 shows the resulting Project trip generation summary, which shows the Project is anticipated to generate a net total of 460 two-way PCE trips per day with 50 PCE AM peak hour trips and 54 PCE PM peak hour trips.

TABLE 2: TRIP GENERATION RATES

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles:									
Warehousing[3]	150	TSF	0.131	0.039	0.170	0.050	0.130	0.180	1.710
Passenger Cars (60.0%)			0.095	0.007	0.102	0.013	0.095	0.108	1.026
2-Axle Trucks (0.8%)			0.001	0.000	0.001	0.001	0.000	0.001	0.014
3-Axle Trucks (11.2%)			0.010	0.009	0.019	0.010	0.010	0.020	0.192
4+-Axle Trucks (28.0%)			0.025	0.023	0.048	0.026	0.024	0.050	0.479
Passenger Car Equivalent (PCE):									
Warehousing[3]	150	TSF	0.131	0.039	0.170	0.050	0.130	0.180	1.710
Passenger Cars (60.0%)			0.095	0.007	0.102	0.013	0.095	0.108	1.026
2-Axle Trucks (0.8%) (PCE = 1.5)[4]			0.002	0.001	0.003	0.002	0.001	0.003	0.021
3-Axle Trucks (11.2%) (PCE = 2.0)[4]			0.020	0.018	0.038	0.020	0.020	0.040	0.383
4+-Axle Trucks (28.0%) (PCE = 3.0)[4]			0.075	0.068	0.143	0.078	0.073	0.151	1.436

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

[2] TSF = thousand square feet

[3] Vehicle and Truck Mix Source: City of Rialto Traffic Impact Analysis Guidelines for VMT and LOS Assessment (October 2021).

[4] PCE rates are per City of Rialto's Traffic Study Guidelines.

TABLE 3: PROJECT TRIP GENERATION SUMMARY

Project Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles:									
Warehouse	159.700	TSF							
Passenger Cars:			16	2	18	3	16	19	164
2-axle Trucks:			1	1	2	1	1	2	4
3-axle Trucks:			2	2	4	2	2	4	32
4+-axle Trucks:			4	4	8	5	4	9	78
Total Trucks:			7	7	14	8	7	15	114
Total Net Trips (Actual Vehicles)			**23**	**9**	**32**	**11**	**23**	**34**	**278**
Passenger Car Equivalent (PCE):									
Warehouse	159.700	TSF							
Passenger Cars:			16	2	18	3	16	19	164
2-axle Trucks:			1	1	2	1	1	2	4
3-axle Trucks:			4	3	7	4	4	8	62
4+-axle Trucks:			12	11	23	13	12	25	230
Total Trucks (PCE):			17	15	32	18	17	35	296
Total Net Trips (PCE)			**33**	**17**	**50**	**21**	**33**	**54**	**460**

[1] TSF = thousand square feet

TRIP GENERATION COMPARISON

Table 4 shows the trip generation comparison between the existing uses and the proposed warehouse project. The resulting net new trips are identified on Table 4. As shown, the Project is anticipated to generate 247 net new PCE two-way trips per day with 32 net new PCE AM peak hour trips and 35 net new PCE PM peak hour trips.

TABLE 4: TRIP GENERATION COMPARISON

	AM Peak Hour			PM Peak Hour			
Land Use	In	Out	Total	In	Out	Total	Daily
Proposed Project							
Passenger Cars:	16	2	18	3	16	19	164
Total Truck Trips (PCE):	17	15	32	18	17	35	296
Proposed Project Total Trips (PCE)[1]	**33**	**17**	**50**	**21**	**33**	**54**	**460**
Existing Use							
Passenger Cars:	11	4	15	4	14	18	148
Total Truck Trips (PCE):	2	2	3	2	0	2	65
Existing Use Total Trips (PCE)[1]	**13**	**6**	**18**	**6**	**14**	**20**	**213**
Variance							
Passenger Cars:	5	-2	3	-1	2	1	16
Total Truck Trips (PCE):	16	14	29	17	17	34	231
Variance Total Trips (PCE)[1]	**21**	**12**	**32**	**16**	**19**	**35**	**247**

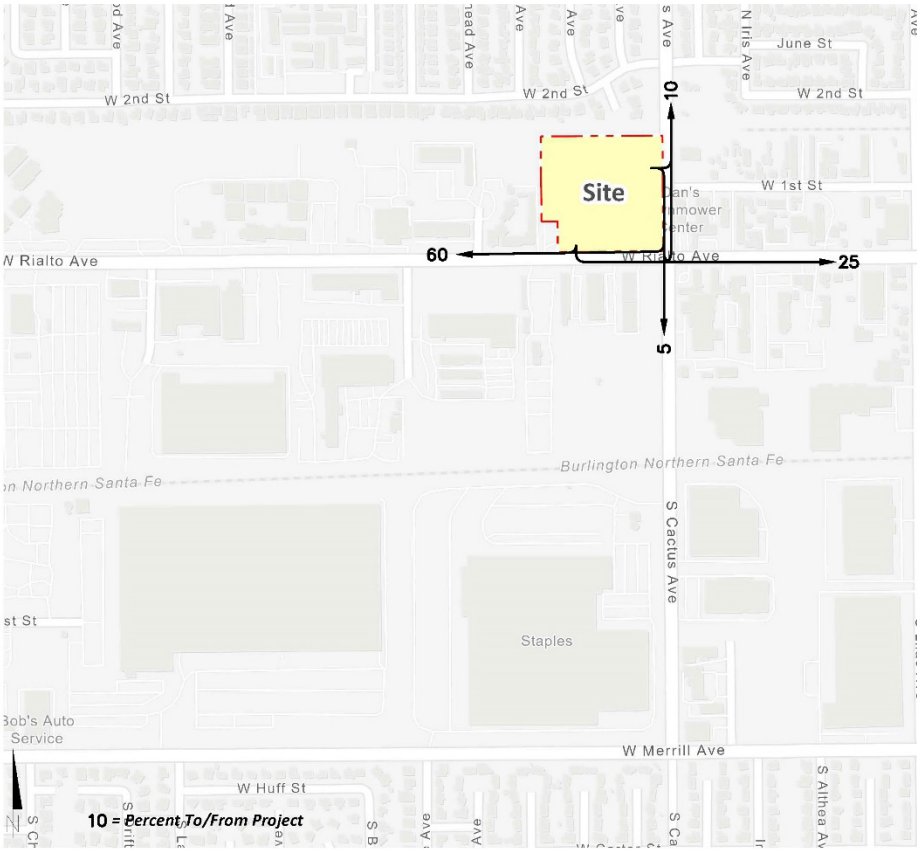
[1] Total Trips = Passenger Cars + Truck Trips.

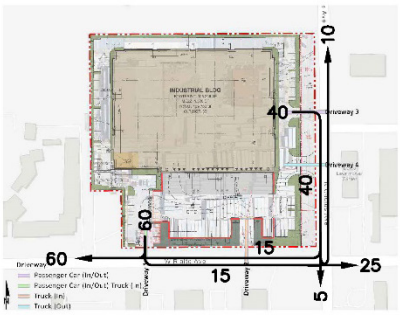
TRIP DISTRIBUTION

The trip distribution pattern is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. The Project trip distribution patterns are graphically depicted on Exhibit 2 for passenger cars and Exhibit 3 for trucks.

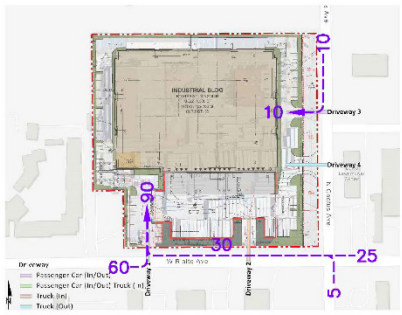
An Interim Urgency Ordinance (No. 1673) was adopted by the City on December 13, 2022, which establishes a moratorium to prohibit truck traffic on all other streets within the City of Rialto, which prohibits truck traffic on Rialto Avenue. Specifically, Project truck traffic will be restricted to utilizing Cactus Avenue to and from Merrill Avenue in order to access the truck route along Cedar Avenue.

EXHIBIT 2: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION





Outbound



Inbound

EXHIBIT 3: PROJECT (TRUCK) TRIP DISTRIBUTION



ANALYSIS SCENARIOS

Consistent with the City's Guidelines, intersection analysis will be provided for the following analysis scenarios:

- Existing (2023) Conditions
- Existing plus Ambient Growth (EA) (2024) Conditions
- Existing plus Ambient Growth plus Project (EAP) (2024) Conditions
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2024) Conditions

Since a focused traffic assessment is being prepared, no long-range (Horizon Year) analysis is proposed.

AMBIENT GROWTH

Pursuant to discussion with City staff and consistent with other studies performed in the area, an ambient growth rate of 2% per year is proposed for the study area intersection to approximate background growth not identified by nearby cumulative development projects.

STUDY AREA

The traffic impact study area was defined in conformance with the requirements of the City's traffic study guidelines, which state that the requirement to prepare a Traffic Study will be based upon, but not limited to, one or more of the following criteria:

- In general, the study area shall include any intersection of streets on which at least one street is classified as a Collector or above, where the proposed project, along with adjacent projects, opening in the same time frame, generate more than 50 peak hour trips (truck trips adjusted to PCE) up to 5 miles from the project site.
- The study area shall include any freeway interchanges within 2 miles that is designated to take more than 20% of total traffic from the project, irrespective of the total number of trips.
- Any additional intersections of concern which include, but are not limited to, project driveways, additional intersections located in the vicinity of schools, shopping areas, or other locations of high trip generation and roadway links that exceed V/C ratio as a result of project traffic, as determined by the City of Rialto.

Although the Project is anticipated to generate fewer than 50 net new PCE peak hour trips, the City has provided comments on the trip generation assessment previously prepared for the Project and have identified the study area to be evaluated as part of the focused traffic assessment. Exhibit 4 (and Table 5) identify the proposed study area intersections identified by City staff.

EXHIBIT 4: STUDY AREA

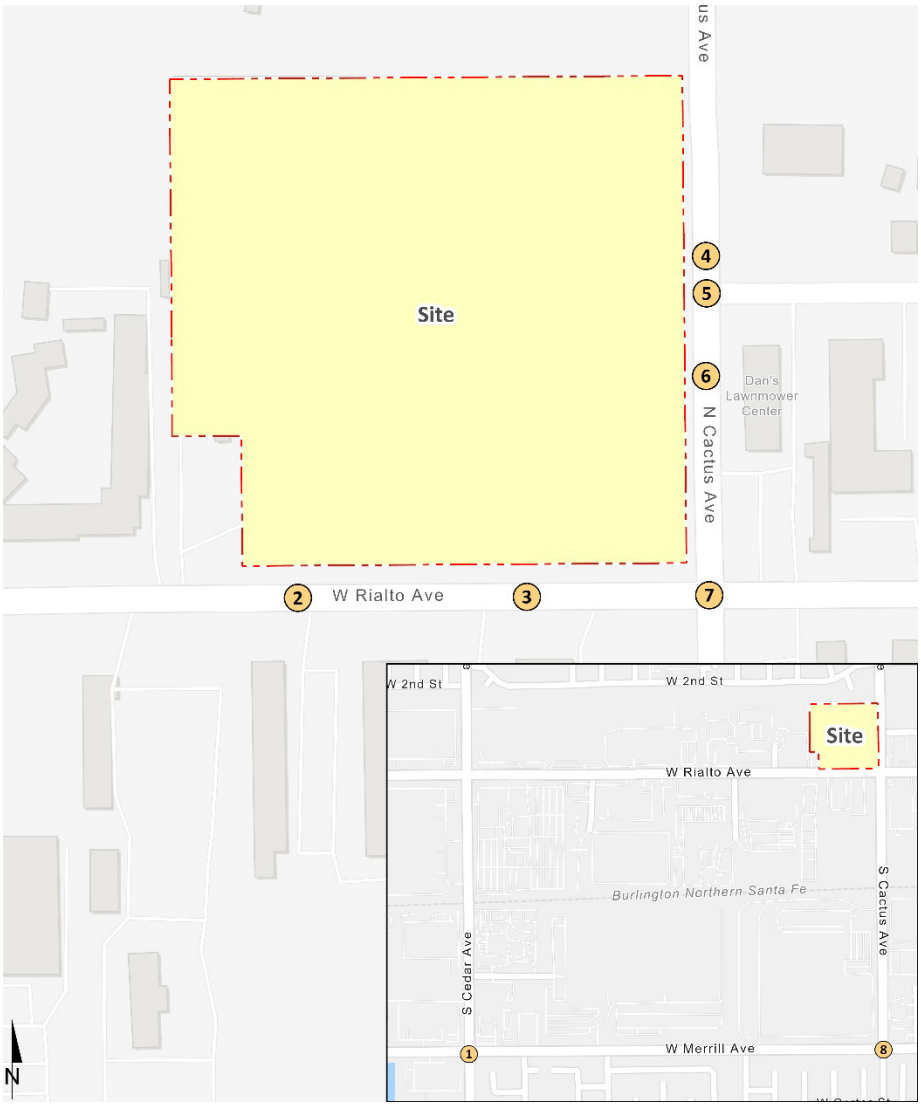


TABLE 5: LIST OF STUDY AREA INTERSECTIONS

#	Intersection
1	Cedar Av. & Merrill Av.
2	Driveway 1 & Rialto Av.
3	Driveway 2 & Rialto Av.
4	Cactus Av. & Driveway 3
5	Cactus Av. & 1st St.
6	Cactus Av. & Driveway 4
7	Cactus Av. & Rialto Av.
8	Cactus Av. & Merrill Av.

ANALYSIS METHODOLOGY

The City of Rialto requires signalized intersection operations analysis based on the methodology described in the Highway Capacity Manual (HCM) (6th Edition). Intersection level of service (LOS) operations are based on an intersection's average control delay. Unsignalized intersections will be evaluated using the methodology described in the HCM (6th Edition). At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole. The default parameters, including saturation flow rates, which will be utilized in the traffic analysis will be consistent with Exhibit C of the City of Rialto's Traffic Study guidelines.

LEVEL OF SERVICE (LOS) CRITERIA

The City of Rialto 2010 General Plan Update has established minimum LOS standards. The City of Rialto 2010 General Plan Update has established minimum LOS standards. Specifically, General Plan Policies 4-1.20 and 4-1.21 establish the minimum standards to be applied to any Traffic Study, as follows:

- Policy 4-1.20: Design City streets so that signalized intersections operate at Level of Service (LOS) D or better during the morning and evening peak hours and require new development to mitigate traffic impacts that degrade LOS below that level.
- Policy 4-1.21: Design City streets so that unsignalized intersections operate with no vehicular movement having an average delay greater than 120 seconds during the morning and evening peak hours and require new development to mitigate traffic impacts that increase delay above that level.

The City's Traffic Study Guidelines identifies LOS D as the minimum LOS for intersections and roadway segments, with the exception of Riverside Drive south of the Metrolink tracks to the City's southern border, which can operate at LOS E.

EXISTING COUNT DATA

New traffic count data for the study area intersections will be collected during typical weekday AM (7-9AM) and weekday PM (4-6PM) peak hour traffic conditions (Tuesday, Wednesday, or Thursday only). Counts will be conducted when local schools are in session and operating on normal bell schedules. No further adjustments are proposed to establish existing baseline traffic forecasts aside from volume balancing adjustments between closely spaced intersections. This count data will be used to establish Baseline (2023) traffic conditions.

FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in a local or regional fee program will be identified as such in a table. The table shall include direct and cumulative impacts. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share financial contribution based

on the Project's fair share impact will be calculated in order to mitigate the Project's share of impacts. The City will collect fir share component or condition Project to build improvement as deemed appropriate. The Project's fair share cost of improvements would be determined based on the following equation, which is the ratio of Project traffic to new traffic, where new traffic is total future traffic less existing baseline traffic:

Project Fair Share % = Project Traffic / (EAPC Total Traffic – Existing Traffic)

SPECIAL ISSUES

The following special issue will also be addressed as part of the Focused Traffic Assessment:

- *Traffic Signal Warrant Analysis*: Traffic signal warrant analysis will be performed for all full-access unsignalized study area intersections utilizing the Caltrans peak-hour warrants for existing intersections, and the Caltrans daily warrant for new intersections. Traffic signal warrants will be run for all unsignalized intersections operating at LOS D or worse.
- *Site Access Evaluation*: The turn pocket lengths will be determined through peak hour traffic simulations developed using Synchro and SimTraffic software in an effort to identify the required storage capacity for turn lanes at each Project driveway.
- *Fair Share Analysis*: Fair share table will be provided in the traffic study and will provide calculations at locations with direct and cumulative deficiencies.
- *Truck Access*: Utilize truck turn templates at the applicable driveways/turning maneuvers to verify adequate access for heavy trucks. These template exhibits will be incorporated into the traffic study.

CUMULATIVE DEVELOPMENT PROJECTS

A map of cumulative development projects can be found on Exhibit 5, with the list of projects on Table 6. Consistent with City guidance, the warehouse trip generation rate will be utilized for any high-cube warehouse/distribution center project within the City of Rialto as the City does not recognize the use of the high-cube warehouse/distribution center ITE trip generation rates/SCAQMD vehicle mix recommended for use by the SCAQMD. It is requested that the City provide any additional cumulative projects.

SIGNAL TIMING

It is requested that the City provide signal timing for any applicable signalized study area intersection.

If you have any questions or comments, I can be reached at cso@urbanxroads.com.

EXHIBIT 5: CUMULATIVE DEVELOPMENT LOCATION MAP

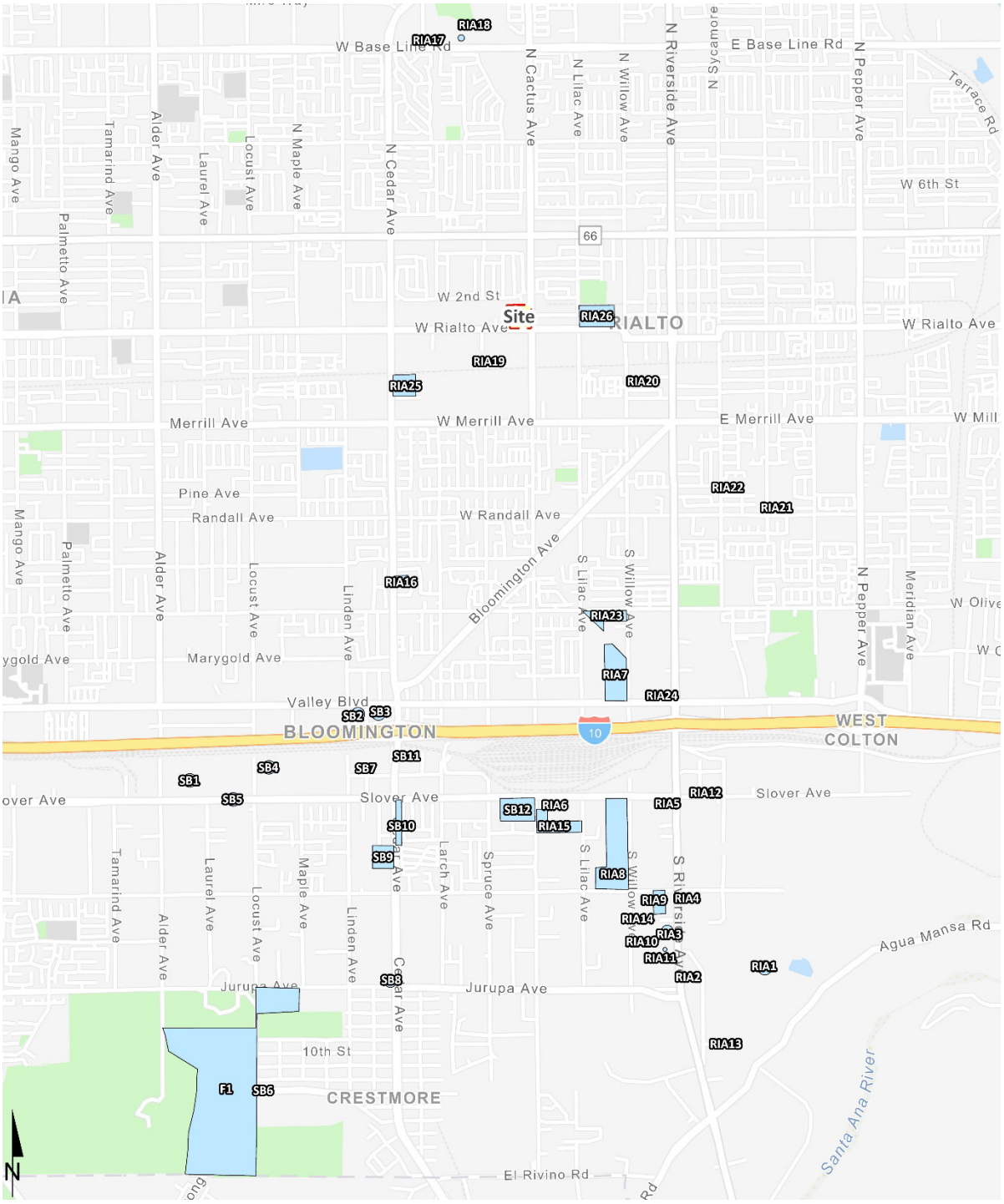


TABLE 6: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

ID	Project Name	Land Use	Quantity	Units[1]
City of Rialto:				
RIA1	South of Santa Ana Av., East of Riverside Av.	Warehouse	370.000	TSF
RIA2	SEC of Riverside Av. and Industrial Dr.	Trucking	3.580	AC
RIA3	NWC of Riverside Av. and Industrial Dr.	Truck Drop	3.360	AC
RIA4	SEC of Riverside Av. and Santa Ana Av.	Super Convenience Market/Gas Station	16	VFP
		Diesel Station	2	VFP
RIA5	SWC of Riverside Av. & Slover Av.	Fast Food w/ Drive-Thru	5.200	TSF
RIA6	Flyers Energy Addition	Warehouse	9.350	TSF
RIA7	Valley/Willow Warehouse	Warehousing	492.410	TSF
RIA8	Old Dominion Expansion	Parking Lot (407 spaces)	17.780	AC
RIA9	SC Fuels	Fuel Storage/Service	54.460	TSF
RIA10	Lynn Trucking	Truck Parking Yard	3.070	AC
		Car Wash/Repair	8.827	TSF
RIA11	Riverside Pallet Yard	Pallet Yard	3.580	AC
RIA12	Onyx Paving	Contractor's Yard	0.770	AC
RIA13	Angelus Black - Concrete Block	Manufacturing	178.475	TSF
RIA14	Bakery Addition	Bakery	14.000	TSF
RIA15	Lilac Avenue Warehouse	Truck Terminal	47.609	TSF
RIA16	Cedar Villas	Single Family Residential	22.000	DU
RIA17	Olive Avenue Development Project	Warehouse	679.607	TSF
RIA18	Fitzgerald Avenue Warehouse	Warehouse	45.659	TSF
RIA19	165 S. Spruce Avenue	Warehouse	86.050	TSF
RIA20	Tract 20199 – The Depot	Single Family Residential	56	DU
RIA21	Tract 20237 – Seasons at Acacia	Single Family Residential	52	DU
RIA22	Tract 20108 – Sycamore Glen	Single Family Residential	30	DU
RIA23	Willow Avenue Warehouse Project	Warehouse	128.819	TSF
RIA24	Rialto/Gateway Phase 2	3 drive-thrus, 1 car wash, retail	120	TSF
RIA25	Durst Warehouse	Warehouse	235.000	TSF
RIA26	Rialto & Lilac Center	Warehouse	300.304	TSF

ID	Project Name	Land Use	Quantity	Units[1]
County of San Bernardino:				
SB1	NWC of Slover Av. and Locust Av.	Fast Food Restaurant With Drive-Thru	3.265	TSF
		Retail Store	7.200	TSF
		Warehouse	20.750	TSF
SB2	SEC of Linden Av. and Valley Bl.	Fast Food Restaurant	1.500	TSF
SB3	Valley Bl., West of Linden Av.	Office Building	0.250	AC
SB4	Linden Av., north of Slover Av.	Tire Store	3.000	TSF
SB5	Slover Av. between Locust Av. and Laurel Av.	High-Cube Warehouse	344.000	TSF
SB6	Locust Av. and 7th St.	Single Family Residential	198	DU
SB7	NEC and NWC of Cedar Av. and Orange St.	Warehouse	395.000	TSF
SB8	NWC of Cedar Av. and Jurupa Av.	High-Cube Warehouse	677.000	TSF
SB9	Cedar Truck Yard	Truck Storage	8.940	AC
SB10	Cedar / Slover Retail	Super Convenience Market/Gas Station	12	VFP
		Automated Car Wash	1.000	Tunnel
		Fast Food Restaurant With Drive-Thru	9.907	TSF
SB11	Cedar Avenue Technology Center	Warehouse	184.770	TSF
SB12	Cactus and Slover Warehouse	Warehouse	257.855	TSF
City of Fontana:				
F1	West Valley Logistics Center	High-Cube Transload & Short-Term Storage	3183.100	TSF
		Warehouse	290.590	TSF

[1] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres; VFP = Vehicle Fueling Positions

ATTACHMENT A
DRIVEWAY COUNTS

TABLE A-1: SUMMARY OF DRIVEWAY COUNTS

	AM Peak Hour			PM Peak Hour			
Land Use	In	Out	Total	In	Out	Total	Daily
Day 1: April 12, 2022							
Passenger Cars:	15	8	23	5	16	21	158
2-axle Trucks:	0	0	0	0	0	0	13
3-axle Trucks:	0	0	0	0	0	0	4
4+-axle Trucks:	0	0	0	0	0	0	0
Total Truck Trips:	0	0	0	0	0	0	17
Total Trips[1]	15	8	23	5	16	21	175
Day 2: April 13, 2022							
Passenger Cars:	8	3	11	3	13	16	141
2-axle Trucks:	0	1	1	4	0	4	23
3-axle Trucks:	0	0	0	1	0	1	2
4+-axle Trucks:	0	0	0	0	0	0	0
Total Truck Trips:	0	1	1	5	0	5	25
Total Trips[1]	8	4	12	8	13	21	166
Day 3: April 14, 2022							
Passenger Cars:	11	2	13	4	14	18	145
2-axle Trucks:	3	1	4	0	0	0	28
3-axle Trucks:	0	0	0	0	0	0	4
4+-axle Trucks:	0	0	0	0	0	0	26
Total Truck Trips:	3	1	4	0	0	0	58
Total Trips[1]	14	3	17	4	14	18	203

* Note: data collected on April 12-14, 2022.

[1] Total Trips = Passenger Cars + Total Truck Trips.

City:	Rialto
Location:	TOTAL of all Driveways
Date:	4/12/2022
Count Type:	Classified Driveway Count

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	2	0	0	0	2
6:00	0	0	0	0	0
6:15	3	0	0	0	3
6:30	3	0	0	0	3
6:45	5	1	0	0	6
7:00	2	0	0	0	2
7:15	1	0	0	0	1
7:30	1	0	0	0	1
7:45	5	0	0	0	5
8:00	4	0	0	0	4
8:15	3	0	0	0	3
8:30	3	0	0	0	3
8:45	1	0	0	0	1
9:00	2	1	0	0	3
9:15	1	0	0	0	1
9:30	2	1	1	0	4
9:45	3	0	0	0	3
10:00	1	0	0	0	1
10:15	0	0	0	0	0
10:30	1	0	0	0	1
10:45	1	0	0	0	1
11:00	3	0	0	0	3
11:15	1	0	0	0	1
11:30	4	0	0	0	4
11:45	2	0	0	0	2

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	0	0	0	0	0
6:00	1	0	0	0	1
6:15	0	0	0	0	0
6:30	0	0	0	0	0
6:45	1	0	0	0	1
7:00	0	0	0	0	0
7:15	2	0	0	0	2
7:30	0	0	0	0	0
7:45	1	0	0	0	1
8:00	1	0	0	0	1
8:15	3	0	0	0	3
8:30	3	0	0	0	3
8:45	0	0	0	0	0
9:00	1	0	0	0	1
9:15	1	0	0	0	1
9:30	0	0	0	0	0
9:45	1	0	0	0	1
10:00	1	0	0	0	1
10:15	0	1	0	0	1
10:30	2	0	0	0	2
10:45	0	0	0	0	0
11:00	1	0	0	0	1
11:15	1	0	0	0	1
11:30	1	0	0	0	1
11:45	1	0	0	0	1

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City:	Rialto
Location:	TOTAL of all Driveways
Date:	4/12/2022
Count Type:	Classified Driveway Count

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	0	0	0	0	0
12:15	3	0	0	0	3
12:30	1	1	0	0	2
12:45	2	0	0	0	2
13:00	4	0	0	0	4
13:15	1	0	0	0	1
13:30	0	0	0	0	0
13:45	3	1	1	0	5
14:00	0	0	0	0	0
14:15	0	0	0	0	0
14:30	0	0	0	0	0
14:45	0	0	0	0	0
15:00	0	0	0	0	0
15:15	1	0	0	0	1
15:30	1	0	0	0	1
15:45	2	0	0	0	2
16:00	2	0	0	0	2
16:15	2	0	0	0	2
16:30	0	0	0	0	0
16:45	1	0	0	0	1
17:00	0	0	0	0	0
17:15	1	0	0	0	1
17:30	1	0	0	0	1
17:45	0	0	0	0	0
18:00	0	0	0	0	0
18:15	0	0	0	0	0
18:30	0	0	0	0	0
18:45	0	0	0	0	0
19:00	0	0	0	0	0
19:15	0	0	0	0	0
19:30	0	0	0	0	0
19:45	0	0	0	0	0
20:00	0	0	0	0	0
20:15	0	0	0	0	0
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	0	0	0	0	0
23:45	0	0	0	0	0
TOTAL	**79**	**5**	**2**	**0**	**86**

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	0	1	0	0	1
12:15	2	1	0	0	3
12:30	2	2	0	0	4
12:45	0	1	0	0	1
13:00	1	0	0	0	1
13:15	0	0	0	0	0
13:30	1	0	0	0	1
13:45	1	1	1	0	3
14:00	3	0	0	0	3
14:15	0	0	0	0	0
14:30	4	0	1	0	5
14:45	1	1	0	0	2
15:00	1	0	0	0	1
15:15	3	0	0	0	3
15:30	6	0	0	0	6
15:45	3	0	0	0	3
16:00	2	0	0	0	2
16:15	5	0	0	0	5
16:30	7	0	0	0	7
16:45	2	0	0	0	2
17:00	0	0	0	0	0
17:15	1	0	0	0	1
17:30	3	0	0	0	3
17:45	2	0	0	0	2
18:00	2	0	0	0	2
18:15	1	0	0	0	1
18:30	0	0	0	0	0
18:45	1	0	0	0	1
19:00	1	0	0	0	1
19:15	0	0	0	0	0
19:30	0	0	0	0	0
19:45	0	0	0	0	0
20:00	0	0	0	0	0
20:15	0	0	0	0	0
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	2	0	0	0	2
23:45	0	0	0	0	0
	79	**8**	**2**	**0**	**89**

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City:	Rialto
Location:	TOTAL of all Driveways
Date:	4/13/2022
Count Type:	Classified Driveway Count

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	1	0	0	0	1
6:00	0	0	0	0	0
6:15	4	0	0	0	4
6:30	4	0	0	0	4
6:45	5	0	0	0	5
7:00	1	0	0	0	1
7:15	4	0	0	0	4
7:30	0	0	0	0	0
7:45	3	0	0	0	3
8:00	1	0	0	0	1
8:15	2	0	0	0	2
8:30	3	0	0	0	3
8:45	2	0	0	0	2
9:00	1	0	0	0	1
9:15	2	0	0	0	2
9:30	2	0	0	0	2
9:45	0	1	0	0	1
10:00	1	0	0	0	1
10:15	2	0	0	0	2
10:30	0	1	0	0	1
10:45	0	2	0	0	2
11:00	0	0	0	0	0
11:15	0	1	0	0	1
11:30	1	1	0	0	2
11:45	2	1	0	0	3

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	0	0	0	0	0
6:00	0	0	0	0	0
6:15	0	0	0	0	0
6:30	0	0	0	0	0
6:45	1	0	0	0	1
7:00	0	0	0	0	0
7:15	1	0	0	0	1
7:30	1	0	0	0	1
7:45	1	0	0	0	1
8:00	1	0	0	0	1
8:15	0	1	0	0	1
8:30	0	0	0	0	0
8:45	2	0	0	0	2
9:00	1	0	0	0	1
9:15	1	0	0	0	1
9:30	0	0	0	0	0
9:45	0	0	0	0	0
10:00	1	0	0	0	1
10:15	2	0	0	0	2
10:30	0	0	0	0	0
10:45	2	0	0	0	2
11:00	1	0	0	0	1
11:15	2	1	0	0	3
11:30	1	0	0	0	1
11:45	0	2	0	0	2

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City:	Rialto
Location:	TOTAL of all Driveways
Date:	4/13/2022
Count Type:	Classified Driveway Count

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	2	1	0	0	3
12:15	2	0	0	0	2
12:30	0	0	0	0	0
12:45	2	0	0	0	2
13:00	3	1	0	0	4
13:15	3	0	0	0	3
13:30	0	0	0	0	0
13:45	0	0	0	0	0
14:00	0	0	0	0	0
14:15	3	0	0	0	3
14:30	1	0	0	0	1
14:45	2	0	0	0	2
15:00	0	0	0	0	0
15:15	1	0	0	0	1
15:30	2	0	0	0	2
15:45	1	0	0	0	1
16:00	0	0	0	0	0
16:15	0	0	0	0	0
16:30	1	2	1	0	4
16:45	0	0	0	0	0
17:00	0	0	0	0	0
17:15	2	2	0	0	4
17:30	0	0	0	0	0
17:45	1	0	0	0	1
18:00	1	0	0	0	1
18:15	0	0	0	0	0
18:30	0	0	0	0	0
18:45	0	0	0	0	0
19:00	0	0	0	0	0
19:15	0	0	0	0	0
19:30	0	0	0	0	0
19:45	0	0	0	0	0
20:00	0	0	0	0	0
20:15	0	0	0	0	0
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	0	0	0	0	0
23:45	0	0	0	0	0
TOTAL	**68**	**13**	**1**	**0**	**82**

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	1	1	0	0	2
12:15	3	0	0	0	3
12:30	2	0	0	0	2
12:45	3	0	0	0	3
13:00	2	1	0	0	3
13:15	1	0	0	0	1
13:30	0	0	0	0	0
13:45	0	0	0	0	0
14:00	2	0	0	0	2
14:15	2	0	0	0	2
14:30	3	0	0	0	3
14:45	1	0	0	0	1
15:00	0	0	0	0	0
15:15	2	0	0	0	2
15:30	10	0	0	0	10
15:45	3	0	0	0	3
16:00	3	0	0	0	3
16:15	2	0	0	0	2
16:30	7	0	0	0	7
16:45	1	0	0	0	1
17:00	4	0	0	0	4
17:15	1	0	0	0	1
17:30	1	1	1	0	3
17:45	0	0	0	0	0
18:00	1	0	0	0	1
18:15	0	3	0	0	3
18:30	0	0	0	0	0
18:45	0	0	0	0	0
19:00	0	0	0	0	0
19:15	0	0	0	0	0
19:30	0	0	0	0	0
19:45	0	0	0	0	0
20:00	0	0	0	0	0
20:15	0	0	0	0	0
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	0	0	0	0	0
23:45	0	0	0	0	0
	73	**10**	**1**	**0**	**84**

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City:	Rialto
Location:	TOTAL of all Driveways
Date:	4/14/2022
Count Type:	Classified Driveway Count

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	2	0	0	0	2
6:00	1	0	0	0	1
6:15	5	0	0	0	5
6:30	2	0	0	0	2
6:45	10	0	0	0	10
7:00	1	0	0	0	1
7:15	0	0	0	0	0
7:30	3	1	0	0	4
7:45	7	2	0	0	9
8:00	2	0	0	0	2
8:15	0	1	0	0	1
8:30	1	0	0	0	1
8:45	2	0	0	0	2
9:00	1	1	0	0	2
9:15	0	0	0	0	0
9:30	0	2	0	0	2
9:45	2	0	0	0	2
10:00	0	0	0	0	0
10:15	2	0	0	0	2
10:30	2	0	0	0	2
10:45	1	0	0	0	1
11:00	0	0	1	0	1
11:15	1	0	0	0	1
11:30	0	0	0	0	0
11:45	3	0	0	0	3

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
0:00	0	0	0	0	0
0:15	0	0	0	0	0
0:30	0	0	0	0	0
0:45	0	0	0	0	0
1:00	0	0	0	0	0
1:15	0	0	0	0	0
1:30	0	0	0	0	0
1:45	0	0	0	0	0
2:00	0	0	0	0	0
2:15	0	0	0	0	0
2:30	0	0	0	0	0
2:45	0	0	0	0	0
3:00	0	0	0	0	0
3:15	0	0	0	0	0
3:30	0	0	0	0	0
3:45	0	0	0	0	0
4:00	0	0	0	0	0
4:15	0	0	0	0	0
4:30	0	0	0	0	0
4:45	0	0	0	0	0
5:00	0	0	0	0	0
5:15	0	0	0	0	0
5:30	0	0	0	0	0
5:45	0	0	0	0	0
6:00	1	0	0	0	1
6:15	0	0	0	0	0
6:30	0	0	0	0	0
6:45	0	0	0	0	0
7:00	2	0	0	0	2
7:15	0	1	0	0	1
7:30	0	0	0	0	0
7:45	0	0	0	0	0
8:00	0	0	0	0	0
8:15	0	0	0	0	0
8:30	1	1	0	0	2
8:45	1	0	0	0	1
9:00	0	0	0	0	0
9:15	0	3	0	0	3
9:30	0	0	0	0	0
9:45	1	1	0	0	2
10:00	2	0	0	0	2
10:15	0	0	0	0	0
10:30	0	1	0	0	1
10:45	0	0	0	0	0
11:00	1	0	0	0	1
11:15	0	0	0	0	0
11:30	0	0	1	0	1
11:45	5	0	0	0	5

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

City:	Rialto
Location:	TOTAL of all Driveways
Date:	4/14/2022
Count Type:	Classified Driveway Count

	Entering				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	0	0	0	0	0
12:15	0	0	0	0	0
12:30	2	2	0	0	4
12:45	3	1	0	0	4
13:00	4	0	0	0	4
13:15	1	0	0	0	1
13:30	1	1	0	0	2
13:45	1	1	1	0	3
14:00	1	0	0	0	1
14:15	1	0	0	0	1
14:30	1	0	0	0	1
14:45	1	1	0	0	2
15:00	0	0	0	0	0
15:15	0	0	0	0	0
15:30	0	0	0	0	0
15:45	0	0	0	0	0
16:00	1	0	0	0	1
16:15	1	0	0	0	1
16:30	2	0	0	0	2
16:45	0	0	0	0	0
17:00	0	0	0	0	0
17:15	1	0	0	0	1
17:30	3	0	0	0	3
17:45	0	0	0	0	0
18:00	2	0	0	0	2
18:15	1	0	0	0	1
18:30	0	0	0	0	0
18:45	0	0	0	0	0
19:00	0	0	0	0	0
19:15	0	0	0	0	0
19:30	0	0	0	0	0
19:45	0	0	0	0	0
20:00	0	0	0	0	0
20:15	0	0	0	0	0
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	0	0	0	0	0
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	0	0	0	0	0
23:45	0	0	0	0	0
TOTAL	**75**	**13**	**2**	**0**	**90**

	Exiting				
	Pass Veh	Large 2 Axle	3 Axle	4+ Axle	Total
12:00	1	0	0	0	1
12:15	7	3	0	0	10
12:30	2	0	0	0	2
12:45	1	3	0	0	4
13:00	1	0	0	0	1
13:15	1	0	0	0	1
13:30	1	0	0	0	1
13:45	0	1	0	0	1
14:00	1	0	1	0	2
14:15	1	1	0	0	2
14:30	0	0	0	0	0
14:45	0	0	0	0	0
15:00	0	0	0	0	0
15:15	1	0	0	0	1
15:30	9	0	0	0	9
15:45	4	0	0	0	4
16:00	1	0	0	0	1
16:15	2	0	0	0	2
16:30	6	0	0	0	6
16:45	5	0	0	0	5
17:00	0	0	0	0	0
17:15	1	0	0	0	1
17:30	5	0	0	0	5
17:45	0	0	0	0	0
18:00	0	0	0	0	0
18:15	0	0	0	0	0
18:30	0	0	0	0	0
18:45	0	0	0	0	0
19:00	0	0	0	0	0
19:15	1	0	0	0	1
19:30	2	0	0	0	2
19:45	0	0	0	0	0
20:00	2	0	0	0	2
20:15	0	0	0	0	0
20:30	0	0	0	0	0
20:45	0	0	0	0	0
21:00	0	0	0	0	0
21:15	0	0	0	0	0
21:30	0	0	0	0	0
21:45	0	0	0	0	0
22:00	0	0	0	0	0
22:15	0	0	0	0	0
22:30	1	0	0	0	1
22:45	0	0	0	0	0
23:00	0	0	0	0	0
23:15	0	0	0	0	0
23:30	0	0	0	0	0
23:45	0	0	0	0	0
	70	**15**	**2**	**0**	**87**

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
(951) 268-6268

APPENDIX 1.2: SITE ADJACENT QUEUES

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Intersection: 2: Rialto Av. & Driveway 1

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	29	30
Average Queue (ft)	5	1
95th Queue (ft)	22	10
Link Distance (ft)		196
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Rialto Av. & Driveway 2

Movement	EB	EB	WB
Directions Served	T	T	TR
Maximum Queue (ft)	7	7	7
Average Queue (ft)	0	0	0
95th Queue (ft)	5	4	5
Link Distance (ft)	218	218	166
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Cactus Av. & Driveway 3

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	21	31	40
Average Queue (ft)	1	5	2
95th Queue (ft)	8	22	20
Link Distance (ft)	74	600	600
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Cactus Av. & Driveway 4

Movement	EB	SB	SB
Directions Served	R	T	TR
Maximum Queue (ft)	53	15	40
Average Queue (ft)	15	1	6
95th Queue (ft)	42	7	32
Link Distance (ft)	65	52	52
Upstream Blk Time (%)	0		1
Queuing Penalty (veh)	0		3
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 3

Intersection: 2: Rialto Av. & Driveway 1

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	14	30
Average Queue (ft)	1	6
95th Queue (ft)	9	25
Link Distance (ft)		196
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Rialto Av. & Driveway 2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 4: Cactus Av. & Driveway 3

Movement	EB	SB
Directions Served	R	T
Maximum Queue (ft)	30	23
Average Queue (ft)	6	1
95th Queue (ft)	26	10
Link Distance (ft)	74	600
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Cactus Av. & Driveway 4

Movement	EB
Directions Served	R
Maximum Queue (ft)	36
Average Queue (ft)	13
95th Queue (ft)	39
Link Distance (ft)	65
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

APPENDIX 3.1: EXISTING TRAFFIC COUNTS

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Volume Development - AM Peak Hour

1. Cedar Av. & Merrill Av.

PHF: 0.958 7:15 AM Count Date: 4/26/2023

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**63**	**640**	**56**	**154**	**904**	**104**	**150**	**274**	**77**	**87**	**334**	**211**	**3,050**
EA 2024:	64	653	57	157	922	106	152	279	78	88	341	215	3,110
EAP 2024:	64	659	70	161	923	106	152	279	78	99	341	219	3,149
EAPC 2024:	90	842	116	168	1,060	106	154	279	112	152	341	227	3,646

2. Driveway 1 & Rialto Av.

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**520**	**0**	**0**	**1020**	**0**	**1,540**
EA 2024:	0	0	0	0	0	0	0	530	0	0	1,040	0	1,571
EAP 2024:	0	0	0	0	0	1	10	530	0	0	1,040	13	1,595
EAPC 2024:	0	0	0	0	0	1	10	567	0	0	1,044	13	1,636

3. Driveway 2 & Rialto Av.

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**520**	**0**	**0**	**1020**	**0**	**1,540**
EA 2024:	0	0	0	0	0	0	0	530	0	0	1,040	0	1,571
EAP 2024:	0	0	0	0	0	0	0	530	0	0	1,054	8	1,593
EAPC 2024:	0	0	0	0	0	0	0	567	0	0	1,058	8	1,634

4. Cactus Av. & Driveway 3

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**0**	**572**	**0**	**0**	**1175**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,747**
EA 2024:	0	583	0	0	1,199	0	0	0	0	0	0	0	1,781
EAP 2024:	0	583	0	0	1,199	2	0	0	1	0	0	0	1,784
EAPC 2024:	0	583	0	0	1,199	2	0	0	1	0	0	0	1,784

5. Cactus Av. & 1st St.

PHF: 0.812 7:15 AM Count Date: 4/26/2023

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**0**	**564**	**13**	**29**	**1146**	**0**	**0**	**0**	**0**	**7**	**0**	**8**	**1,766**
EA 2024:	0	575	13	30	1,169	0	0	0	0	7	0	8	1,801
EAP 2024:	0	575	13	30	1,170	0	0	0	0	7	0	8	1,802
EAPC 2024:	0	575	13	30	1,170	0	0	0	0	7	0	8	1,802

6. Cactus Av. & Driveway 4

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**0**	**577**	**0**	**0**	**1153**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,729**
EA 2024:	0	588	0	0	1,176	0	0	0	0	0	0	0	1,764
EAP 2024:	0	588	0	0	1,177	0	0	0	15	0	0	0	1,780
EAPC 2024:	0	588	0	0	1,177	0	0	0	15	0	0	0	1,780

7. Cactus Av. & Rialto Av.

PHF: 0.726 7:15 AM Count Date: 4/26/2023

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**83**	**442**	**32**	**90**	**669**	**394**	**79**	**326**	**116**	**33**	**544**	**57**	**2,862**
EA 2024:	85	450	33	92	682	401	80	332	118	34	554	58	2,919
EAP 2024:	103	450	33	92	697	401	80	332	118	34	558	58	2,956
EAPC 2024:	103	450	62	92	697	401	80	369	118	58	562	58	3,050

8. Cactus Av. & Merrill Av.

PHF: 0.825 7:15 AM Count Date: 4/26/2023

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**72**	**405**	**59**	**70**	**624**	**137**	**122**	**310**	**55**	**56**	**280**	**60**	**2,245**
EA 2024:	73	413	60	71	636	139	124	316	56	57	285	61	2,290
EAP 2024:	73	414	60	71	636	154	141	316	56	57	285	61	2,323
EAPC 2024:	73	415	60	71	636	178	169	341	56	57	321	61	2,438

Volume Development - PM Peak Hour

1. Cedar Av. & Merrill Av.

PHF: 0.940 5:00 PM Count Date: 4/26/2023

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**52**	**671**	**60**	**115**	**693**	**91**	**157**	**287**	**61**	**70**	**272**	**166**	**2,693**
EA 2024:	53	684	61	117	706	93	160	293	62	71	277	169	2,747
EAP 2024:	53	685	75	122	712	93	160	293	62	84	277	173	2,790
EAPC 2024:	89	838	136	132	908	95	161	293	92	137	277	182	3,339

2. Driveway 1 & Rialto Av.

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**487**	**0**	**0**	**393**	**0**	**880**
EA 2024:	0	0	0	0	0	0	0	496	0	0	401	0	897
EAP 2024:	0	0	0	2	0	7	2	496	0	0	403	10	920
EAPC 2024:	0	0	0	2	0	7	2	507	0	0	441	10	969

3. Driveway 2 & Rialto Av.

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**487**	**0**	**0**	**393**	**0**	**880**
EA 2024:	0	0	0	0	0	0	0	496	0	0	401	0	897
EAP 2024:	0	0	0	0	0	0	0	498	0	0	413	9	920
EAPC 2024:	0	0	0	0	0	0	0	509	0	0	451	9	969

4. Cactus Av. & Driveway 3

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**0**	**738**	**0**	**0**	**639**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,377**
EA 2024:	0	753	0	0	652	0	0	0	0	0	0	0	1,405
EAP 2024:	0	755	0	0	652	0	0	0	6	0	0	0	1,413
EAPC 2024:	0	755	0	0	652	0	0	0	6	0	0	0	1,413

5. Cactus Av. & 1st St.

PHF: 0.940 4:30 PM Count Date: 4/26/2023

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**0**	**727**	**12**	**16**	**623**	**0**	**0**	**0**	**0**	**7**	**0**	**11**	**1,396**
EA 2024:	0	742	12	16	635	0	0	0	0	7	0	11	1,423
EAP 2024:	0	744	12	16	641	0	0	0	0	7	0	11	1,431
EAPC 2024:	0	744	12	16	641	0	0	0	0	7	0	11	1,431

6. Cactus Av. & Driveway 4

PHF: 0.920 Count Date:

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**0**	**739**	**0**	**0**	**630**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,369**
EA 2024:	0	753	0	0	643	0	0	0	0	0	0	0	1,396
EAP 2024:	0	755	0	0	649	0	0	0	17	0	0	0	1,421
EAPC 2024:	0	755	0	0	649	0	0	0	17	0	0	0	1,421

7. Cactus Av. & Rialto Av.

PHF: 0.927 5:00 PM Count Date: 4/26/2023

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**70**	**567**	**29**	**51**	**497**	**82**	**90**	**305**	**92**	**24**	**241**	**82**	**2,129**
EA 2024:	71	578	30	52	507	84	92	311	93	24	246	83	2,172
EAP 2024:	89	578	30	55	525	86	94	312	93	24	247	83	2,217
EAPC 2024:	89	578	62	55	525	86	94	323	93	55	285	83	2,329

8. Cactus Av. & Merrill Av.

PHF: 0.953 5:00 PM Count Date: 4/26/2023

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	TOTAL
2023 PCE:	**54**	**502**	**20**	**45**	**480**	**88**	**121**	**295**	**47**	**33**	**309**	**49**	**2,042**
EA 2024:	55	512	20	46	490	89	123	300	48	33	315	50	2,082
EAP 2024:	55	512	20	46	491	106	141	300	48	33	315	50	2,118
EAPC 2024:	55	512	20	46	492	136	173	339	48	33	346	50	2,251

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
Wed, Apr 26, 23	NORTH & SOUTH:	Cedar	LOCATION #:	1
	EAST & WEST:	Merrill	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

		NORTHBOUND (Cedar)			SOUTHBOUND (Cedar)			EASTBOUND (Merrill)			WESTBOUND (Merrill)			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	3	103	7	9	164	21	22	36	30	15	49	19	478
	7:15 AM	16	114	4	20	190	20	27	59	19	13	82	42	606
	7:30 AM	9	133	10	36	184	32	38	85	14	10	84	55	690
	7:45 AM	15	129	13	47	171	23	36	63	24	23	87	59	690
	8:00 AM	21	118	12	43	219	24	35	53	15	19	57	41	657
	8:15 AM	14	108	7	27	135	12	24	57	11	6	65	27	493
	8:30 AM	7	102	7	25	144	22	23	57	18	15	77	22	519
	8:45 AM	9	97	7	27	104	19	25	44	5	10	43	27	417
	VOLUMES	94	904	67	234	1,311	173	230	454	136	111	544	292	4,550
	APPROACH %	9%	85%	6%	14%	76%	10%	28%	55%	17%	12%	57%	31%	
	APP/DEPART	1,065	/	1,429	1,718	/	1,558	820	/	752	947	/	811	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	61	494	39	146	764	99	136	260	72	65	310	197	2,643
	APPROACH %	10%	83%	7%	14%	76%	10%	29%	56%	15%	11%	54%	34%	
	PEAK HR FACTOR		0.946			0.882			0.854			0.846		0.958
	APP/DEPART	594	/	829	1,009	/	901	468	/	443	572	/	470	0
PM	4:00 PM	14	117	9	19	143	11	34	56	16	3	53	25	500
	4:15 PM	15	126	9	34	145	33	27	62	11	23	83	38	606
	4:30 PM	11	141	9	39	196	26	19	42	12	16	68	38	617
	4:45 PM	9	137	8	40	161	25	31	40	19	15	56	22	563
	5:00 PM	13	167	9	28	145	23	30	36	7	19	62	33	572
	5:15 PM	11	160	12	35	155	33	34	51	10	19	70	35	625
	5:30 PM	10	146	9	18	155	20	45	107	19	10	62	45	646
	5:45 PM	15	126	8	29	134	15	30	78	23	15	70	42	585
	VOLUMES	98	1,120	73	242	1,234	186	250	472	117	120	524	278	4,714
	APPROACH %	8%	87%	6%	15%	74%	11%	30%	56%	14%	13%	57%	30%	
	APP/DEPART	1,291	/	1,649	1,662	/	1,471	839	/	786	922	/	808	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	49	599	38	110	589	91	139	272	59	63	264	155	2,428
	APPROACH %	7%	87%	6%	14%	75%	12%	30%	58%	13%	13%	55%	32%	
	PEAK HR FACTOR		0.907			0.886			0.687			0.949		0.940
	APP/DEPART	686	/	894	790	/	711	470	/	419	482	/	404	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	3	0	0	3
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	1	0	0	1

RTOR

NRR	SRR	ERR	WRR
0	0	8	4
1	4	3	12
0	3	3	12
1	4	0	9
1	0	4	6
0	1	4	4
3	0	5	1
2	3	1	7
8	15	28	55
3	11	10	39
1	0	4	8
4	4	1	7
1	0	1	6
1	4	4	2
1	2	4	6
0	2	2	6
0	0	3	11
2	3	4	6
10	15	23	52
3	7	13	29

Cedar

NORTH SIDE

Merrill — WEST SIDE — EAST SIDE — Merrill

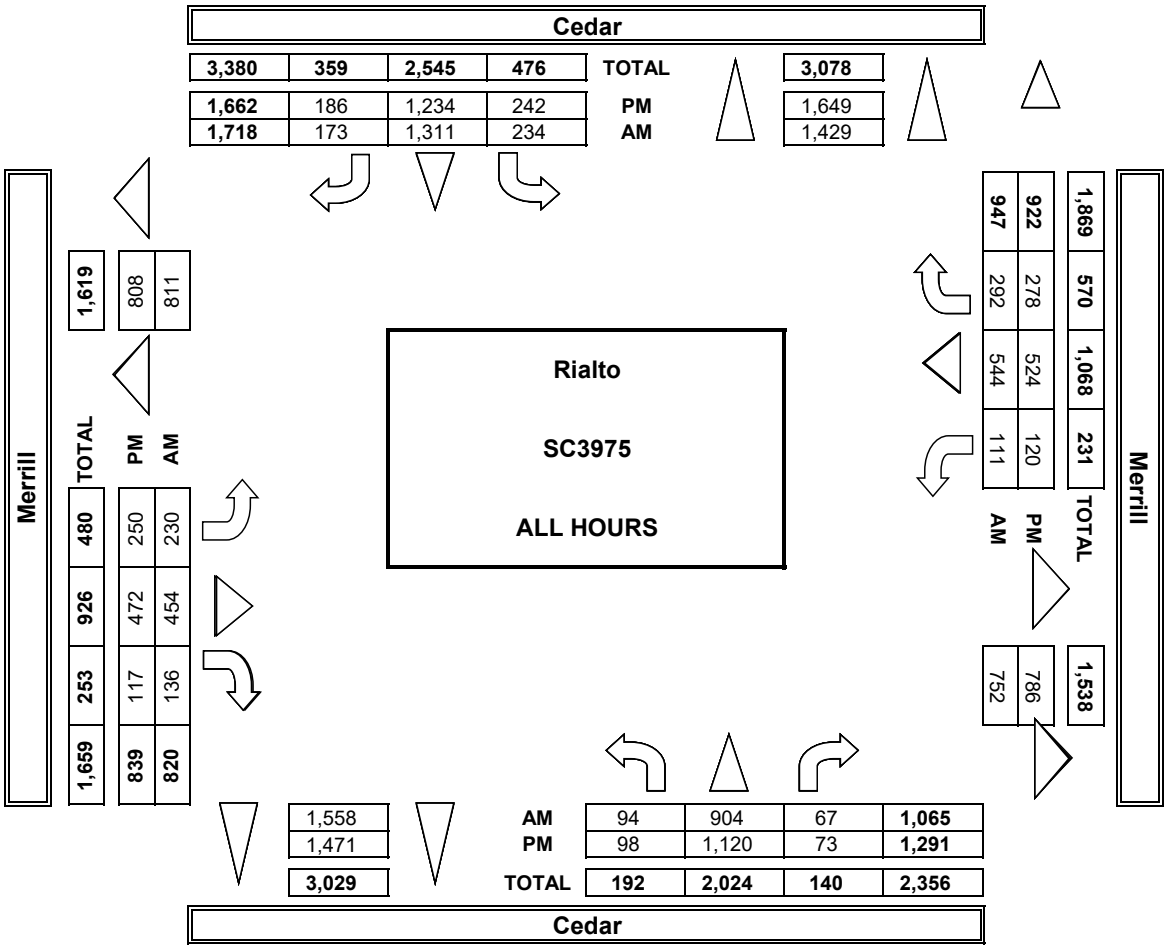
SOUTH SIDE

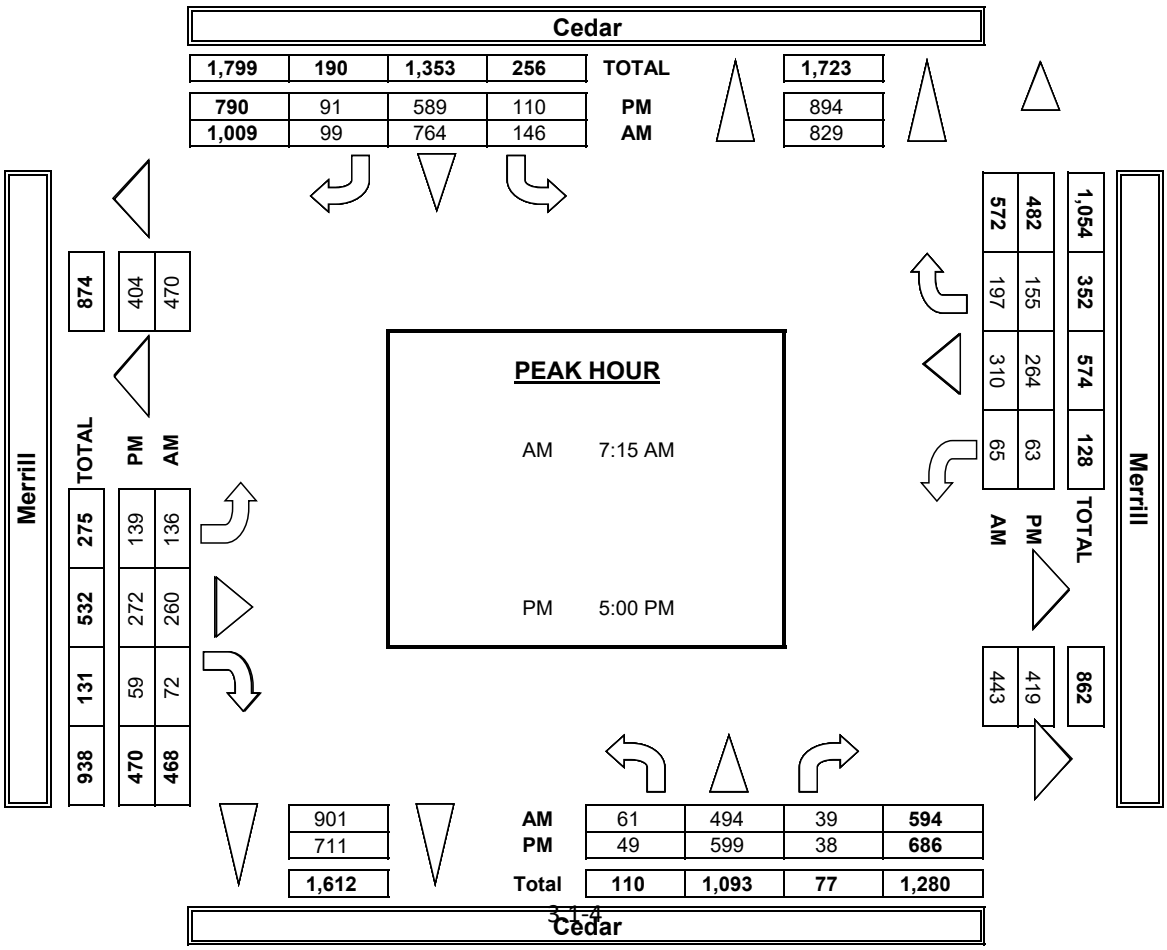
Cedar

	ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
	7:30 AM	1	0	2	0	3	1	0	2	0	3	0	0	0	0	0
	7:45 AM	1	1	1	0	3	0	0	0	0	0	1	1	1	0	3
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
	8:45 AM	0	1	2	3	6	0	0	2	1	3	0	1	0	2	3
	TOTAL	3	2	5	4	14	2	0	4	2	8	1	2	1	2	6
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	2	4	0	0	6	2	0	0	0	2	0	4	0	0	4
	4:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	4:45 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1
	5:00 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	5:15 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	5:30 PM	1	0	1	0	2	0	0	1	0	1	1	0	0	0	1
	5:45 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1
	TOTAL	5	6	2	0	13	2	1	2	0	5	3	5	0	0	8

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
4/26/23	NORTH & SOUTH:	Cedar	LOCATION #:	1
WEDNESDAY	EAST & WEST:	Merrill	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

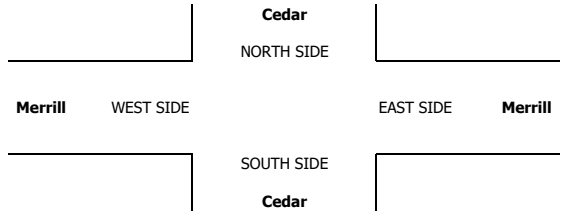
	NORTHBOUND Cedar			SOUTHBOUND Cedar			EASTBOUND Merrill			WESTBOUND Merrill			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM 7:00 AM	0	7	0	1	6	1	2	4	2	0	3	1	27
7:15 AM	0	7	0	0	5	0	0	0	0	2	6	1	21
7:30 AM	0	7	0	2	8	0	2	2	1	0	1	1	24
7:45 AM	1	5	1	1	10	0	5	5	1	1	5	0	35
8:00 AM	0	7	0	0	8	1	2	2	1	0	4	4	29
8:15 AM	1	11	1	3	3	1	0	1	2	0	3	1	27
8:30 AM	0	8	0	0	7	2	1	3	3	0	1	0	25
8:45 AM	2	12	1	2	3	1	3	2	0	0	1	0	27
VOLUMES	4	64	3	9	50	6	15	19	10	3	24	8	215
APPROACH %	6%	90%	4%	14%	77%	9%	34%	43%	23%	9%	69%	23%	
APP/DEPART	71	/	87	65	/	63	44	/	31	35	/	34	0
BEGIN PEAK HR		7:15 AM											
VOLUMES	1	26	1	3	31	1	9	9	3	3	16	6	109
APPROACH %	4%	93%	4%	9%	89%	3%	43%	43%	14%	12%	64%	24%	
PEAK HR FACTOR		1.000			0.795			0.477			0.694		0.779
APP/DEPART	28	/	41	35	/	37	21	/	13	25	/	18	0
PM 4:00 PM	0	4	0	1	6	0	6	0	0	0	1	2	20
4:15 PM	1	4	0	4	7	1	2	2	1	2	2	0	26
4:30 PM	1	6	0	1	5	0	0	1	0	1	2	3	20
4:45 PM	0	4	0	3	4	1	1	2	1	1	2	0	19
5:00 PM	0	10	0	0	8	0	5	0	0	1	0	2	26
5:15 PM	2	5	0	0	4	0	2	2	0	1	2	0	18
5:30 PM	0	1	0	0	7	0	3	3	0	0	1	0	15
5:45 PM	0	6	0	1	6	0	2	1	0	0	2	1	19
VOLUMES	4	40	0	10	47	2	21	11	2	6	12	8	163
APPROACH %	9%	91%	0%	17%	80%	3%	62%	32%	6%	23%	46%	31%	
APP/DEPART	44	/	69	59	/	55	34	/	21	26	/	18	0
BEGIN PEAK HR		5:00 PM											
VOLUMES	2	22	0	1	25	0	12	6	0	2	5	3	78
APPROACH %	8%	92%	0%	4%	96%	0%	67%	33%	0%	20%	50%	30%	
PEAK HR FACTOR		0.600			0.813			0.750			0.833		0.750
APP/DEPART	24	/	37	26	/	27	18	/	7	10	/	7	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	1
0	0	1	0
0	0	2	0
0	0	0	0
1	0	3	1
1	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	1
0	0	0	1



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
4/26/23	NORTH & SOUTH:	Cedar	LOCATION #:	1
WEDNESDAY	EAST & WEST:	Merrill	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Cedar			SOUTHBOUND Cedar			EASTBOUND Merrill			WESTBOUND Merrill			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	0	0	1	0	0	0	0	0	0	1	1	0	3
	7:15 AM	0	1	2	0	1	0	0	0	0	0	0	0	4
	7:30 AM	0	3	1	0	3	0	0	0	0	1	0	1	9
	7:45 AM	0	0	3	0	0	0	0	0	0	0	0	0	3
	8:00 AM	0	3	0	0	2	0	0	0	0	0	0	0	5
	8:15 AM	0	1	1	0	3	0	0	0	1	1	0	0	7
	8:30 AM	0	3	1	0	6	0	0	0	0	1	1	0	12
	8:45 AM	0	5	0	0	0	0	0	0	0	0	0	0	5
	VOLUMES	0	16	9	0	15	0	0	0	1	4	2	1	48
	APPROACH %	0%	64%	36%	0%	100%	0%	0%	0%	100%	57%	29%	14%	
	APP/DEPART	25	/	17	15	/	20	1	/	9	7	/	2	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	7	6	0	6	0	0	0	0	1	0	1	21
	APPROACH %	0%	54%	46%	0%	100%	0%	0%	0%	0%	50%	0%	50%	
	PEAK HR FACTOR		0.813			0.500			0.000			0.250		0.583
	APP/DEPART	13	/	8	6	/	7	0	/	6	2	/	0	0
PM	4:00 PM	0	0	1	0	3	0	0	0	0	0	0	0	4
	4:15 PM	0	2	0	0	3	1	1	0	0	1	0	0	8
	4:30 PM	0	1	0	1	2	0	0	0	0	0	0	1	5
	4:45 PM	1	0	0	1	1	0	0	0	0	0	0	0	3
	5:00 PM	0	3	0	0	1	0	0	0	0	1	0	0	5
	5:15 PM	0	0	2	0	0	0	0	0	1	0	0	0	3
	5:30 PM	0	0	2	0	1	0	0	0	0	0	0	0	3
	5:45 PM	0	0	1	0	4	0	0	0	0	1	0	0	6
	VOLUMES	1	6	6	2	15	1	1	0	1	3	0	1	37
	APPROACH %	8%	46%	46%	11%	83%	6%	50%	0%	50%	75%	0%	25%	
	APP/DEPART	13	/	8	18	/	19	2	/	8	4	/	2	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	3	5	0	6	0	0	0	1	2	0	0	17
	APPROACH %	0%	38%	63%	0%	100%	0%	0%	0%	100%	100%	0%	0%	
	PEAK HR FACTOR		0.667			0.375			0.250			0.500		0.708
	APP/DEPART	8	/	3	6	/	9	1	/	5	2	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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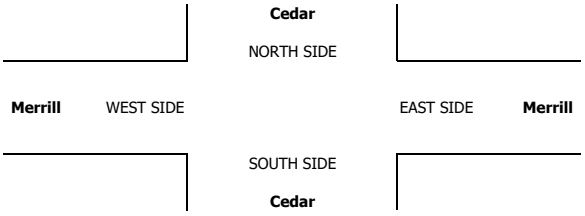
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
4/26/23	NORTH & SOUTH:	Cedar	LOCATION #:	1
WEDNESDAY	EAST & WEST:	Merrill	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Cedar)			SOUTHBOUND (Cedar)			EASTBOUND (Merrill)			WESTBOUND (Merrill)			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	0	6	0	0	2	0	0	1	0	2	0	1	12
	7:15 AM	0	4	0	0	3	0	0	0	0	1	0	0	8
	7:30 AM	0	4	0	1	6	0	0	0	0	1	0	0	12
	7:45 AM	0	14	0	0	10	1	0	0	0	1	0	1	27
	8:00 AM	0	9	1	0	8	0	0	0	0	2	0	0	20
	8:15 AM	0	4	0	0	7	0	0	0	0	2	0	0	13
	8:30 AM	0	8	0	0	11	0	0	0	0	2	0	0	21
	8:45 AM	0	5	0	2	8	1	0	0	0	1	0	0	17
	VOLUMES	0	54	1	3	55	2	0	1	0	12	0	2	130
	APPROACH %	0%	98%	2%	5%	92%	3%	0%	100%	0%	86%	0%	14%	
	APP/DEPART	55	/	56	60	/	67	1	/	5	14	/	2	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	31	1	1	27	1	0	0	0	5	0	1	67
	APPROACH %	0%	97%	3%	3%	93%	3%	0%	0%	0%	83%	0%	17%	
	PEAK HR FACTOR		0.571			0.659			0.000			0.750		0.620
	APP/DEPART	32	/	32	29	/	32	0	/	2	6	/	1	0
PM	4:00 PM	0	1	0	0	6	0	0	0	0	0	0	2	9
	4:15 PM	0	5	0	0	4	0	0	1	1	0	1	0	12
	4:30 PM	0	2	1	0	4	0	0	0	0	0	1	0	8
	4:45 PM	0	6	1	0	5	1	0	0	0	1	1	0	15
	5:00 PM	0	3	1	0	7	0	0	1	0	0	0	0	12
	5:15 PM	0	3	3	0	3	0	0	0	0	0	0	2	11
	5:30 PM	0	3	0	0	8	0	0	1	0	0	0	0	12
	5:45 PM	0	2	0	1	0	0	0	0	0	0	0	0	3
	VOLUMES	0	25	6	1	37	1	0	3	1	1	3	4	82
	APPROACH %	0%	81%	19%	3%	95%	3%	0%	75%	25%	13%	38%	50%	
	APP/DEPART	31	/	29	39	/	39	4	/	10	8	/	4	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	11	4	1	18	0	0	2	0	0	0	2	38
	APPROACH %	0%	73%	27%	5%	95%	0%	0%	100%	0%	0%	0%	100%	
	PEAK HR FACTOR		0.625			0.594			0.500			0.250		0.792
	APP/DEPART	15	/	13	19	/	18	2	/	7	2	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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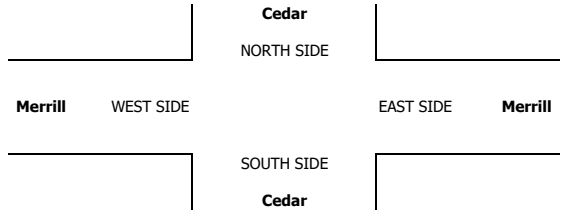
0	0	0	0
0	0	0	1
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
Wed, Apr 26, 23	NORTH & SOUTH:	Cactus	LOCATION #:	2
	EAST & WEST:	1st	CONTROL:	STOP W

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

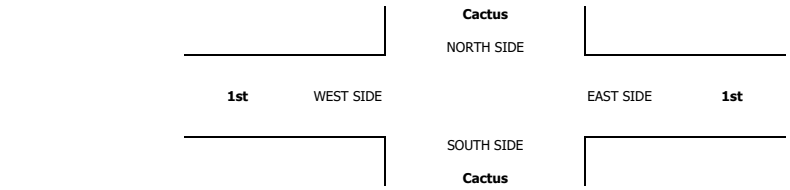
	NORTHBOUND Cactus			SOUTHBOUND Cactus			EASTBOUND 1st			WESTBOUND 1st			
LANES:	NL X	NT 2	NR 1	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 0	WT X	WR 0	TOTAL
AM 7:00 AM	0	71	1	2	152	0	0	0	0	1	0	1	228
7:15 AM	0	96	1	3	192	0	0	0	0	0	0	0	292
7:30 AM	0	136	1	4	337	0	0	0	0	1	0	1	480
7:45 AM	0	152	7	10	332	0	0	0	0	3	0	2	506
8:00 AM	0	125	1	9	225	0	0	0	0	1	0	5	366
8:15 AM	0	99	5	4	154	0	0	0	0	2	0	3	267
8:30 AM	0	81	7	5	163	0	0	0	0	0	0	1	257
8:45 AM	0	83	8	4	106	0	0	0	0	5	0	3	209
VOLUMES	0	843	31	41	1,661	0	0	0	0	13	0	16	2,605
APPROACH %	0%	96%	4%	2%	98%	0%	0%	0%	0%	45%	0%	55%	
APP/DEPART	874	/	859	1,702	/	1,674	0	/	72	29	/	0	0
BEGIN PEAK HR		7:15 AM											
VOLUMES	0	509	10	26	1,086	0	0	0	0	5	0	8	1,644
APPROACH %	0%	98%	2%	2%	98%	0%	0%	0%	0%	38%	0%	62%	
PEAK HR FACTOR		0.816			0.813			0.000			0.542		0.812
APP/DEPART	519	/	517	1,112	/	1,091	0	/	36	13	/	0	0
PM 4:00 PM	0	178	5	4	125	0	0	0	0	1	0	3	316
4:15 PM	0	158	3	4	128	0	0	0	0	0	0	8	301
4:30 PM	0	199	4	5	139	0	0	0	0	4	0	0	351
4:45 PM	0	176	4	4	111	0	0	0	0	1	0	5	301
5:00 PM	0	167	1	7	136	0	0	0	0	3	0	5	319
5:15 PM	0	191	5	1	150	0	0	0	0	1	0	4	352
5:30 PM	0	176	2	0	145	0	0	0	0	1	0	2	326
5:45 PM	0	154	2	5	163	0	0	0	0	2	0	0	326
VOLUMES	0	1,399	26	30	1,097	0	0	0	0	13	0	27	2,592
APPROACH %	0%	98%	2%	3%	97%	0%	0%	0%	0%	33%	0%	68%	
APP/DEPART	1,425	/	1,426	1,127	/	1,110	0	/	56	40	/	0	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	0	688	10	13	594	0	0	0	0	7	0	11	1,323
APPROACH %	0%	99%	1%	2%	98%	0%	0%	0%	0%	39%	0%	61%	
PEAK HR FACTOR		0.860			0.903			0.000			0.563		0.940
APP/DEPART	698	/	699	607	/	601	0	/	23	18	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

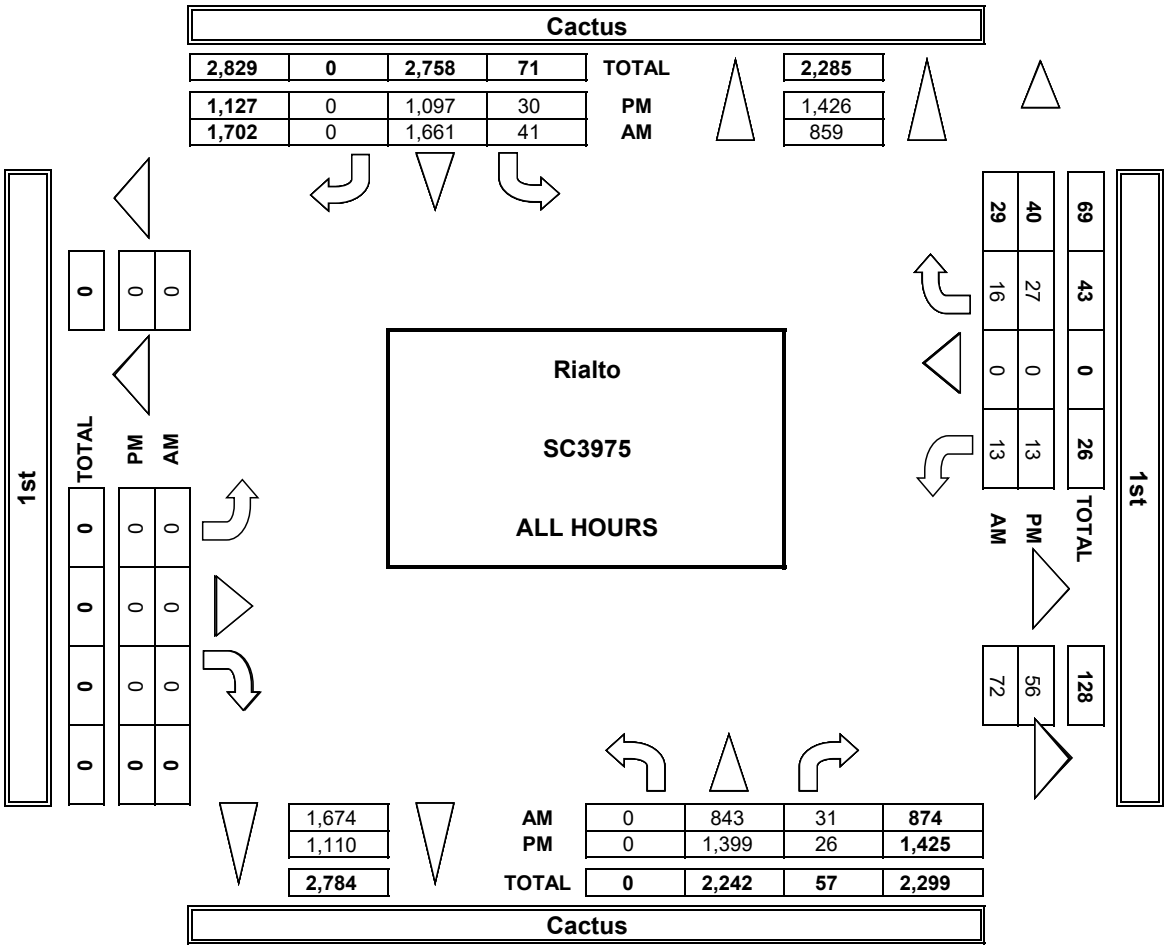
NRR	SRR	ERR	WRR
X	X	X	X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

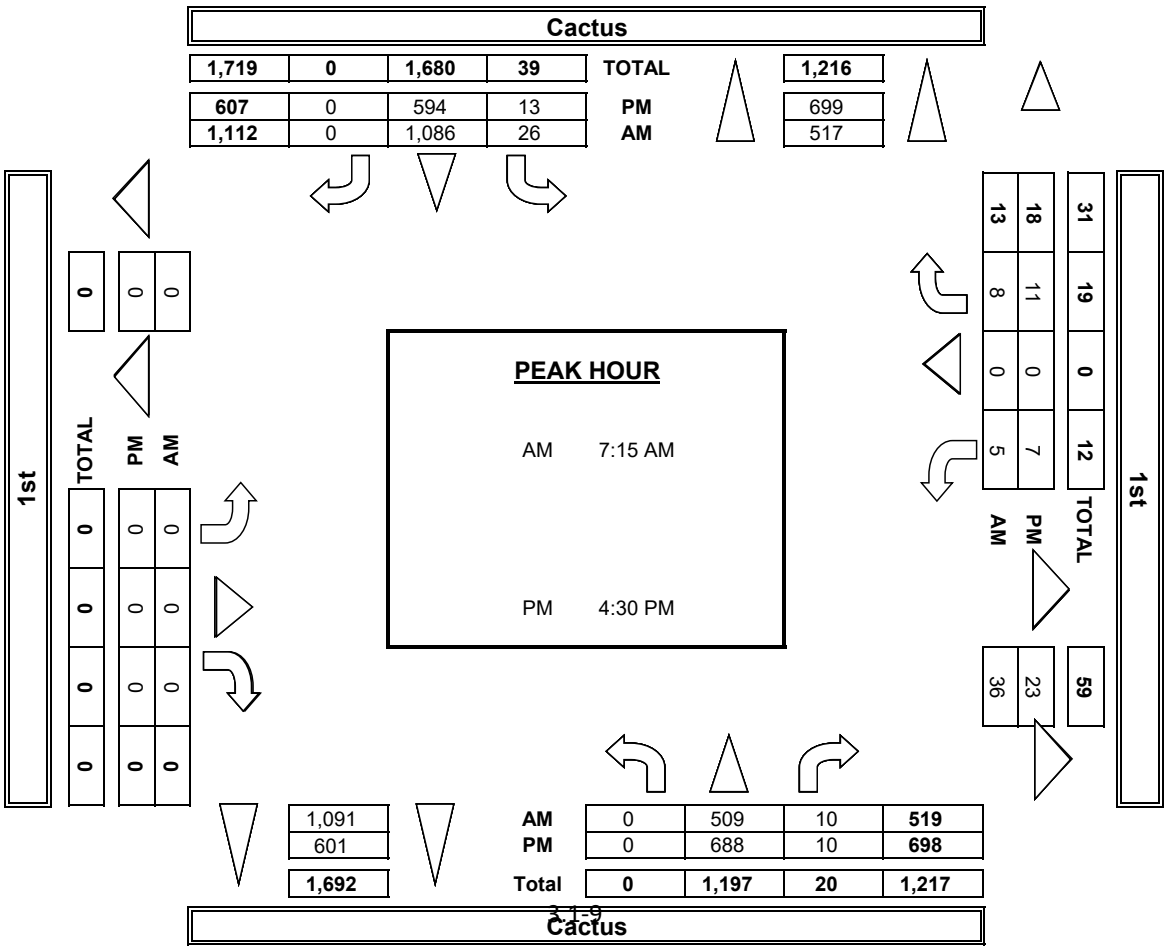


	ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	2	0	0	0	2	2	0	0	0	2	0	0	0	0	0
7:45 AM	3	0	1	0	4	3	0	0	0	3	0	0	1	0	1
8:00 AM	3	0	0	0	3	3	0	0	0	3	0	0	0	0	0
8:15 AM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
8:30 AM	1	1	0	0	2	1	0	0	0	1	0	1	0	0	1
8:45 AM	0	0	1	1	2	0	0	0	1	1	0	0	1	0	1
TOTAL	10	1	2	1	14	8	0	0	0	11	0	0	1	0	3
PM 4:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
4:15 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
4:30 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	3	0	0	3	0	3	0	0	3	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1
TOTAL	2	6	0	0	8	1	3	0	0	6	0	0	0	0	2

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 4/26/23 WEDNESDAY	LOCATION:	Rialto	PROJECT #:	SC3975
	NORTH & SOUTH:	Cactus	LOCATION #:	2
	EAST & WEST:	1st	CONTROL:	STOP W

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Cactus			SOUTHBOUND Cactus			EASTBOUND 1st			WESTBOUND 1st			
	LANES:	NL X	NT 2	NR 1	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 0	WT X	WR 0	TOTAL
AM	7:00 AM	0	3	0	1	7	0	0	0	0	0	0	0	11
	7:15 AM	0	6	0	0	9	0	0	0	0	0	0	0	15
	7:30 AM	0	4	0	0	5	0	0	0	0	0	0	0	9
	7:45 AM	0	9	2	0	6	0	0	0	0	0	0	0	17
	8:00 AM	0	3	0	0	8	0	0	0	0	1	0	0	12
	8:15 AM	0	4	0	0	5	0	0	0	0	1	0	0	10
	8:30 AM	0	8	1	0	11	0	0	0	0	0	0	1	21
	8:45 AM	0	3	1	1	7	0	0	0	0	0	0	0	12
	VOLUMES	0	40	4	2	58	0	0	0	0	2	0	1	107
	APPROACH %	0%	91%	9%	3%	97%	0%	0%	0%	0%	67%	0%	33%	
	APP/DEPART	44	/	41	60	/	60	0	/	6	3	/	0	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	22	2	0	28	0	0	0	0	1	0	0	53
	APPROACH %	0%	92%	8%	0%	100%	0%	0%	0%	0%	100%	0%	0%	
	PEAK HR FACTOR		0.545			0.778			0.000			0.250		0.779
	APP/DEPART	24	/	22	28	/	29	0	/	2	1	/	0	0
PM	4:00 PM	0	5	0	0	5	0	0	0	0	0	0	0	10
	4:15 PM	0	0	0	0	4	0	0	0	0	0	0	1	5
	4:30 PM	0	4	1	0	5	0	0	0	0	0	0	0	10
	4:45 PM	0	6	0	1	2	0	0	0	0	0	0	0	9
	5:00 PM	0	2	0	1	2	0	0	0	0	0	0	0	5
	5:15 PM	0	4	0	0	3	0	0	0	0	0	0	0	7
	5:30 PM	0	5	0	0	3	0	0	0	0	0	0	0	8
	5:45 PM	0	3	0	2	5	0	0	0	0	0	0	0	10
	VOLUMES	0	29	1	4	29	0	0	0	0	0	0	1	64
	APPROACH %	0%	97%	3%	12%	88%	0%	0%	0%	0%	0%	0%	100%	
	APP/DEPART	30	/	30	33	/	29	0	/	5	1	/	0	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	16	1	2	12	0	0	0	0	0	0	0	31
	APPROACH %	0%	94%	6%	14%	86%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.708			0.700			0.000			0.000		0.775
	APP/DEPART	17	/	16	14	/	12	0	/	3	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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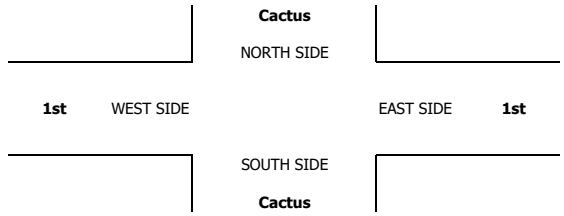
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
4/26/23	NORTH & SOUTH:	Cactus	LOCATION #:	2
WEDNESDAY	EAST & WEST:	1st	CONTROL:	STOP W

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Cactus)			SOUTHBOUND (Cactus)			EASTBOUND (1st)			WESTBOUND (1st)			
	LANES:	NL X	NT 2	NR 1	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 0	WT X	WR 0	TOTAL
AM	7:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
	7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
	7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
	8:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
	8:15 AM	0	0	0	0	3	0	0	0	0	0	0	1	4
	8:30 AM	0	2	1	0	1	0	0	0	0	0	0	0	4
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	7	1	0	8	0	0	0	0	0	0	1	17
	APPROACH %	0%	88%	13%	0%	100%	0%	0%	0%	0%	0%	0%	100%	
	APP/DEPART	8	/	8	8	/	8	0	/	1	1	/	0	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	4	0	0	3	0	0	0	0	0	0	0	7
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		1.000			0.750			0.000			0.000		0.875
	APP/DEPART	4	/	4	3	/	3	0	/	0	0	/	0	0
PM	4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
	4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
	5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	3	0	0	3	0	0	0	0	0	0	0	6
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	3	/	3	3	/	3	0	/	0	0	/	0	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	3	0	0	1	0	0	0	0	0	0	0	4
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.750			0.250			0.000			0.000		0.500
	APP/DEPART	3	/	3	1	/	1	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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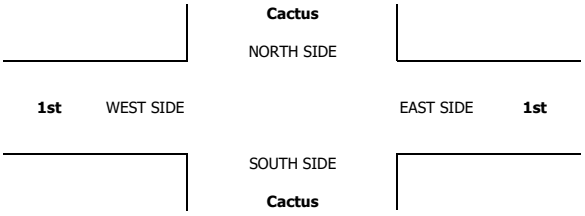
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
4/26/23	NORTH & SOUTH:	Cactus	LOCATION #:	2
WEDNESDAY	EAST & WEST:	1st	CONTROL:	STOP W

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Cactus)			SOUTHBOUND (Cactus)			EASTBOUND (1st)			WESTBOUND (1st)			
	LANES:	NL X	NT 2	NR 1	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 0	WT X	WR 0	TOTAL
AM	7:00 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
	7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
	7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	7:45 AM	0	0	0	1	2	0	0	0	0	0	0	0	3
	8:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
	8:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
	8:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	VOLUMES	0	4	0	1	10	0	0	0	0	0	0	0	15
	APPROACH %	0%	100%	0%	9%	91%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	4	/	4	11	/	10	0	/	1	0	/	0	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	3	0	1	4	0	0	0	0	0	0	0	8
	APPROACH %	0%	100%	0%	20%	80%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.375			0.417			0.000			0.000		0.667
	APP/DEPART	3	/	3	5	/	4	0	/	1	0	/	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
	4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
	4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
	5:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
	5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	VOLUMES	0	4	0	0	5	0	0	0	0	0	0	0	9
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	4	/	4	5	/	5	0	/	0	0	/	0	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	3	0	0	3	0	0	0	0	0	0	0	6
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.750			0.750			0.000			0.000		0.750
	APP/DEPART	3	/	3	3	/	3	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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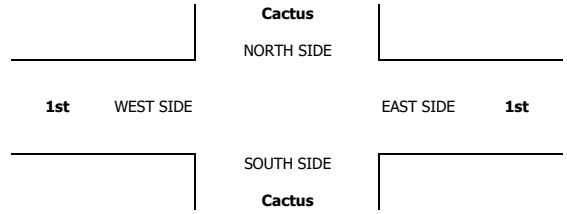
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
Wed, Apr 26, 23	NORTH & SOUTH:	Cactus	LOCATION #:	3
	EAST & WEST:	Rialto	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

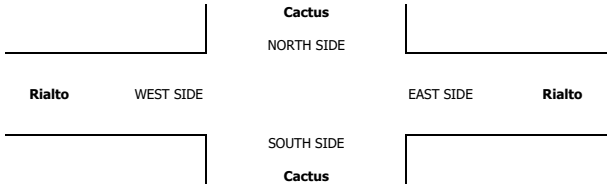
	NORTHBOUND (Cactus)			SOUTHBOUND (Cactus)			EASTBOUND (Rialto)			WESTBOUND (Rialto)			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM 7:00 AM	10	54	3	14	122	8	10	18	7	8	44	7	305
AM 7:15 AM	13	80	4	9	138	34	3	44	17	9	60	11	422
AM 7:30 AM	20	119	11	24	156	139	8	68	19	5	174	9	752
AM 7:45 AM	31	118	8	17	193	156	27	115	33	5	203	12	918
AM 8:00 AM	16	82	6	28	140	57	39	78	35	8	75	11	575
AM 8:15 AM	13	74	8	23	108	35	17	44	15	4	38	13	392
AM 8:30 AM	13	61	8	21	112	26	10	50	17	6	41	14	379
AM 8:45 AM	8	73	8	14	81	22	10	41	14	3	37	11	322
AM VOLUMES	124	661	56	150	1,050	477	124	458	157	48	672	88	4,065
AM APPROACH %	15%	79%	7%	9%	63%	28%	17%	62%	21%	6%	83%	11%	
AM APP/DEPART	841	/	874	1,677	/	1,255	739	/	663	808	/	1,273	0
BEGIN PEAK HR		7:15 AM											
VOLUMES	80	399	29	78	627	386	77	305	104	27	512	43	2,667
APPROACH %	16%	79%	6%	7%	57%	35%	16%	63%	21%	5%	88%	7%	
PEAK HR FACTOR		0.809			0.745			0.694			0.661		0.726
APP/DEPART	508	/	519	1,091	/	758	486	/	412	582	/	978	0
PM 4:00 PM	14	135	6	17	104	14	22	63	15	8	63	34	495
PM 4:15 PM	15	117	6	19	86	18	11	74	19	14	45	20	444
PM 4:30 PM	14	155	5	13	114	18	22	67	19	6	50	29	512
PM 4:45 PM	18	135	3	14	81	21	30	59	22	6	47	20	456
PM 5:00 PM	14	119	7	15	115	9	23	69	19	2	53	24	469
PM 5:15 PM	17	155	7	8	123	21	20	78	19	7	58	23	536
PM 5:30 PM	21	136	2	11	120	16	23	70	19	7	55	18	498
PM 5:45 PM	18	119	5	11	116	33	21	63	22	5	60	12	485
PM VOLUMES	131	1,071	41	108	859	150	172	543	154	55	431	180	3,895
PM APPROACH %	11%	86%	3%	10%	77%	13%	20%	62%	18%	8%	65%	27%	
PM APP/DEPART	1,243	/	1,424	1,117	/	1,068	869	/	691	666	/	712	0
BEGIN PEAK HR		5:00 PM											
VOLUMES	70	529	21	45	474	79	87	280	79	21	226	77	1,988
APPROACH %	11%	85%	3%	8%	79%	13%	20%	63%	18%	6%	70%	24%	
PEAK HR FACTOR		0.866			0.934			0.953			0.920		0.927
APP/DEPART	620	/	694	598	/	574	446	/	345	324	/	375	0

U-TURNS

	NB 0	SB 0	EB 0	WB 0	TTL
AM 7:00 AM	0	0	0	0	0
AM 7:15 AM	0	0	0	0	0
AM 7:30 AM	0	0	0	0	0
AM 7:45 AM	0	0	0	0	0
AM 8:00 AM	0	0	0	0	0
AM 8:15 AM	0	1	0	0	1
AM 8:30 AM	0	0	0	0	0
AM 8:45 AM	0	0	0	0	0
AM TOTAL	0	1	0	0	1
PM 4:00 PM	0	0	0	0	0
PM 4:15 PM	0	0	0	0	0
PM 4:30 PM	0	0	0	0	0
PM 4:45 PM	0	0	0	0	0
PM 5:00 PM	0	0	0	0	0
PM 5:15 PM	0	0	0	0	0
PM 5:30 PM	0	1	0	0	1
PM 5:45 PM	0	1	0	0	1
PM TOTAL	0	1	0	0	1

RTOR

	NRR 0	SRR 0	ERR 0	WRR 0
AM 7:00 AM	0	2	6	1
AM 7:15 AM	0	12	5	3
AM 7:30 AM	4	17	2	2
AM 7:45 AM	3	15	4	4
AM 8:00 AM	1	15	8	2
AM 8:15 AM	3	11	3	4
AM 8:30 AM	2	10	6	2
AM 8:45 AM	2	8	3	0
AM TOTAL	15	90	37	18
BEGIN PEAK HR				
VOLUMES	8	59	19	11
PM 4:00 PM	2	8	3	11
PM 4:15 PM	2	9	4	6
PM 4:30 PM	0	2	6	8
PM 4:45 PM	0	7	5	4
PM 5:00 PM	1	3	2	11
PM 5:15 PM	4	8	4	2
PM 5:30 PM	0	3	4	5
PM 5:45 PM	1	17	5	3
PM TOTAL	10	57	33	50
BEGIN PEAK HR				
VOLUMES	6	31	15	21



ALL PED AND BIKE

	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL
AM 7:00 AM	0	1	0	0	1
AM 7:15 AM	0	2	2	5	9
AM 7:30 AM	1	2	0	10	13
AM 7:45 AM	0	1	1	3	5
AM 8:00 AM	0	0	0	5	5
AM 8:15 AM	0	0	0	0	0
AM 8:30 AM	1	1	0	0	2
AM 8:45 AM	2	0	0	0	2
AM TOTAL	4	7	3	23	37
PM 4:00 PM	1	0	0	2	3
PM 4:15 PM	0	0	0	1	1
PM 4:30 PM	2	0	1	1	4
PM 4:45 PM	0	0	2	0	2
PM 5:00 PM	0	0	0	0	0
PM 5:15 PM	0	0	0	0	0
PM 5:30 PM	0	0	0	1	1
PM 5:45 PM	0	0	0	2	2
PM TOTAL	3	0	3	7	13

PEDESTRIAN CROSSINGS

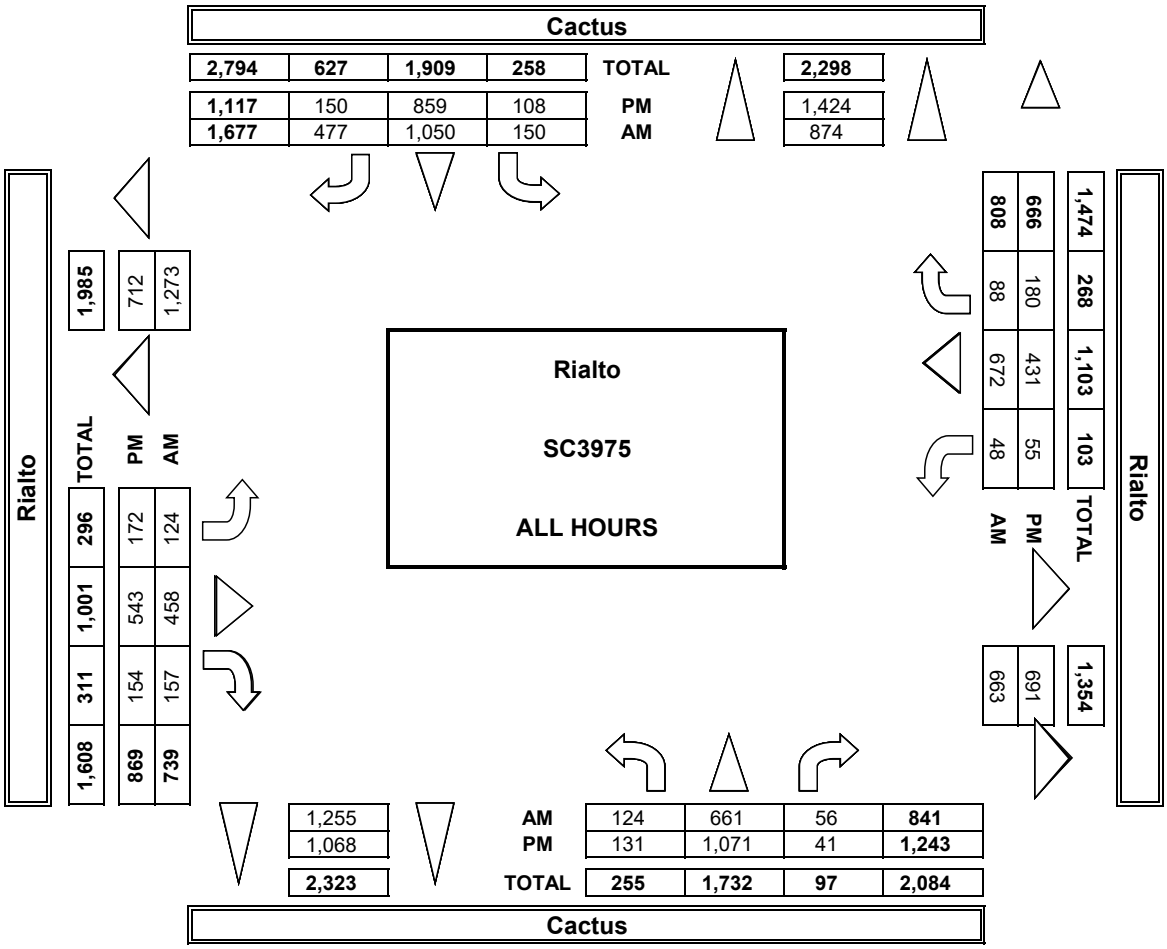
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL
AM 7:00 AM	0	0	0	0	0
AM 7:15 AM	0	2	2	5	9
AM 7:30 AM	1	2	0	6	9
AM 7:45 AM	0	0	1	3	4
AM 8:00 AM	0	0	0	4	4
AM 8:15 AM	0	0	0	0	0
AM 8:30 AM	1	0	0	0	1
AM 8:45 AM	1	0	0	0	1
AM TOTAL	1	4	3	18	28
PM 4:00 PM	1	0	0	2	3
PM 4:15 PM	0	0	0	1	1
PM 4:30 PM	1	0	1	1	3
PM 4:45 PM	0	0	2	0	2
PM 5:00 PM	0	0	0	0	0
PM 5:15 PM	0	0	0	0	0
PM 5:30 PM	0	0	0	1	1
PM 5:45 PM	0	0	0	2	2
PM TOTAL	0	0	0	3	12

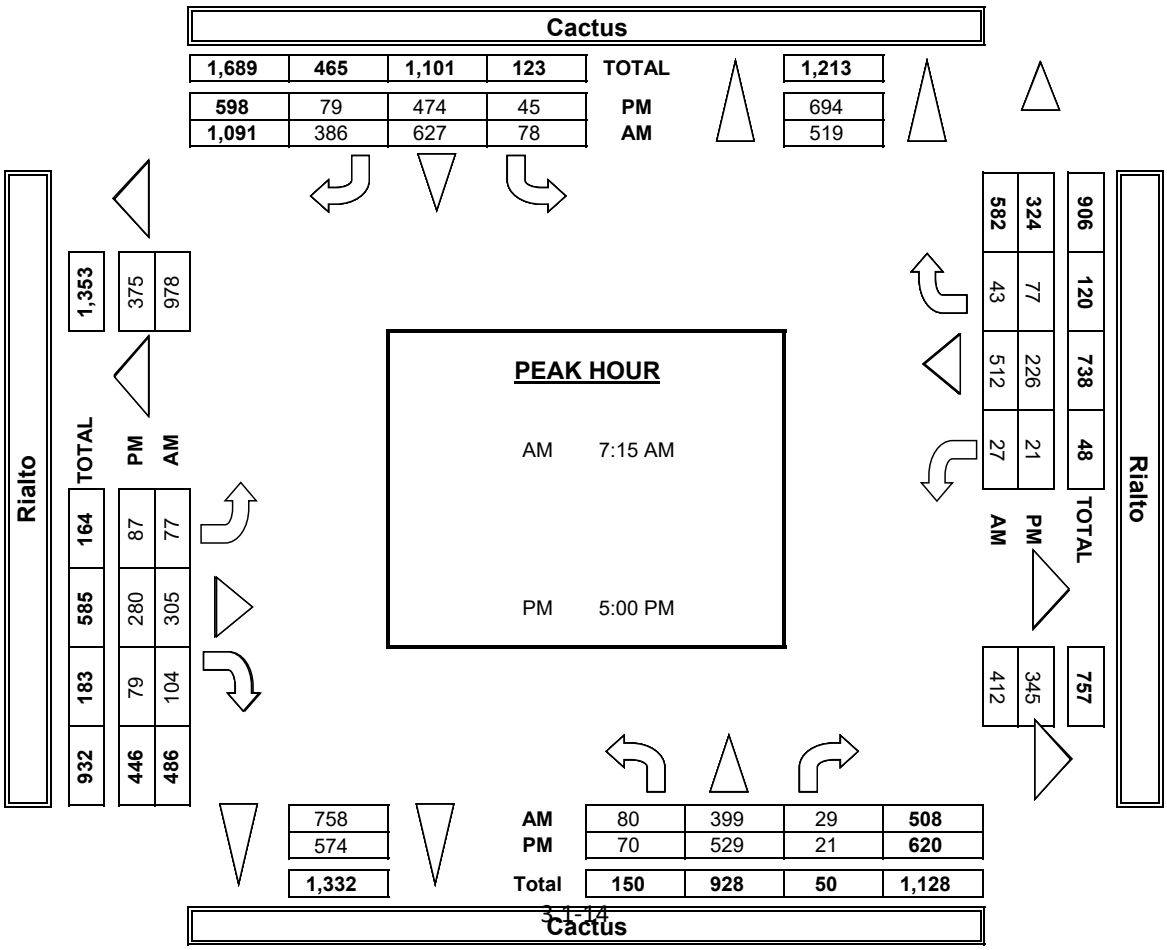
BICYCLE CROSSINGS

	ES	WS	SS	NS	TOTAL
AM 7:00 AM	0	1	0	0	1
AM 7:15 AM	0	0	0	0	0
AM 7:30 AM	0	0	0	4	4
AM 7:45 AM	0	1	0	0	1
AM 8:00 AM	0	0	0	1	1
AM 8:15 AM	0	0	0	0	0
AM 8:30 AM	0	1	0	0	1
AM 8:45 AM	1	0	0	0	1
AM TOTAL	0	1	0	5	9
PM 4:00 PM	0	0	0	0	0
PM 4:15 PM	0	0	0	0	0
PM 4:30 PM	1	0	0	0	1
PM 4:45 PM	0	0	0	0	0
PM 5:00 PM	0	0	0	0	0
PM 5:15 PM	0	0	0	0	0
PM 5:30 PM	0	0	0	0	0
PM 5:45 PM	0	0	0	0	0
PM TOTAL	0	0	0	0	1

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 4/26/23 WEDNESDAY	LOCATION:	Rialto	PROJECT #:	SC3975
	NORTH & SOUTH:	Cactus	LOCATION #:	3
	EAST & WEST:	Rialto	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

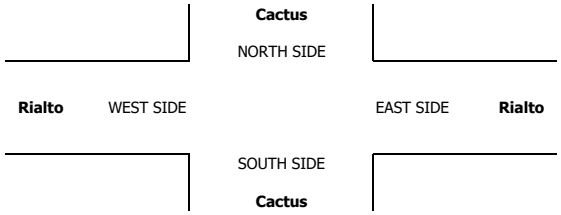
		NORTHBOUND Cactus			SOUTHBOUND Cactus			EASTBOUND Rialto			WESTBOUND Rialto			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	1	3	1	3	5	0	1	1	0	0	4	1	20
	7:15 AM	0	2	0	1	7	0	0	6	0	2	2	5	25
	7:30 AM	0	5	2	3	2	1	0	3	0	1	0	1	18
	7:45 AM	0	6	0	0	4	0	1	0	0	0	3	1	15
	8:00 AM	0	4	0	2	7	2	0	0	2	1	2	2	22
	8:15 AM	2	1	1	1	4	0	1	2	0	1	2	3	18
	8:30 AM	0	7	0	1	10	1	0	4	1	1	3	2	30
	8:45 AM	0	2	1	1	3	2	0	2	0	1	1	2	15
	VOLUMES	3	30	5	12	42	6	3	18	3	7	17	17	163
	APPROACH %	8%	79%	13%	20%	70%	10%	13%	75%	13%	17%	41%	41%	
	APP/DEPART	38	/	50	60	/	52	24	/	35	41	/	26	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	17	2	6	20	3	1	9	2	4	7	9	80
	APPROACH %	0%	89%	11%	21%	69%	10%	8%	75%	17%	20%	35%	45%	
	PEAK HR FACTOR		0.679			0.659			0.500			0.556		0.800
	APP/DEPART	19	/	27	29	/	26	12	/	17	20	/	10	0
PM	4:00 PM	0	4	1	1	6	0	2	4	1	1	3	1	24
	4:15 PM	0	0	1	2	4	0	0	1	0	0	1	0	9
	4:30 PM	0	3	1	0	2	1	1	4	0	0	0	1	13
	4:45 PM	0	3	0	0	1	0	2	0	0	2	4	2	14
	5:00 PM	0	4	0	0	1	0	0	2	1	1	1	0	10
	5:15 PM	0	3	4	0	2	1	1	3	0	1	3	2	20
	5:30 PM	0	2	0	2	2	0	1	0	0	0	1	1	9
	5:45 PM	0	2	0	2	1	1	0	1	0	0	1	0	8
	VOLUMES	0	21	7	7	19	3	7	15	2	5	14	7	107
	APPROACH %	0%	75%	25%	24%	66%	10%	29%	63%	8%	19%	54%	27%	
	APP/DEPART	28	/	35	29	/	26	24	/	29	26	/	17	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	11	4	4	6	2	2	6	1	2	6	3	47
	APPROACH %	0%	73%	27%	33%	50%	17%	22%	67%	11%	18%	55%	27%	
	PEAK HR FACTOR		0.536			0.750			0.563			0.458		0.588
	APP/DEPART	15	/	16	12	/	9	9	/	14	11	/	8	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
0	0	0	0
0	0	0	2
1	0	0	0
0	0	0	0
0	0	1	1
0	0	0	0
0	0	0	0
1	1	0	0
2	1	1	3
1	0	1	3
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
3	0	0	0
0	0	0	0
0	1	0	0
3	1	0	2
3	1	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
4/26/23	NORTH & SOUTH:	Cactus	LOCATION #:	3
WEDNESDAY	EAST & WEST:	Rialto	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

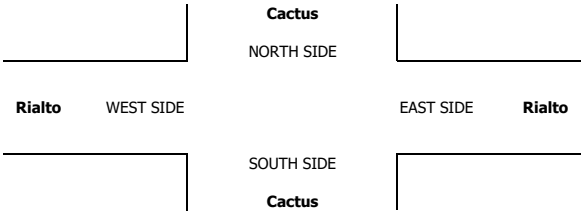
	NORTHBOUND Cactus			SOUTHBOUND Cactus			EASTBOUND Rialto			WESTBOUND Rialto			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM													
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	1	0	0	0	0	0	1	0	0	0	0	2
7:30 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
7:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	2
8:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	3	0	0	1	0	0	0	0	4
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
VOLUMES	0	6	0	1	7	0	0	3	0	0	0	0	17
APPROACH %	0%	100%	0%	13%	88%	0%	0%	100%	0%	0%	0%	0%	
APP/DEPART	6	/	6	8	/	7	3	/	4	0	/	0	0
BEGIN PEAK HR		7:15 AM											
VOLUMES	0	4	0	0	3	0	0	2	0	0	0	0	9
APPROACH %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	0%	0%	
PEAK HR FACTOR		0.500			0.375			0.500			0.000		0.750
APP/DEPART	4	/	4	3	/	3	2	/	2	0	/	0	0
PM													
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	1	3
5:00 PM	0	1	1	0	0	0	0	1	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	1	1	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
VOLUMES	0	1	1	0	2	1	0	3	1	1	0	2	12
APPROACH %	0%	50%	50%	0%	67%	33%	0%	75%	25%	33%	0%	67%	
APP/DEPART	2	/	3	3	/	4	4	/	4	3	/	1	0
BEGIN PEAK HR		5:00 PM											
VOLUMES	0	1	1	0	1	0	0	2	1	0	0	0	6
APPROACH %	0%	50%	50%	0%	100%	0%	0%	67%	33%	0%	0%	0%	
PEAK HR FACTOR		0.250			0.250			0.375			0.000		0.500
APP/DEPART	2	/	1	1	/	2	3	/	3	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
4/26/23	NORTH & SOUTH:	Cactus	LOCATION #:	3
WEDNESDAY	EAST & WEST:	Rialto	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

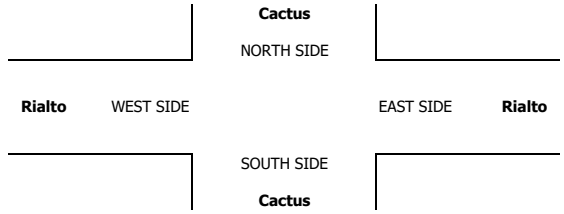
	NORTHBOUND (Cactus)			SOUTHBOUND (Cactus)			EASTBOUND (Rialto)			WESTBOUND (Rialto)			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	0	1	0	0	1	0	0	1	1	1	0	0	5
7:15 AM	0	1	0	1	0	1	0	0	3	0	1	0	7
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:45 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
8:00 AM	1	2	0	0	1	0	0	1	0	0	4	0	9
8:15 AM	0	0	0	0	1	1	0	0	0	0	1	0	3
8:30 AM	0	0	1	0	0	1	0	0	1	0	0	0	3
8:45 AM	0	0	0	0	1	1	0	1	0	0	1	0	4
AM VOLUMES	1	4	1	1	5	4	0	3	5	1	9	0	34
AM APPROACH %	17%	67%	17%	10%	50%	40%	0%	38%	63%	10%	90%	0%	
AM APP/DEPART	6	/	4	10	/	11	8	/	5	10	/	14	0
AM BEGIN PEAK HR	7:15 AM												
AM VOLUMES	1	3	0	1	2	1	0	1	3	0	7	0	19
AM APPROACH %	25%	75%	0%	25%	50%	25%	0%	25%	75%	0%	100%	0%	
AM PEAK HR FACTOR		0.333			0.500			0.333			0.438		0.528
AM APP/DEPART	4	/	3	4	/	5	4	/	2	7	/	9	0
4:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	2
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:30 PM	1	1	0	0	0	0	0	2	0	0	0	1	5
4:45 PM	0	1	0	0	1	0	0	1	1	1	0	0	5
5:00 PM	0	1	0	0	1	0	0	1	2	0	1	0	6
5:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	0	0	0	2	1	0	0	0	3
PM VOLUMES	1	3	0	0	5	0	0	8	4	1	2	1	25
PM APPROACH %	25%	75%	0%	0%	100%	0%	0%	67%	33%	25%	50%	25%	
PM APP/DEPART	4	/	4	5	/	10	12	/	8	4	/	3	0
PM BEGIN PEAK HR	5:00 PM												
PM VOLUMES	0	1	0	0	2	0	0	4	3	0	2	0	12
PM APPROACH %	0%	100%	0%	0%	100%	0%	0%	57%	43%	0%	100%	0%	
PM PEAK HR FACTOR		0.250			0.500			0.583			0.500		0.500
PM APP/DEPART	1	/	1	2	/	5	7	/	4	2	/	2	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
0	0	1	0
0	1	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	1	3	0
0	1	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
Wed, Apr 26, 23	NORTH & SOUTH:	Cactus	LOCATION #:	4
	EAST & WEST:	Merril	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

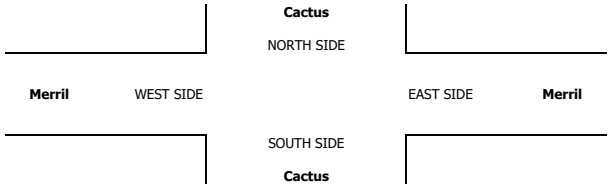
		NORTHBOUND Cactus			SOUTHBOUND Cactus			EASTBOUND Merril			WESTBOUND Merril			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	5	57	3	9	99	20	9	28	9	1	51	5	296
	7:15 AM	15	63	8	15	123	21	24	55	7	4	61	13	409
	7:30 AM	16	129	25	14	157	15	26	90	17	12	68	11	580
	7:45 AM	27	104	14	15	170	40	34	87	18	26	72	19	626
	8:00 AM	12	72	7	20	130	34	18	62	13	12	60	12	452
	8:15 AM	4	78	11	11	102	19	22	57	14	4	55	11	388
	8:30 AM	9	61	5	11	99	26	9	60	12	6	68	12	378
	8:45 AM	6	56	4	2	76	16	20	42	11	3	51	13	300
	VOLUMES	94	620	77	97	956	191	162	481	101	68	486	96	3,429
	APPROACH %	12%	78%	10%	8%	77%	15%	22%	65%	14%	10%	75%	15%	
	APP/DEPART	791	/	878	1,244	/	1,125	744	/	655	650	/	771	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	70	368	54	64	580	110	102	294	55	54	261	55	2,067
	APPROACH %	14%	75%	11%	8%	77%	15%	23%	65%	12%	15%	71%	15%	
	PEAK HR FACTOR		0.724			0.838			0.811			0.791		0.825
	APP/DEPART	492	/	525	754	/	689	451	/	412	370	/	441	0
PM	4:00 PM	9	109	6	12	90	20	18	59	8	7	52	13	403
	4:15 PM	11	106	5	12	84	29	29	50	10	7	73	14	430
	4:30 PM	6	132	6	13	107	31	21	67	10	7	73	15	488
	4:45 PM	10	125	10	10	89	18	16	53	6	8	63	14	422
	5:00 PM	8	108	5	13	103	25	19	51	9	11	87	9	448
	5:15 PM	10	148	6	7	124	17	25	57	5	7	81	12	499
	5:30 PM	11	113	7	7	115	20	28	80	17	8	68	13	487
	5:45 PM	19	116	2	18	109	22	19	79	14	5	56	10	469
	VOLUMES	84	957	47	92	821	182	175	496	79	60	553	100	3,646
	APPROACH %	8%	88%	4%	8%	75%	17%	23%	66%	11%	8%	78%	14%	
	APP/DEPART	1,088	/	1,232	1,095	/	960	750	/	635	713	/	819	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	48	485	20	45	451	84	91	267	45	31	292	44	1,903
	APPROACH %	9%	88%	4%	8%	78%	14%	23%	66%	11%	8%	80%	12%	
	PEAK HR FACTOR		0.843			0.973			0.806			0.857		0.953
	APP/DEPART	553	/	620	580	/	527	403	/	332	367	/	424	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

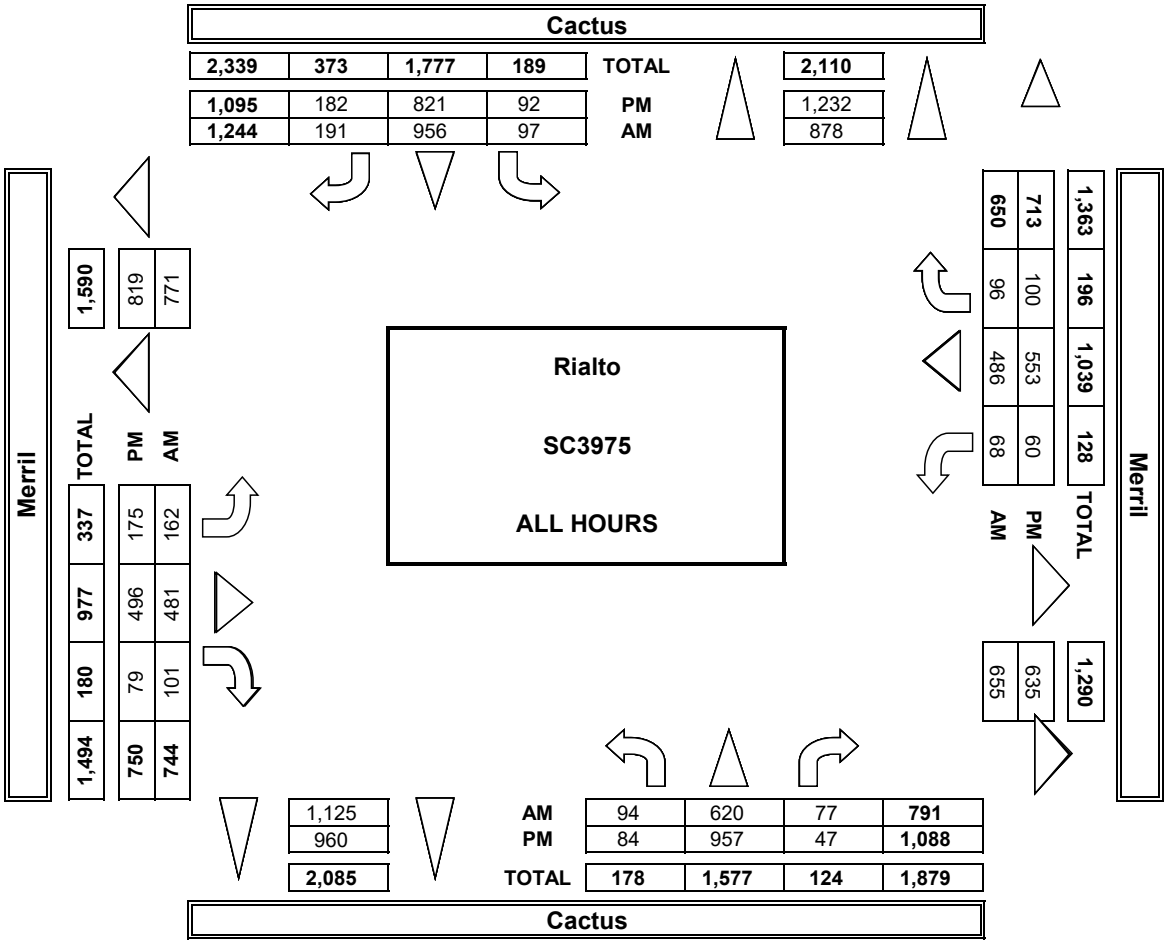
NRR	SRR	ERR	WRR
0	0	0	0
2	3	2	1
3	4	1	6
6	3	3	1
5	7	4	8
4	6	4	4
4	4	4	3
2	5	3	2
2	3	3	3
28	35	24	28
18	20	12	19
0	5	5	4
2	11	2	4
4	6	4	4
2	3	3	6
2	7	3	2
2	5	1	5
2	4	4	4
0	4	4	0
14	45	26	29
6	20	12	11

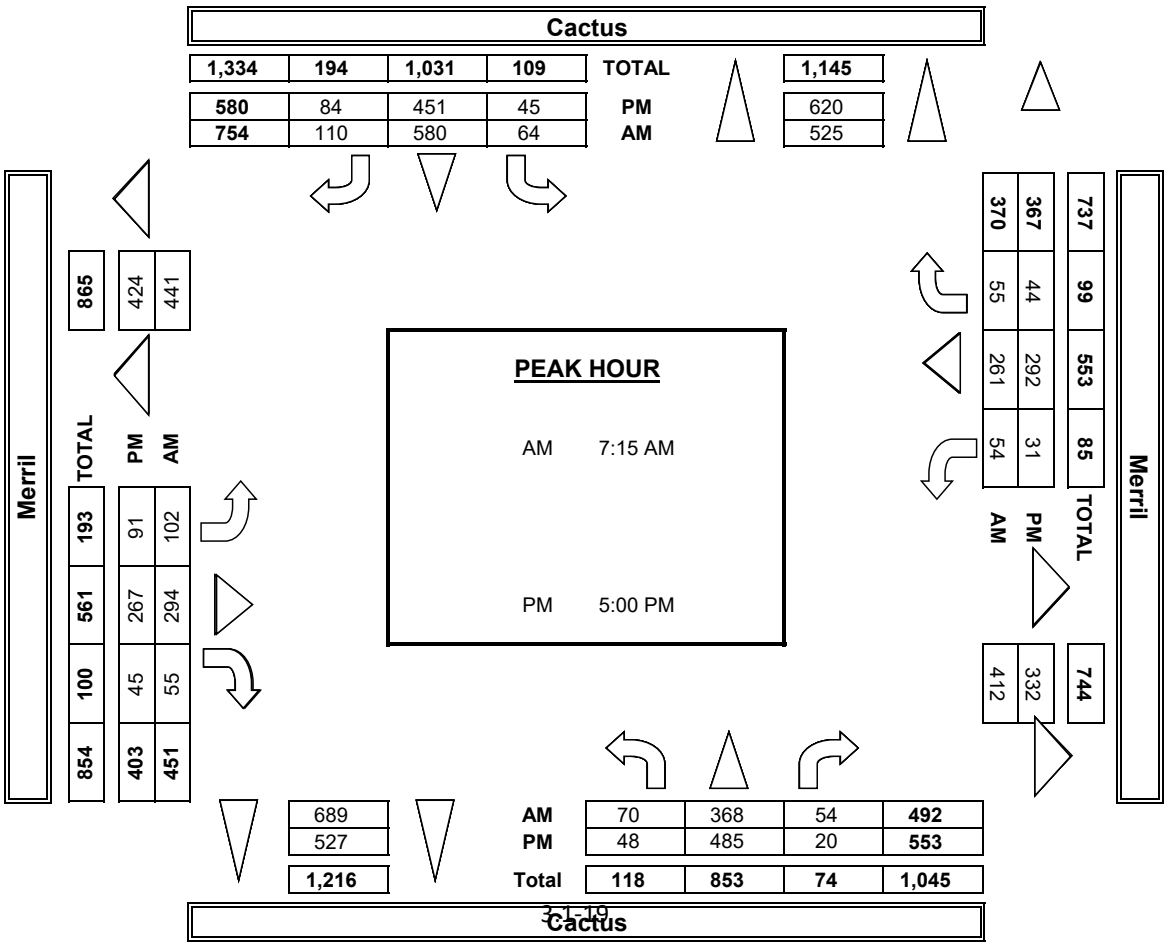


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	7:15 AM	0	2	2	0	4	0	2	2	0	4	0	0	0	0	0
	7:30 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	7:45 AM	0	1	3	0	4	0	0	3	0	3	0	1	0	0	1
	8:00 AM	0	0	2	0	2	0	0	2	0	2	0	0	0	0	0
	8:15 AM	0	0	3	0	3	0	0	2	0	2	0	0	1	0	1
	8:30 AM	1	1	2	0	4	0	0	1	0	1	1	1	1	0	3
	8:45 AM	1	0	0	1	2	0	0	0	1	1	1	0	0	0	1
	TOTAL	2	5	13	1	21	0	2	8	0	14	0	1	0	0	7
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
	4:45 PM	1	0	0	1	2	1	0	0	1	2	0	0	0	0	0
	5:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1
	5:15 PM	1	0	2	0	3	1	0	1	0	2	0	0	1	0	1
	5:30 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	5:45 PM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0
	TOTAL	2	1	5	2	10	1	1	3	0	8	0	0	2	0	2

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 4/26/23 WEDNESDAY	LOCATION:	Rialto	PROJECT #:	SC3975
	NORTH & SOUTH:	Cactus	LOCATION #:	4
	EAST & WEST:	Merril	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

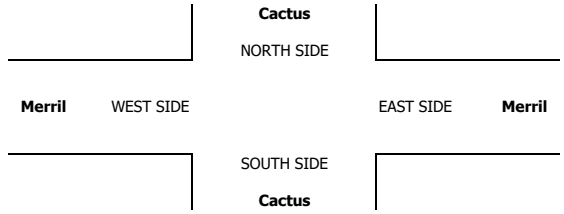
	NORTHBOUND Cactus			SOUTHBOUND Cactus			EASTBOUND Merril			WESTBOUND Merril			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	0	3	0	0	3	2	1	1	1	0	3	0	14
7:15 AM	0	2	0	1	3	0	0	1	0	1	2	1	11
7:30 AM	0	3	0	0	3	0	0	2	0	0	2	1	11
7:45 AM	1	5	0	1	3	1	3	3	0	0	1	1	19
8:00 AM	0	5	1	0	8	2	0	1	0	0	4	0	21
8:15 AM	1	2	0	1	4	1	2	1	0	0	0	1	13
8:30 AM	0	5	0	1	6	0	0	0	0	0	0	0	12
8:45 AM	0	0	0	1	3	0	0	2	0	0	2	1	9
AM VOLUMES	2	25	1	5	33	6	6	11	1	1	14	5	110
AM APPROACH %	7%	89%	4%	11%	75%	14%	33%	61%	6%	5%	70%	25%	
AM APP/DEPART	28	/	36	44	/	35	18	/	17	20	/	22	0
BEGIN PEAK HR		7:15 AM											
AM VOLUMES	1	15	1	2	17	3	3	7	0	1	9	3	62
AM APPROACH %	6%	88%	6%	9%	77%	14%	30%	70%	0%	8%	69%	23%	
PEAK HR FACTOR		0.708			0.550			0.417			0.813		0.738
AM APP/DEPART	17	/	21	22	/	18	10	/	10	13	/	13	0
4:00 PM	0	3	0	0	6	1	1	1	0	1	1	0	14
4:15 PM	0	1	0	1	2	2	0	1	0	0	2	0	9
4:30 PM	0	2	0	1	0	1	1	2	0	0	3	1	11
4:45 PM	0	2	0	0	2	2	1	1	0	0	1	0	9
5:00 PM	1	3	0	0	1	1	1	1	0	1	3	0	12
5:15 PM	0	3	0	0	3	0	3	2	0	0	2	0	13
5:30 PM	1	2	0	0	1	0	0	2	0	0	0	0	6
5:45 PM	0	2	0	0	3	0	2	2	0	0	3	0	12
PM VOLUMES	2	18	0	2	18	7	9	12	0	2	15	1	86
PM APPROACH %	10%	90%	0%	7%	67%	26%	43%	57%	0%	11%	83%	6%	
PM APP/DEPART	20	/	28	27	/	20	21	/	14	18	/	24	0
BEGIN PEAK HR		5:00 PM											
PM VOLUMES	2	10	0	0	8	1	6	7	0	1	8	0	43
PM APPROACH %	17%	83%	0%	0%	89%	11%	46%	54%	0%	11%	89%	0%	
PEAK HR FACTOR		0.750			0.750			0.650			0.563		0.827
PM APP/DEPART	12	/	16	9	/	9	13	/	7	9	/	11	0

U-TURNS

	NB	SB	EB	WB	TTL
AM	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
AM	0	0	0	0	0
PM	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
PM	0	0	0	0	0

RTOR

	NRR	SRR	ERR	WRR
AM	0	0	0	0
	0	1	1	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	1
	0	0	0	0
	0	0	0	1
AM	0	1	1	2
PM	0	0	0	0
	0	1	0	0
	0	1	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
	0	0	0	0
PM	0	2	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
4/26/23	NORTH & SOUTH:	Cactus	LOCATION #:	4
WEDNESDAY	EAST & WEST:	Merril	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

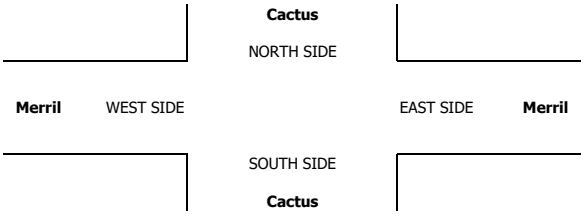
		NORTHBOUND (Cactus)			SOUTHBOUND (Cactus)			EASTBOUND (Merril)			WESTBOUND (Merril)			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	2
	7:15 AM	0	1	0	0	0	0	2	1	0	0	0	0	4
	7:30 AM	0	1	0	0	2	2	1	0	0	0	0	0	6
	7:45 AM	0	1	0	0	1	0	3	0	0	0	1	0	6
	8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	8:15 AM	0	0	0	0	3	0	1	0	0	0	2	0	6
	8:30 AM	0	1	0	0	1	0	0	1	0	0	1	0	4
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	5	0	0	7	2	7	2	0	0	6	0	29
	APPROACH %	0%	100%	0%	0%	78%	22%	78%	22%	0%	0%	100%	0%	
	APP/DEPART	5	/	12	9	/	7	9	/	2	6	/	8	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	4	0	0	3	2	6	1	0	0	1	0	17
	APPROACH %	0%	100%	0%	0%	60%	40%	86%	14%	0%	0%	100%	0%	
	PEAK HR FACTOR		1.000			0.313			0.583			0.250		0.708
	APP/DEPART	4	/	10	5	/	3	7	/	1	1	/	3	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	1	0	0	0	1	1	0	1	0	0	0	0	4
	4:30 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
	4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
	5:00 PM	0	0	0	0	0	0	1	0	0	0	1	1	3
	5:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	2
	5:30 PM	0	0	0	0	0	0	2	1	1	0	0	0	4
	5:45 PM	0	1	0	0	1	1	1	0	0	0	0	0	4
	VOLUMES	1	1	0	0	2	3	6	4	1	0	2	1	21
	APPROACH %	50%	50%	0%	0%	40%	60%	55%	36%	9%	0%	67%	33%	
	APP/DEPART	2	/	8	5	/	3	11	/	4	3	/	6	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	1	0	0	1	1	6	1	1	0	1	1	13
	APPROACH %	0%	100%	0%	0%	50%	50%	75%	13%	13%	0%	50%	50%	
	PEAK HR FACTOR		0.250			0.250			0.500			0.250		0.813
	APP/DEPART	1	/	8	2	/	2	8	/	1	2	/	2	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
0	0	0	0
0	0	0	0
0	2	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	2	0	0
0	2	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	1	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Rialto	PROJECT #:	SC3975
4/26/23	NORTH & SOUTH:	Cactus	LOCATION #:	4
WEDNESDAY	EAST & WEST:	Merril	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

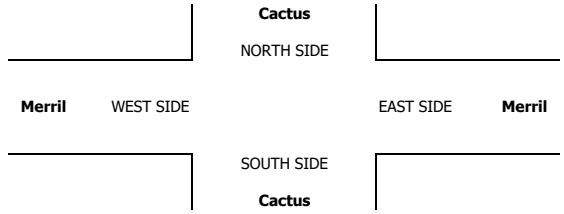
	NORTHBOUND (Cactus)			SOUTHBOUND (Cactus)			EASTBOUND (Merril)			WESTBOUND (Merril)			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
7:00 AM	0	1	0	0	1	2	0	1	0	0	1	0	6
7:15 AM	0	0	0	0	2	2	0	0	0	0	0	0	4
7:30 AM	0	0	1	1	0	0	0	1	0	0	1	0	4
7:45 AM	0	1	0	0	1	1	0	0	0	0	0	0	3
8:00 AM	0	1	0	0	1	3	1	0	0	0	0	0	6
8:15 AM	0	0	1	0	1	1	0	0	0	0	0	0	3
8:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	2
8:45 AM	1	0	0	0	1	1	0	1	0	0	1	0	5
AM VOLUMES	1	3	2	1	7	12	1	3	0	0	3	0	33
AM APPROACH %	17%	50%	33%	5%	35%	60%	25%	75%	0%	0%	100%	0%	
AM APP/DEPART	6	/	4	20	/	7	4	/	6	3	/	16	0
BEGIN PEAK HR		7:15 AM											
AM VOLUMES	0	2	1	1	4	6	1	1	0	0	1	0	17
AM APPROACH %	0%	67%	33%	9%	36%	55%	50%	50%	0%	0%	100%	0%	
PEAK HR FACTOR		0.750			0.688			0.500			0.250		0.708
AM APP/DEPART	3	/	3	11	/	4	2	/	3	1	/	7	0
4:00 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
4:15 PM	0	1	0	0	0	1	0	1	0	0	1	0	4
4:30 PM	0	0	0	0	0	0	1	0	0	0	1	0	2
4:45 PM	0	0	0	0	2	0	1	0	0	0	0	0	3
5:00 PM	0	0	0	0	3	0	1	1	0	0	0	1	6
5:15 PM	1	0	0	0	1	0	1	2	0	0	1	0	6
5:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
5:45 PM	0	0	0	0	1	0	1	0	0	0	0	0	2
PM VOLUMES	1	1	0	0	8	1	5	6	0	0	4	1	27
PM APPROACH %	50%	50%	0%	0%	89%	11%	45%	55%	0%	0%	80%	20%	
PM APP/DEPART	2	/	7	9	/	8	11	/	6	5	/	6	0
BEGIN PEAK HR		5:00 PM											
PM VOLUMES	1	0	0	0	5	0	3	5	0	0	1	1	16
PM APPROACH %	100%	0%	0%	0%	100%	0%	38%	63%	0%	0%	50%	50%	
PEAK HR FACTOR		0.250			0.417			0.667			0.500		0.667
PM APP/DEPART	1	/	4	5	/	5	8	/	5	2	/	2	0

U-TURNS

	NB	SB	EB	WB	TTL
AM	0	0	0	0	0
PM	0	0	0	0	0
AM PEAK HR					0
PM PEAK HR					0

RTOR

	NRR 0	SRR 0	ERR 0	WRR 0
AM	0	3	0	0
PM	0	0	0	1
AM PEAK HR	0	2	0	0
PM PEAK HR	0	0	0	1



A13123

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: Wednesday, April 26, 2023 **CITY:** Rialto

JOB #: SC3975 **LOCATION:** ADT2 Cactus north of Rialto

AM TIME	EB 1	2	3	4	5	6	TOTAL	PM Time	EB 1	2	3	4	5	6	TOTAL
0:00	6	0	0	0	0	0	6	12:00	62	5	3	0	0	0	70
0:15	7	0	0	0	0	0	7	12:15	66	5	0	1	0	0	72
0:30	6	0	0	0	0	0	6	12:30	166	9	0	1	0	5	181
0:45	4	0	0	0	0	0	4	12:45	107	3	2	3	0	0	115
1:00	7	0	0	0	0	0	7	13:00	75	1	1	0	0	0	77
1:15	0	0	0	1	0	0	1	13:15	83	7	0	2	0	2	94
1:30	3	0	0	1	0	0	4	13:30	91	6	0	2	0	1	100
1:45	2	0	0	0	0	0	2	13:45	88	3	1	3	0	0	95
2:00	2	0	0	0	0	0	2	14:00	125	2	0	0	0	0	127
2:15	2	0	0	0	0	0	2	14:15	125	2	0	3	0	0	130
2:30	4	2	0	0	0	0	6	14:30	129	5	0	3	0	2	139
2:45	3	0	0	1	0	0	4	14:45	94	5	1	0	0	0	100
3:00	8	0	0	0	0	0	8	15:00	98	2	1	1	0	3	105
3:15	4	0	0	0	0	0	4	15:15	88	6	2	0	0	0	96
3:30	4	0	0	0	0	0	4	15:30	120	8	1	0	0	1	130
3:45	11	0	0	0	0	0	11	15:45	99	3	0	0	0	1	103
4:00	3	1	0	0	0	0	4	16:00	91	7	0	1	0	1	100
4:15	7	1	0	1	0	0	9	16:15	102	1	1	0	0	0	104
4:30	11	1	0	0	0	0	12	16:30	100	5	0	2	0	1	108
4:45	15	1	0	0	0	0	16	16:45	107	2	0	2	0	0	111
5:00	18	0	0	0	0	0	18	17:00	104	3	1	3	0	0	111
5:15	12	1	0	0	0	0	13	17:15	110	4	2	1	0	0	117
5:30	17	2	1	0	0	0	20	17:30	110	1	0	0	0	1	112
5:45	17	1	0	0	0	0	18	17:45	102	1	0	3	0	0	106
6:00	26	0	0	1	0	0	27	18:00	68	3	1	0	0	0	72
6:15	22	0	0	2	0	0	24	18:15	66	3	2	0	0	0	71
6:30	23	1	0	1	0	0	25	18:30	63	1	0	1	0	0	65
6:45	27	4	1	2	0	0	34	18:45	61	0	0	0	0	0	61
7:00	30	2	0	2	0	1	35	19:00	81	4	3	0	0	0	88
7:15	52	6	1	3	0	2	64	19:15	57	1	1	0	0	0	59
7:30	90	3	0	0	0	2	95	19:30	43	1	0	0	0	0	44
7:45	173	1	1	0	0	0	175	19:45	45	3	0	0	0	0	48
8:00	148	2	0	1	0	1	152	20:00	56	1	0	0	0	0	57
8:15	72	3	1	0	0	0	76	20:15	80	0	0	1	0	0	81
8:30	71	5	0	1	0	0	77	20:30	45	1	1	1	0	0	48
8:45	62	2	0	1	0	0	65	20:45	39	1	0	0	0	0	40
9:00	67	2	1	2	0	0	72	21:00	38	1	0	1	0	0	40
9:15	43	6	0	2	0	0	51	21:15	25	1	0	0	0	0	26
9:30	40	7	1	3	0	0	51	21:30	32	0	0	0	0	0	32
9:45	56	6	0	1	0	0	63	21:45	21	1	0	0	0	0	22
10:00	47	5	0	1	0	0	53	22:00	14	0	0	0	0	0	14
10:15	52	7	0	3	0	0	62	22:15	17	0	0	0	0	0	17
10:30	62	5	0	3	0	0	70	22:30	16	0	0	0	0	0	16
10:45	59	2	0	2	0	0	63	22:45	10	0	0	0	0	0	10
11:00	71	4	0	5	0	0	80	23:00	16	0	0	0	0	0	16
11:15	52	5	1	1	0	0	59	23:15	6	0	0	0	0	0	6
11:30	59	4	1	2	0	0	66	23:30	11	0	0	0	0	0	11
11:45	54	6	1	1	0	1	63	23:45	4	0	0	0	0	0	4
TOTAL	1,631	98	10	44	0	7	1,790	**TOTAL**	3,356	118	24	35	0	18	3,551

AM PEAK HOUR	7:30 AM	**AM PEAK HOUR**	2:00 PM
AM PEAK VOLUME	498	**AM PEAK VOLUME**	496

CLASS 1	PASSENGER VEHICLES	**TOTAL: AM+PM**	4,987	216	34	79	0	25	5,341
CLASS 2	2-AXLE TRUCKS	**% OF TOTAL**	93.4%	4.0%	0.6%	1.5%	0.0%	0.5%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV	**TOTAL: ALL**	10,256	456	74	144	0	61	10,991
CLASS 6	Buses	**% OF TOTAL**	93.3%	4.1%	0.7%	1.3%	0.0%	0.6%	100.0%

A13123

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: Wednesday, April 26, 2023
JOB #: SC3975
CITY: Rialto
LOCATION: ADT2 Cactus north of Rialto

AM	WB						
TIME	1	2	3	4	5	6	TOTAL
0:00	3	1	0	0	0	0	4
0:15	4	0	0	0	0	0	4
0:30	4	0	0	0	0	0	4
0:45	3	0	0	0	0	0	3
1:00	3	0	0	0	0	0	3
1:15	3	0	1	0	0	0	4
1:30	6	0	0	0	0	0	6
1:45	4	1	0	0	0	0	5
2:00	2	1	0	0	0	0	3
2:15	4	2	0	0	0	0	6
2:30	1	0	0	0	0	0	1
2:45	1	0	0	0	0	0	1
3:00	1	0	0	1	0	0	2
3:15	5	1	0	0	0	0	6
3:30	7	0	0	0	0	0	7
3:45	10	0	0	0	0	0	10
4:00	7	0	0	1	0	0	8
4:15	22	1	0	3	0	0	26
4:30	13	0	0	1	0	0	14
4:45	41	3	0	1	0	0	45
5:00	12	1	1	0	0	0	14
5:15	18	0	0	0	0	0	18
5:30	27	4	0	0	0	0	31
5:45	36	1	0	0	0	0	37
6:00	15	3	1	1	0	0	20
6:15	22	6	1	0	0	0	29
6:30	47	5	1	2	0	0	55
6:45	61	7	0	3	0	1	72
7:00	54	5	0	0	0	3	62
7:15	100	2	0	2	0	3	107
7:30	328	1	0	1	0	3	333
7:45	385	3	0	1	0	1	390
8:00	139	4	0	5	0	0	148
8:15	80	4	0	2	0	0	86
8:30	74	4	0	1	0	1	80
8:45	62	3	0	2	0	0	67
9:00	55	3	3	1	0	0	62
9:15	51	10	0	0	0	0	61
9:30	59	5	0	4	0	0	68
9:45	55	4	0	4	0	0	63
10:00	58	7	1	0	0	0	66
10:15	46	4	2	0	0	0	52
10:30	62	4	3	3	0	1	73
10:45	72	5	2	2	0	1	82
11:00	60	3	1	2	0	0	66
11:15	60	3	1	1	0	0	65
11:30	78	10	2	1	0	1	92
11:45	72	6	3	1	0	0	82
TOTAL	2,332	127	23	46	0	15	2,543

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	978

PM	WB						
Time	1	2	3	4	5	6	TOTAL
12:00	96	6	0	0	0	0	102
12:15	107	5	0	1	0	3	116
12:30	167	8	2	0	0	3	180
12:45	108	2	0	2	0	1	113
13:00	65	2	1	3	0	2	73
13:15	88	9	1	0	0	1	99
13:30	95	2	0	0	0	2	99
13:45	129	6	1	1	0	0	137
14:00	125	2	1	0	0	0	128
14:15	114	6	1	0	0	1	122
14:30	83	2	0	0	0	2	87
14:45	67	2	2	2	0	1	74
15:00	71	2	0	1	0	1	75
15:15	86	5	0	2	0	0	93
15:30	61	4	1	0	0	1	67
15:45	66	8	0	0	0	0	74
16:00	87	3	0	0	0	1	91
16:15	77	1	0	0	0	0	78
16:30	79	1	0	1	0	1	82
16:45	81	4	1	0	0	0	86
17:00	74	1	0	1	0	0	76
17:15	92	4	0	0	0	0	96
17:30	89	1	0	1	0	1	92
17:45	109	2	0	0	0	0	111
18:00	104	1	1	0	0	0	106
18:15	56	0	1	0	0	0	57
18:30	75	2	0	0	0	0	77
18:45	33	1	0	1	0	0	35
19:00	52	1	0	0	0	0	53
19:15	45	1	1	0	0	0	47
19:30	59	2	0	1	0	0	62
19:45	38	3	0	0	0	0	41
20:00	35	3	0	0	0	0	38
20:15	24	3	1	2	0	0	30
20:30	28	1	0	0	0	0	29
20:45	29	1	1	0	0	0	31
21:00	22	1	0	0	0	0	23
21:15	15	1	0	0	0	0	16
21:30	18	0	0	0	0	0	18
21:45	15	0	0	0	0	0	15
22:00	14	1	0	0	0	0	15
22:15	9	1	1	0	0	0	11
22:30	8	0	0	0	0	0	8
22:45	8	2	0	0	0	0	10
23:00	12	0	0	0	0	0	12
23:15	8	0	0	0	0	0	8
23:30	8	0	0	0	0	0	8
23:45	6	0	0	0	0	0	6
TOTAL	2,937	113	17	19	0	21	3,107

AM PEAK HOUR	12:00 PM
AM PEAK VOLUME	511

TOTAL: AM+PM	5,269	240	40	65	0	36	5,650
% OF TOTAL	93.3%	4.2%	0.7%	1.2%	0.0%	0.6%	100.0%

CLASS 1	PASSENGER VEHICLES
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4 OR MORE AXLE TRUCKS
CLASS 5	RV
CLASS 6	BUS

A13123

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: Wednesday, April 26, 2023 **CITY:** Rialto

JOB #: SC3975 **LOCATION:** ADT2 Cactus north of Rialto

AM TIME	NB 1	2	3	4	5	6	TOTAL	PM Time	NB 1	2	3	4	5	6	TOTAL
0:00	35	0	0	0	0	0	35	12:00	118	8	0	1	0	6	133
0:15	21	0	0	0	0	0	21	12:15	108	8	2	1	0	7	126
0:30	16	2	0	0	0	0	18	12:30	139	7	0	2	0	0	148
0:45	20	0	0	1	0	0	21	12:45	135	4	0	0	0	1	140
1:00	16	0	0	0	0	0	16	13:00	121	4	0	1	0	0	126
1:15	11	1	0	0	0	0	12	13:15	144	8	0	1	0	3	156
1:30	9	0	0	0	0	0	9	13:30	124	11	0	0	0	2	137
1:45	12	0	0	0	0	0	12	13:45	132	6	2	1	0	4	145
2:00	11	0	0	0	0	0	11	14:00	170	5	3	1	0	1	180
2:15	8	0	0	0	0	0	8	14:15	165	5	0	2	0	2	174
2:30	5	1	0	0	0	0	6	14:30	172	4	0	0	0	0	176
2:45	6	1	0	0	0	0	7	14:45	166	6	1	0	0	0	173
3:00	7	1	0	0	0	0	8	15:00	182	9	2	2	0	1	196
3:15	8	0	0	0	0	0	8	15:15	180	8	2	0	0	0	190
3:30	7	0	0	0	0	0	7	15:30	186	5	5	1	0	2	199
3:45	13	1	0	0	0	0	14	15:45	148	5	0	0	0	1	154
4:00	11	0	0	0	0	0	11	16:00	184	7	0	0	0	0	191
4:15	13	0	0	1	0	0	14	16:15	146	0	0	0	0	2	148
4:30	21	1	0	0	0	0	22	16:30	198	5	1	2	0	0	206
4:45	29	2	2	0	0	0	33	16:45	176	7	1	1	0	0	185
5:00	22	1	0	0	0	0	23	17:00	159	4	1	1	0	1	166
5:15	24	2	1	1	0	0	28	17:15	192	6	0	0	0	0	198
5:30	30	2	2	1	0	0	35	17:30	173	4	0	0	0	0	177
5:45	29	4	0	1	0	0	34	17:45	151	2	0	0	0	0	153
6:00	28	3	0	4	0	0	35	18:00	163	10	1	1	0	0	175
6:15	45	8	3	0	0	3	59	18:15	147	3	1	0	0	0	151
6:30	54	3	1	0	0	5	63	18:30	112	2	1	0	0	0	115
6:45	68	2	0	1	0	9	80	18:45	143	2	0	0	0	0	145
7:00	61	5	1	1	0	3	71	19:00	103	2	2	1	0	0	108
7:15	83	7	1	1	0	2	94	19:15	109	4	1	0	0	0	114
7:30	128	6	1	0	0	1	136	19:30	97	1	0	1	0	0	99
7:45	148	8	0	0	0	1	157	19:45	107	4	0	1	0	0	112
8:00	122	6	2	2	0	0	132	20:00	90	3	0	0	0	0	93
8:15	99	5	0	0	0	1	105	20:15	90	2	0	1	0	0	93
8:30	74	9	1	0	0	1	85	20:30	64	0	0	0	0	0	64
8:45	90	4	0	0	0	0	94	20:45	65	1	0	0	0	0	66
9:00	99	3	1	2	0	0	105	21:00	65	1	0	0	0	0	66
9:15	81	5	0	1	0	2	89	21:15	65	5	0	1	0	0	71
9:30	84	8	1	3	0	2	98	21:30	55	0	1	0	0	0	56
9:45	78	12	1	1	0	0	92	21:45	44	2	0	1	0	0	47
10:00	93	5	0	1	0	0	99	22:00	46	2	1	0	0	0	49
10:15	80	8	0	3	0	1	92	22:15	44	1	0	0	0	0	45
10:30	79	8	1	1	0	0	89	22:30	36	1	0	0	0	0	37
10:45	89	3	0	0	0	1	93	22:45	33	2	1	0	0	0	36
11:00	101	9	0	1	0	0	111	23:00	31	1	0	0	0	0	32
11:15	90	7	0	3	0	0	100	23:15	27	2	1	0	0	0	30
11:30	95	7	2	5	0	2	111	23:30	16	0	0	0	0	0	16
11:45	100	11	0	1	0	2	114	23:45	22	0	0	1	0	0	23
TOTAL	2,453	171	21	36	0	36	2,717	TOTAL	5,543	189	30	25	0	33	5,820

AM PEAK HOUR	7:30 AM	AM PEAK HOUR	2:45 PM
AM PEAK VOLUME	530	AM PEAK VOLUME	758

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	7,996	360	51	61	0	69	8,537
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	93.7%	4.2%	0.6%	0.7%	0.0%	0.8%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV	TOTAL: ALL	16,591	740	97	121	1	137	17,687
CLASS 6	Buses	% OF TOTAL	93.8%	4.2%	0.5%	0.7%	0.0%	0.8%	100.0%

A13123

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 cs@aimtd.com

DATE: Wednesday, April 26, 2023
JOB #: SC3975
CITY: Rialto
LOCATION: ADT2 Cactus north of Rialto

AM	SB						
TIME	1	2	3	4	5	6	TOTAL
0:00	12	2	1	1	0	0	16
0:15	10	0	0	0	0	0	10
0:30	9	0	0	0	0	0	9
0:45	8	0	0	0	0	0	8
1:00	9	0	1	0	0	0	10
1:15	5	0	1	0	0	0	6
1:30	7	0	1	0	0	0	8
1:45	5	0	0	0	0	0	5
2:00	13	1	0	0	0	0	14
2:15	13	0	0	0	0	0	13
2:30	9	0	0	0	0	0	9
2:45	6	0	0	1	0	0	7
3:00	15	0	0	0	0	0	15
3:15	16	1	0	0	0	0	17
3:30	31	0	0	0	0	0	31
3:45	21	2	0	0	0	0	23
4:00	29	0	0	1	0	0	30
4:15	46	2	0	0	0	0	48
4:30	60	1	0	0	0	0	61
4:45	87	4	0	1	0	0	92
5:00	48	3	1	0	0	0	52
5:15	60	3	1	0	0	0	64
5:30	106	4	0	1	0	0	111
5:45	90	4	0	2	0	0	96
6:00	59	9	0	0	0	0	68
6:15	92	7	0	1	0	0	100
6:30	104	2	0	1	0	0	107
6:45	113	7	0	0	0	1	121
7:00	134	8	0	1	0	1	144
7:15	169	8	0	2	0	2	181
7:30	307	6	2	0	0	4	319
7:45	356	4	1	1	0	4	366
8:00	210	11	0	1	0	3	225
8:15	151	5	3	2	0	5	166
8:30	139	12	1	1	0	6	159
8:45	106	6	1	2	0	2	117
9:00	108	7	0	1	0	1	117
9:15	104	5	0	1	0	0	110
9:30	110	6	0	3	0	0	119
9:45	90	7	0	4	0	0	101
10:00	89	3	0	1	0	1	94
10:15	82	11	1	3	0	0	97
10:30	104	11	1	5	0	0	121
10:45	122	6	1	0	0	1	130
11:00	97	6	1	3	0	2	109
11:15	106	9	0	1	0	0	116
11:30	104	10	0	2	0	0	116
11:45	96	9	1	2	0	0	108
TOTAL	3,867	202	19	45	0	33	4,166

AM PEAK HOUR	7:15 AM
AM PEAK VOLUME	1,091

PM	SB						
Time	1	2	3	4	5	6	TOTAL
12:00	134	6	0	0	0	2	142
12:15	147	6	1	0	0	1	155
12:30	146	8	2	0	0	0	156
12:45	135	13	1	0	0	2	151
13:00	126	8	1	0	0	1	136
13:15	131	3	0	1	0	2	137
13:30	132	6	1	0	0	0	139
13:45	148	10	1	1	0	0	160
14:00	141	12	4	2	0	1	160
14:15	159	13	3	1	0	2	178
14:30	132	4	0	1	0	1	138
14:45	150	4	1	0	0	2	157
15:00	153	9	0	0	0	5	167
15:15	123	3	1	1	0	3	131
15:30	129	4	1	0	0	0	134
15:45	124	7	1	0	0	0	132
16:00	123	7	0	1	0	4	135
16:15	113	6	1	1	0	2	123
16:30	140	3	0	0	0	2	145
16:45	111	1	1	1	0	2	116
17:00	136	1	0	1	0	1	139
17:15	148	3	0	1	0	0	152
17:30	142	4	0	0	0	1	147
17:45	155	4	1	0	0	0	160
18:00	120	6	0	0	0	1	127
18:15	117	1	1	0	0	0	119
18:30	94	1	0	0	0	0	95
18:45	99	3	1	0	0	0	103
19:00	89	1	0	0	0	0	90
19:15	90	3	1	0	0	0	94
19:30	88	1	0	0	0	0	89
19:45	74	2	2	0	0	0	78
20:00	72	2	0	0	0	0	74
20:15	68	0	0	1	1	0	70
20:30	64	0	0	0	0	0	64
20:45	62	2	0	0	0	0	64
21:00	61	4	0	0	0	0	65
21:15	51	3	0	0	0	0	54
21:30	49	1	0	0	0	0	50
21:45	55	0	0	0	0	0	55
22:00	43	0	0	0	0	0	43
22:15	23	0	0	1	0	0	24
22:30	28	1	0	0	0	0	29
22:45	26	0	0	0	0	0	26
23:00	18	2	0	0	0	0	20
23:15	21	0	1	0	0	0	22
23:30	20	0	0	1	0	0	21
23:45	18	0	0	0	0	0	18
TOTAL	4,728	178	27	15	1	35	4,984

AM PEAK HOUR	2:15 PM
AM PEAK VOLUME	640

TOTAL: AM+PM	8,595	380	46	60	1	68	9,150
% OF TOTAL	93.9%	4.2%	0.5%	0.7%	0.0%	0.7%	100.0%

CLASS 1	PASSENGER VEHICLES
CLASS 2	2-AXLE TRUCKS
CLASS 3	3-AXLE TRUCKS
CLASS 4	4 OR MORE AXLE TRUCKS
CLASS 5	RV
CLASS 6	BUS

APPENDIX 3.2: EXISTING (2023) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	150	274	77	87	334	63	640	154	904
Future Volume (vph)	150	274	77	87	334	63	640	154	904
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4			8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	4	4	4	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	27.8	27.8	27.8	27.8	27.8	9.6	27.8	9.6	27.8
Total Split (s)	38.0	38.0	38.0	38.0	38.0	12.0	34.0	18.0	40.0
Total Split (%)	42.2%	42.2%	42.2%	42.2%	42.2%	13.3%	37.8%	20.0%	44.4%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8	4.6	5.8	4.6	5.8
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	24.8	24.8	24.8	24.8	24.8	6.9	37.6	11.4	44.0
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.08	0.42	0.13	0.49
v/c Ratio	0.96	0.54	0.15	0.40	0.53	0.48	0.49	0.70	0.60
Control Delay	92.3	30.5	0.9	29.7	19.7	51.5	22.5	53.9	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.3	30.5	0.9	29.7	19.7	51.5	22.5	53.9	20.9
LOS	F	C	A	C	B	D	C	D	C
Approach Delay		44.4			21.0		24.9		25.2
Approach LOS		D			C		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 27.4	Intersection LOS: C
Intersection Capacity Utilization 75.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Cedar Av. & Merrill Av.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	274	77	87	334	211	63	640	56	154	904	104
Future Volume (veh/h)	150	274	77	87	334	211	63	640	56	154	904	104
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		1.00	1.00		0.99	1.00		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	156	285	70	91	348	179	66	667	55	160	942	97
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	260	617	515	294	753	380	85	1309	108	195	1479	152
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.05	0.39	0.39	0.11	0.45	0.45
Sat Flow, veh/h	890	1900	1587	1042	2322	1172	1810	3373	278	1810	3299	340
Grp Volume(v), veh/h	156	285	70	91	269	258	66	357	365	160	515	524
Grp Sat Flow(s),veh/h/ln	890	1900	1587	1042	1805	1689	1810	1805	1845	1810	1805	1834
Q Serve(g_s), s	15.3	10.7	2.8	6.8	10.7	11.0	3.2	13.6	13.6	7.8	19.8	19.8
Cycle Q Clear(g_c), s	26.2	10.7	2.8	17.6	10.7	11.0	3.2	13.6	13.6	7.8	19.8	19.8
Prop In Lane	1.00		1.00	1.00		0.69	1.00		0.15	1.00		0.19
Lane Grp Cap(c), veh/h	260	617	515	294	586	548	85	700	716	195	809	822
V/C Ratio(X)	0.60	0.46	0.14	0.31	0.46	0.47	0.77	0.51	0.51	0.82	0.64	0.64
Avail Cap(c_a), veh/h	290	680	568	329	646	604	149	700	716	269	809	822
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	34.7	24.2	21.5	31.1	24.1	24.2	42.4	21.0	21.0	39.3	19.2	19.2
Incr Delay (d2), s/veh	2.8	0.5	0.1	0.6	0.6	0.6	5.5	2.6	2.6	9.7	3.8	3.8
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	3.3	4.5	1.0	1.7	4.3	4.1	1.5	5.7	5.9	3.8	8.2	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	24.7	21.6	31.7	24.7	24.9	47.9	23.6	23.6	49.0	23.0	22.9
LnGrp LOS	D	C	C	C	C	C	D	C	C	D	C	C
Approach Vol, veh/h		511			618			788			1199	
Approach Delay, s/veh		28.2			25.8			25.7			26.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.3	40.7		35.0	8.8	46.1		35.0				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		5.8				
Max Green Setting (Gmax), s	13.4	28.2		32.2	7.4	34.2		32.2				
Max Q Clear Time (g_c+I1), s	9.8	15.6		28.2	5.2	21.8		19.6				
Green Ext Time (p_c), s	0.1	3.3		1.0	0.0	4.9		2.7				

Intersection Summary												
HCM 6th Ctrl Delay			26.4									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	8	564	13	29	1146
Future Vol, veh/h	7	8	564	13	29	1146
Conflicting Peds, #/hr	0	0	0	8	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	10	696	16	36	1415

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1484	356	0	0	720	0
Stage 1	704	-	-	-	-	-
Stage 2	780	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	118	646	-	-	891	-
Stage 1	457	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	112	641	-	-	884	-
Mov Cap-2 Maneuver	304	-	-	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	401	-	-	-	-	-

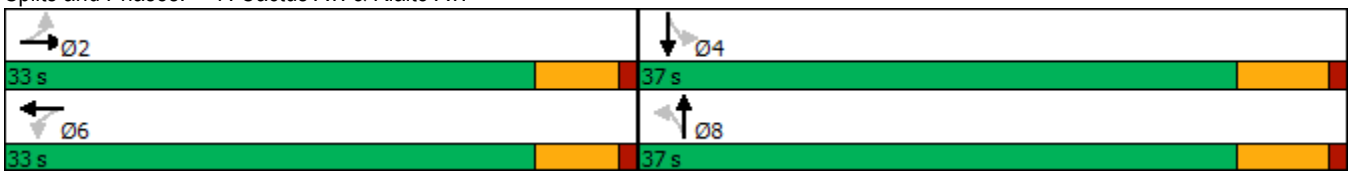
Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0.2
HCM LOS	B		

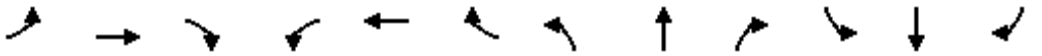
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	422	884	-
HCM Lane V/C Ratio	-	-	0.044	0.041	-
HCM Control Delay (s)	-	-	13.9	9.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	79	326	33	544	83	442	90	669
Future Volume (vph)	79	326	33	544	83	442	90	669
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.4	32.4	32.4	32.4	32.8	32.8	32.8	32.8
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.8	5.8	5.8	5.8
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	21.4	21.4	21.4	21.4	31.4	31.4	31.4	31.4
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.49	0.49	0.49	0.49
v/c Ratio	0.80	0.50	0.20	0.69	0.97	0.37	0.35	0.86
Control Delay	61.2	16.2	17.1	20.9	104.0	11.6	15.5	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	16.2	17.1	20.9	104.0	11.6	15.5	21.9
LOS	E	B	B	C	F	B	B	C
Approach Delay		23.0		20.7		25.4		21.4
Approach LOS		C		C		C		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 64.1	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 22.3	Intersection LOS: C
Intersection Capacity Utilization 86.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Cactus Av. & Rialto Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	326	116	33	544	57	83	442	32	90	669	394
Future Volume (veh/h)	79	326	116	33	544	57	83	442	32	90	669	394
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		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	108	447	133	45	745	63	114	605	33	123	916	459
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	242	1035	305	321	1266	107	145	1596	87	382	1068	527
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	683	2746	810	847	3360	284	401	3481	190	803	2329	1149
Grp Volume(v), veh/h	108	292	288	45	400	408	114	313	325	123	707	668
Grp Sat Flow(s),veh/h/ln	683	1805	1752	847	1805	1839	401	1805	1866	803	1805	1673
Q Serve(g_s), s	10.2	8.2	8.3	2.8	12.1	12.1	6.7	7.7	7.8	8.1	23.7	24.5
Cycle Q Clear(g_c), s	22.3	8.2	8.3	11.2	12.1	12.1	31.2	7.7	7.8	15.8	23.7	24.5
Prop In Lane	1.00		0.46	1.00		0.15	1.00		0.10	1.00		0.69
Lane Grp Cap(c), veh/h	242	680	660	321	680	693	145	828	855	382	828	767
V/C Ratio(X)	0.45	0.43	0.44	0.14	0.59	0.59	0.79	0.38	0.38	0.32	0.85	0.87
Avail Cap(c_a), veh/h	261	732	711	346	732	746	145	828	855	382	828	767
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	25.9	15.8	15.8	20.0	17.0	17.0	32.9	12.1	12.1	17.3	16.4	16.6
Incr Delay (d2), s/veh	1.3	0.4	0.5	0.2	1.1	1.1	24.1	0.3	0.3	0.5	8.7	10.7
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	1.6	2.9	2.9	0.5	4.4	4.5	2.7	2.6	2.7	1.3	9.7	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.2	16.2	16.3	20.2	18.1	18.0	57.0	12.4	12.4	17.7	25.0	27.4
LnGrp LOS	C	B	B	C	B	B	E	B	B	B	C	C
Approach Vol, veh/h		688			853			752			1498	
Approach Delay, s/veh		17.9			18.2			19.1			25.5	
Approach LOS		B			B			B			C	

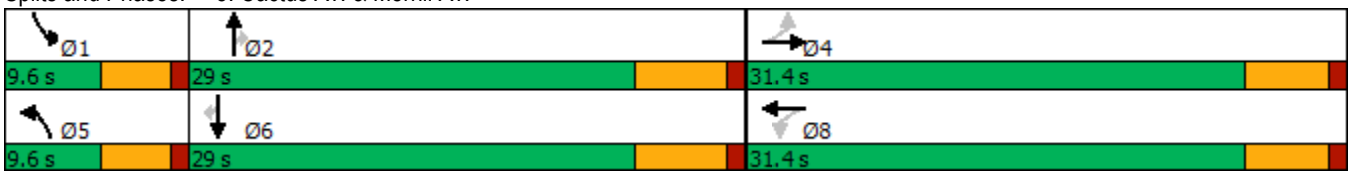
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.0		37.0		31.0		37.0				
Change Period (Y+Rc), s		5.4		5.8		5.4		5.8				
Max Green Setting (Gmax), s		27.6		31.2		27.6		31.2				
Max Q Clear Time (g_c+I1), s		24.3		26.5		14.1		33.2				
Green Ext Time (p_c), s		1.3		3.4		4.1		0.0				

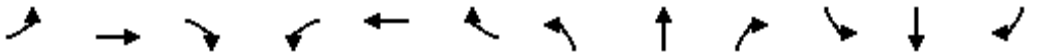
Intersection Summary												
HCM 6th Ctrl Delay			21.2									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	122	310	56	280	72	405	59	70	624	137
Future Volume (vph)	122	310	56	280	72	405	59	70	624	137
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.4	31.4	9.6	28.8	28.8	9.6	28.8	28.8
Total Split (s)	31.4	31.4	31.4	31.4	9.6	29.0	29.0	9.6	29.0	29.0
Total Split (%)	44.9%	44.9%	44.9%	44.9%	13.7%	41.4%	41.4%	13.7%	41.4%	41.4%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	15.6	15.6	15.6	15.6	5.4	17.5	17.5	5.4	17.5	17.5
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.10	0.33	0.33	0.10	0.33	0.33
v/c Ratio	0.51	0.41	0.24	0.38	0.47	0.40	0.12	0.45	0.62	0.26
Control Delay	24.1	15.7	18.1	15.1	38.9	15.7	2.1	38.1	18.4	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	15.7	18.1	15.1	38.9	15.7	2.1	38.1	18.4	4.4
LOS	C	B	B	B	D	B	A	D	B	A
Approach Delay		17.8		15.5		17.3			17.7	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 52.3	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization 60.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cactus Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	310	55	56	280	60	72	405	59	70	624	137
Future Volume (veh/h)	122	310	55	56	280	60	72	405	59	70	624	137
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		1.00	1.00		1.00	1.00		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	147	373	52	67	337	49	87	488	49	84	752	141
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	376	998	138	358	994	143	126	1105	493	124	1100	484
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.07	0.31	0.31	0.07	0.30	0.30
Sat Flow, veh/h	1013	3182	440	974	3167	456	1810	3610	1610	1810	3610	1587
Grp Volume(v), veh/h	147	210	215	67	191	195	87	488	49	84	752	141
Grp Sat Flow(s),veh/h/ln	1013	1805	1817	974	1805	1818	1810	1805	1610	1810	1805	1587
Q Serve(g_s), s	6.6	4.6	4.7	2.9	4.1	4.2	2.4	5.5	1.1	2.3	9.3	3.4
Cycle Q Clear(g_c), s	10.8	4.6	4.7	7.6	4.1	4.2	2.4	5.5	1.1	2.3	9.3	3.4
Prop In Lane	1.00		0.24	1.00		0.25	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	376	566	570	358	566	570	126	1105	493	124	1100	484
V/C Ratio(X)	0.39	0.37	0.38	0.19	0.34	0.34	0.69	0.44	0.10	0.68	0.68	0.29
Avail Cap(c_a), veh/h	578	926	932	552	926	933	179	1652	737	179	1652	726
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	17.5	13.5	13.5	16.5	13.3	13.4	23.0	14.1	12.6	23.1	15.5	13.4
Incr Delay (d2), s/veh	0.7	0.4	0.4	0.2	0.3	0.4	2.5	0.3	0.1	2.4	0.8	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	1.4	1.6	1.6	0.6	1.4	1.4	1.0	1.8	0.3	0.9	3.1	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	13.9	13.9	16.7	13.7	13.7	25.5	14.4	12.7	25.5	16.2	13.8
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		572			453			624			977	
Approach Delay, s/veh		15.0			14.2			15.8			16.7	
Approach LOS		B			B			B			B	

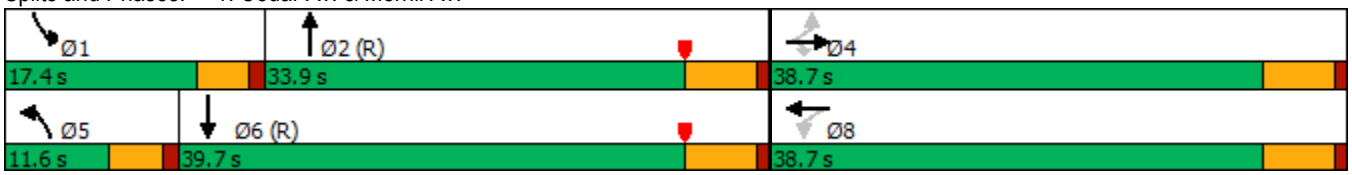
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	21.3		21.3	8.1	21.2		21.3				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		5.4				
Max Green Setting (Gmax), s	5.0	23.2		26.0	5.0	23.2		26.0				
Max Q Clear Time (g_c+I1), s	4.3	7.5		12.8	4.4	11.3		9.6				
Green Ext Time (p_c), s	0.0	2.7		2.5	0.0	4.1		2.2				

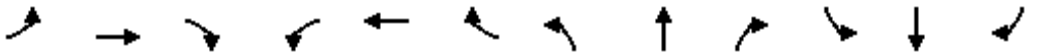
Intersection Summary			
HCM 6th Ctrl Delay		15.7	
HCM 6th LOS		B	

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	157	287	61	70	272	52	671	115	693
Future Volume (vph)	157	287	61	70	272	52	671	115	693
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4			8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	4	4	4	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	27.8	27.8	27.8	27.8	27.8	9.6	27.8	9.6	27.8
Total Split (s)	38.7	38.7	38.7	38.7	38.7	11.6	33.9	17.4	39.7
Total Split (%)	43.0%	43.0%	43.0%	43.0%	43.0%	12.9%	37.7%	19.3%	44.1%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8	4.6	5.8	4.6	5.8
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	23.5	23.5	23.5	23.5	23.5	6.7	40.3	10.0	45.6
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.07	0.45	0.11	0.51
v/c Ratio	0.87	0.62	0.12	0.39	0.46	0.41	0.49	0.61	0.46
Control Delay	69.1	33.6	0.5	30.8	18.0	49.0	20.8	50.8	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.1	33.6	0.5	30.8	18.0	49.0	20.8	50.8	17.5
LOS	E	C	A	C	B	D	C	D	B
Approach Delay		40.6			19.8		22.7		21.7
Approach LOS		D			B		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 25.2	Intersection LOS: C
Intersection Capacity Utilization 68.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Cedar Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	287	61	70	272	166	52	671	60	115	693	91
Future Volume (veh/h)	157	287	61	70	272	166	52	671	60	115	693	91
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		1.00	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	167	305	51	74	289	146	55	714	61	122	737	90
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	278	580	491	260	716	352	75	1445	123	153	1532	187
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.43	0.43	0.08	0.47	0.47
Sat Flow, veh/h	969	1900	1607	1041	2344	1154	1810	3362	287	1810	3238	395
Grp Volume(v), veh/h	167	305	51	74	221	214	55	383	392	122	411	416
Grp Sat Flow(s),veh/h/ln	969	1900	1607	1041	1805	1692	1810	1805	1844	1810	1805	1829
Q Serve(g_s), s	14.9	12.0	2.0	5.7	8.7	9.1	2.7	13.8	13.8	6.0	14.0	14.0
Cycle Q Clear(g_c), s	24.0	12.0	2.0	17.7	8.7	9.1	2.7	13.8	13.8	6.0	14.0	14.0
Prop In Lane	1.00		1.00	1.00		0.68	1.00		0.16	1.00		0.22
Lane Grp Cap(c), veh/h	278	580	491	260	551	517	75	776	793	153	854	865
V/C Ratio(X)	0.60	0.53	0.10	0.29	0.40	0.41	0.73	0.49	0.49	0.80	0.48	0.48
Avail Cap(c_a), veh/h	337	695	587	322	660	619	141	776	793	257	854	865
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	34.4	25.9	22.4	33.2	24.7	24.9	42.6	18.6	18.6	40.4	16.2	16.2
Incr Delay (d2), s/veh	2.1	0.7	0.1	0.6	0.5	0.5	5.0	2.2	2.2	3.5	1.9	1.9
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	3.5	5.1	0.7	1.4	3.5	3.5	1.3	5.7	5.8	2.7	5.6	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	26.6	22.5	33.8	25.2	25.4	47.7	20.8	20.8	43.9	18.1	18.1
LnGrp LOS	D	C	C	C	C	C	D	C	C	D	B	B
Approach Vol, veh/h		523			509			830			949	
Approach Delay, s/veh		29.4			26.5			22.6			21.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.2	44.5		33.3	8.3	48.4		33.3				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		5.8				
Max Green Setting (Gmax), s	12.8	28.1		32.9	7.0	33.9		32.9				
Max Q Clear Time (g_c+I1), s	8.0	15.8		26.0	4.7	16.0		19.7				
Green Ext Time (p_c), s	0.1	3.5		1.5	0.0	4.5		2.2				

Intersection Summary			
HCM 6th Ctrl Delay		24.2	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	11	727	12	16	623
Future Vol, veh/h	7	11	727	12	16	623
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	12	773	13	17	663

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1140	388	0	0	787	0
Stage 1	774	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	198	616	-	-	841	-
Stage 1	421	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	194	615	-	-	840	-
Mov Cap-2 Maneuver	370	-	-	-	-	-
Stage 1	421	-	-	-	-	-
Stage 2	664	-	-	-	-	-

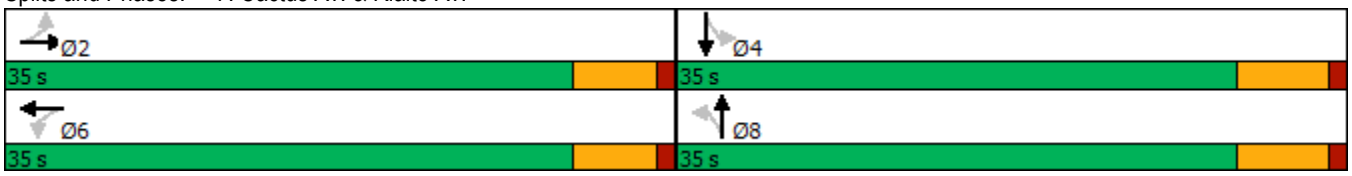
Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.2
HCM LOS	B		

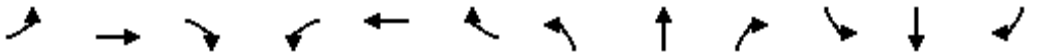
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	489	840	-
HCM Lane V/C Ratio	-	-	0.039	0.02	-
HCM Control Delay (s)	-	-	12.7	9.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	90	305	24	241	70	567	51	497
Future Volume (vph)	90	305	24	241	70	567	51	497
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.4	32.4	32.4	32.4	32.8	32.8	32.8	32.8
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.8	5.8	5.8	5.8
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.1	13.1	13.1	13.1	14.3	14.3	14.3	14.3
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.36	0.36	0.36	0.36
v/c Ratio	0.28	0.35	0.08	0.29	0.26	0.49	0.20	0.48
Control Delay	13.1	9.5	11.0	8.4	12.5	11.4	11.6	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	9.5	11.0	8.4	12.5	11.4	11.6	10.8
LOS	B	A	B	A	B	B	B	B
Approach Delay		10.2		8.5		11.5		10.9
Approach LOS		B		A		B		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 39.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 10.5	Intersection LOS: B
Intersection Capacity Utilization 63.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Cactus Av. & Rialto Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	305	92	24	241	82	70	567	29	51	497	82
Future Volume (veh/h)	90	305	92	24	241	82	70	567	29	51	497	82
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		1.00	1.00		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	97	328	83	26	259	65	75	610	25	55	534	55
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	455	847	211	416	849	209	423	1308	54	407	1223	126
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1071	2862	714	990	2869	706	840	3534	145	805	3304	339
Grp Volume(v), veh/h	97	205	206	26	161	163	75	311	324	55	291	298
Grp Sat Flow(s),veh/h/ln	1071	1805	1771	990	1805	1770	840	1805	1874	805	1805	1839
Q Serve(g_s), s	2.6	3.0	3.1	0.7	2.3	2.4	2.5	4.4	4.4	1.9	4.1	4.1
Cycle Q Clear(g_c), s	5.0	3.0	3.1	3.8	2.3	2.4	6.6	4.4	4.4	6.3	4.1	4.1
Prop In Lane	1.00		0.40	1.00		0.40	1.00		0.08	1.00		0.18
Lane Grp Cap(c), veh/h	455	534	524	416	534	524	423	668	693	407	668	680
V/C Ratio(X)	0.21	0.38	0.39	0.06	0.30	0.31	0.18	0.47	0.47	0.14	0.44	0.44
Avail Cap(c_a), veh/h	1084	1594	1565	998	1594	1564	845	1573	1633	811	1573	1602
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	11.1	9.4	9.4	10.9	9.1	9.2	10.4	8.0	8.0	10.4	7.9	7.9
Incr Delay (d2), s/veh	0.2	0.5	0.5	0.1	0.3	0.3	0.2	0.5	0.5	0.1	0.4	0.4
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	0.4	0.8	0.8	0.1	0.6	0.6	0.3	1.0	1.0	0.2	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	9.8	9.9	11.0	9.4	9.5	10.6	8.5	8.5	10.6	8.4	8.4
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		508			350			710			644	
Approach Delay, s/veh		10.1			9.6			8.8			8.6	
Approach LOS		B			A			A			A	

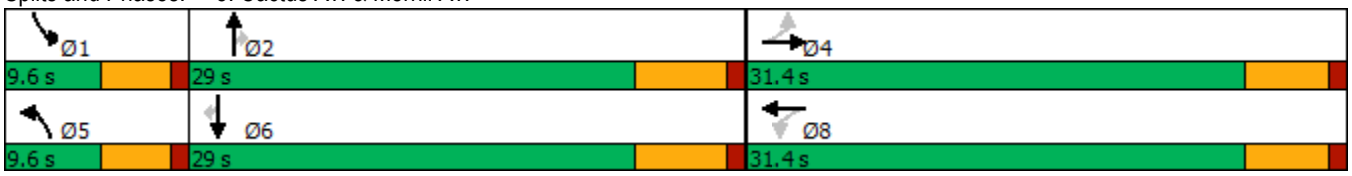
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.3		18.2		15.3		18.2				
Change Period (Y+Rc), s		5.4		5.8		5.4		5.8				
Max Green Setting (Gmax), s		29.6		29.2		29.6		29.2				
Max Q Clear Time (g_c+I1), s		7.0		8.3		5.8		8.6				
Green Ext Time (p_c), s		2.6		3.5		1.8		3.9				

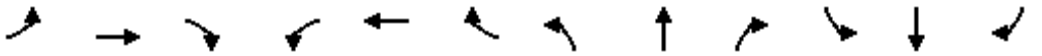
Intersection Summary												
HCM 6th Ctrl Delay			9.1									
HCM 6th LOS			A									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	121	295	33	309	54	502	20	45	480	88
Future Volume (vph)	121	295	33	309	54	502	20	45	480	88
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.4	31.4	9.6	28.8	28.8	9.6	28.8	28.8
Total Split (s)	31.4	31.4	31.4	31.4	9.6	29.0	29.0	9.6	29.0	29.0
Total Split (%)	44.9%	44.9%	44.9%	44.9%	13.7%	41.4%	41.4%	13.7%	41.4%	41.4%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	14.1	14.1	14.1	14.1	5.5	14.0	14.0	5.5	14.0	14.0
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.13	0.32	0.32	0.13	0.32	0.32
v/c Ratio	0.39	0.31	0.11	0.32	0.25	0.45	0.04	0.20	0.43	0.16
Control Delay	17.5	11.9	13.6	12.0	26.3	14.5	0.1	25.8	14.3	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	11.9	13.6	12.0	26.3	14.5	0.1	25.8	14.3	4.0
LOS	B	B	B	B	C	B	A	C	B	A
Approach Delay		13.4		12.2		15.1			13.6	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 43.3	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 13.7	Intersection LOS: B
Intersection Capacity Utilization 55.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cactus Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	295	47	33	309	49	54	502	20	45	480	88
Future Volume (veh/h)	121	295	47	33	309	49	54	502	20	45	480	88
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		1.00	1.00		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	127	311	36	35	325	40	57	528	15	47	505	72
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	405	969	111	413	964	118	106	932	415	92	904	403
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.06	0.26	0.26	0.05	0.25	0.25
Sat Flow, veh/h	1033	3257	374	1048	3239	395	1810	3610	1608	1810	3610	1608
Grp Volume(v), veh/h	127	171	176	35	180	185	57	528	15	47	505	72
Grp Sat Flow(s),veh/h/ln	1033	1805	1825	1048	1805	1829	1810	1805	1608	1810	1805	1608
Q Serve(g_s), s	4.4	3.0	3.0	1.1	3.1	3.2	1.2	5.1	0.3	1.0	4.9	1.4
Cycle Q Clear(g_c), s	7.6	3.0	3.0	4.1	3.1	3.2	1.2	5.1	0.3	1.0	4.9	1.4
Prop In Lane	1.00		0.20	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	405	537	543	413	537	544	106	932	415	92	904	403
V/C Ratio(X)	0.31	0.32	0.32	0.08	0.33	0.34	0.54	0.57	0.04	0.51	0.56	0.18
Avail Cap(c_a), veh/h	766	1168	1182	779	1168	1184	225	2085	929	225	2085	929
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	14.0	10.9	11.0	12.6	11.0	11.0	18.4	12.9	11.2	18.6	13.1	11.8
Incr Delay (d2), s/veh	0.4	0.3	0.3	0.1	0.4	0.4	1.6	0.5	0.0	1.6	0.5	0.2
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	0.8	0.9	0.9	0.2	1.0	1.0	0.5	1.5	0.1	0.4	1.5	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.4	11.3	11.3	12.6	11.4	11.4	20.0	13.5	11.2	20.2	13.7	12.0
LnGrp LOS	B	B	B	B	B	B	B	B	B	C	B	B
Approach Vol, veh/h		474			400			600			624	
Approach Delay, s/veh		12.1			11.5			14.0			14.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	16.2		17.4	7.0	15.9		17.4				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		5.4				
Max Green Setting (Gmax), s	5.0	23.2		26.0	5.0	23.2		26.0				
Max Q Clear Time (g_c+I1), s	3.0	7.1		9.6	3.2	6.9		6.1				
Green Ext Time (p_c), s	0.0	2.9		2.2	0.0	2.9		2.0				

Intersection Summary			
HCM 6th Ctrl Delay		13.1	
HCM 6th LOS		B	

APPENDIX 3.3: EXISTING (2023) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

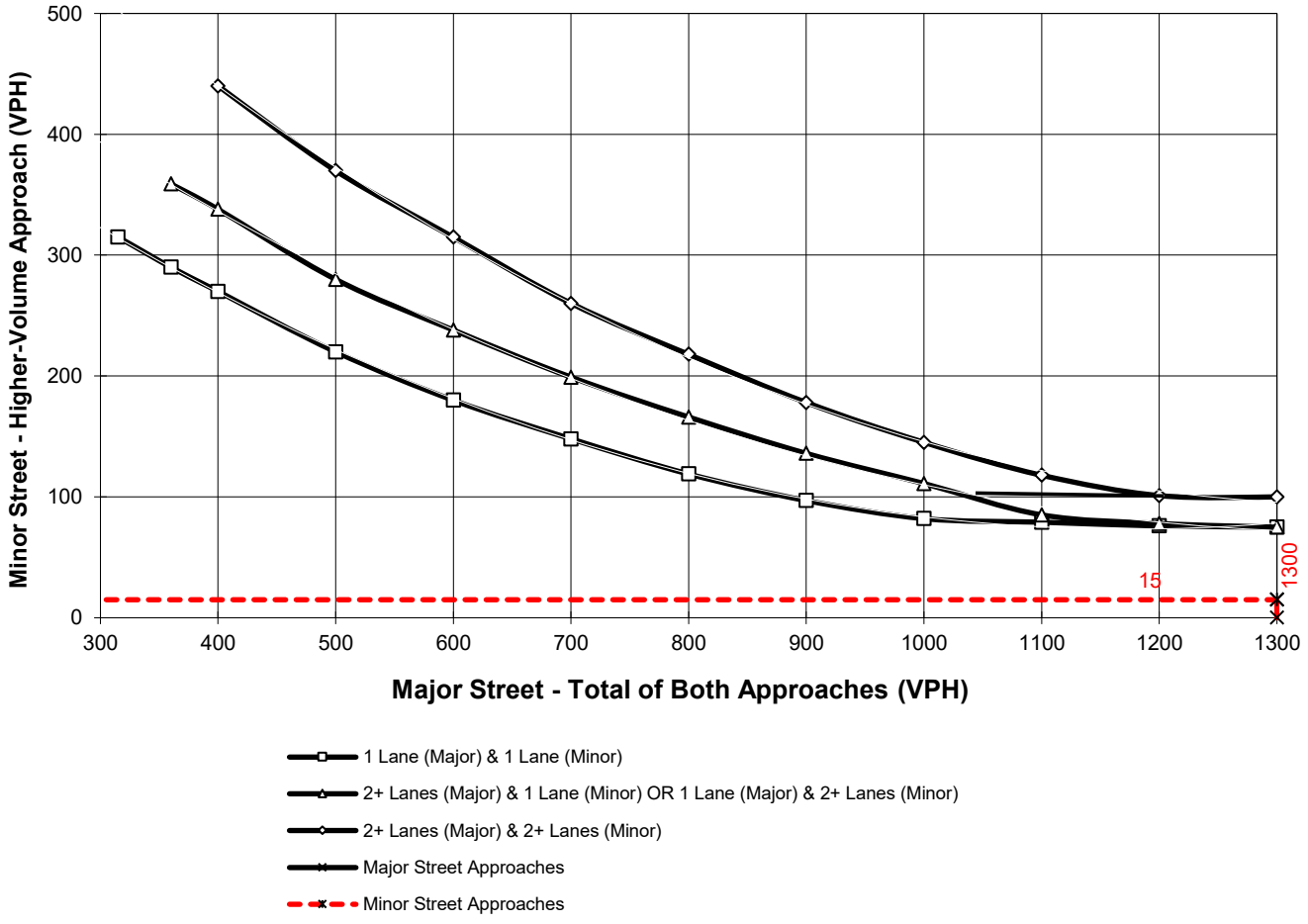
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2023) Conditions - Weekday AM Peak Hour**

Major Street Name = **Cactus Av.**
Total of Both Approaches (VPH) = **1752**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **1st St.**
High Volume Approach (VPH) = **15**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 5.1: EA (2024) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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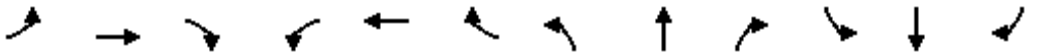
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	152	279	78	88	341	64	653	157	922
Future Volume (vph)	152	279	78	88	341	64	653	157	922
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4			8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	4	4	4	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	27.8	27.8	27.8	27.8	27.8	9.6	27.8	9.6	27.8
Total Split (s)	38.0	38.0	38.0	38.0	38.0	12.0	34.0	18.0	40.0
Total Split (%)	42.2%	42.2%	42.2%	42.2%	42.2%	13.3%	37.8%	20.0%	44.4%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8	4.6	5.8	4.6	5.8
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	25.0	25.0	25.0	25.0	25.0	6.8	37.3	11.5	43.9
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.08	0.41	0.13	0.49
v/c Ratio	0.98	0.55	0.15	0.41	0.54	0.49	0.50	0.72	0.62
Control Delay	98.9	30.5	1.0	29.9	19.9	52.2	22.8	54.9	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.9	30.5	1.0	29.9	19.9	52.2	22.8	54.9	21.2
LOS	F	C	A	C	B	D	C	D	C
Approach Delay		46.4			21.2		25.3		25.7
Approach LOS		D			C		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 28.1	Intersection LOS: C
Intersection Capacity Utilization 76.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Cedar Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	279	78	88	341	215	64	653	57	157	922	106
Future Volume (veh/h)	152	279	78	88	341	215	64	653	57	157	922	106
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		1.00	1.00		0.99	1.00		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	158	291	71	92	355	183	67	680	56	164	960	99
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	261	626	523	296	764	387	87	1284	106	199	1460	151
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.05	0.38	0.38	0.11	0.44	0.44
Sat Flow, veh/h	881	1900	1587	1036	2319	1175	1810	3373	278	1810	3299	340
Grp Volume(v), veh/h	158	291	71	92	275	263	67	364	372	164	525	534
Grp Sat Flow(s),veh/h/ln	881	1900	1587	1036	1805	1689	1810	1805	1845	1810	1805	1834
Q Serve(g_s), s	15.6	10.9	2.8	6.9	10.8	11.1	3.3	14.1	14.1	8.0	20.6	20.6
Cycle Q Clear(g_c), s	26.8	10.9	2.8	17.9	10.8	11.1	3.3	14.1	14.1	8.0	20.6	20.6
Prop In Lane	1.00		1.00	1.00		0.70	1.00		0.15	1.00		0.19
Lane Grp Cap(c), veh/h	261	626	523	296	595	557	87	687	702	199	799	811
V/C Ratio(X)	0.60	0.46	0.14	0.31	0.46	0.47	0.77	0.53	0.53	0.83	0.66	0.66
Avail Cap(c_a), veh/h	286	680	568	325	646	604	149	687	702	269	799	811
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	34.6	23.9	21.2	31.0	23.9	24.0	42.4	21.6	21.6	39.2	19.7	19.7
Incr Delay (d2), s/veh	3.1	0.5	0.1	0.6	0.6	0.6	5.4	2.9	2.9	10.6	4.2	4.2
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	3.4	4.6	1.0	1.7	4.4	4.2	1.5	6.0	6.1	4.0	8.6	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.7	24.4	21.3	31.5	24.4	24.6	47.8	24.5	24.5	49.8	23.9	23.9
LnGrp LOS	D	C	C	C	C	C	D	C	C	D	C	C
Approach Vol, veh/h		520			630			803			1223	
Approach Delay, s/veh		28.0			25.5			26.4			27.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.5	40.1		35.5	8.9	45.6		35.5				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		5.8				
Max Green Setting (Gmax), s	13.4	28.2		32.2	7.4	34.2		32.2				
Max Q Clear Time (g_c+I1), s	10.0	16.1		28.8	5.3	22.6		19.9				
Green Ext Time (p_c), s	0.1	3.3		0.9	0.0	4.8		2.7				

Intersection Summary												
HCM 6th Ctrl Delay			26.9									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	8	575	13	30	1169
Future Vol, veh/h	7	8	575	13	30	1169
Conflicting Peds, #/hr	0	0	0	8	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	10	710	16	37	1443

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1514	363	0	0	734	0
Stage 1	718	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	113	640	-	-	880	-
Stage 1	449	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	107	635	-	-	873	-
Mov Cap-2 Maneuver	297	-	-	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	393	-	-	-	-	-

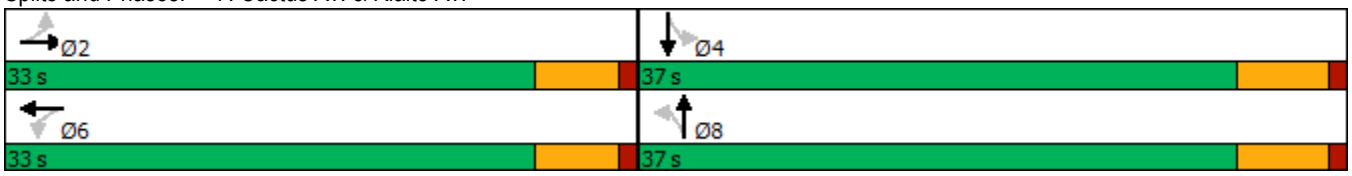
Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	0.2
HCM LOS	B		

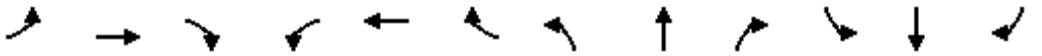
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	415	873	-
HCM Lane V/C Ratio	-	-	0.045	0.042	-
HCM Control Delay (s)	-	-	14.1	9.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	80	332	34	554	85	450	92	682
Future Volume (vph)	80	332	34	554	85	450	92	682
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.4	32.4	32.4	32.4	32.8	32.8	32.8	32.8
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.8	5.8	5.8	5.8
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	21.6	21.6	21.6	21.6	31.4	31.4	31.4	31.4
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.49	0.49	0.49	0.49
v/c Ratio	0.84	0.51	0.22	0.69	0.99	0.38	0.36	0.88
Control Delay	69.2	16.4	17.4	21.1	109.2	11.8	15.9	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	16.4	17.4	21.1	109.2	11.8	15.9	23.4
LOS	E	B	B	C	F	B	B	C
Approach Delay		24.4		20.9		26.3		22.8
Approach LOS		C		C		C		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 64.3	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 23.4	Intersection LOS: C
Intersection Capacity Utilization 86.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Cactus Av. & Rialto Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	332	118	34	554	58	85	450	33	92	682	401
Future Volume (veh/h)	80	332	118	34	554	58	85	450	33	92	682	401
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		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	110	455	136	47	759	64	116	616	34	126	934	468
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	240	1046	310	321	1282	108	136	1583	87	373	1061	522
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	673	2743	813	838	3361	283	391	3479	192	794	2331	1147
Grp Volume(v), veh/h	110	298	293	47	407	416	116	319	331	126	719	683
Grp Sat Flow(s),veh/h/ln	673	1805	1751	838	1805	1839	391	1805	1865	794	1805	1673
Q Serve(g_s), s	10.7	8.4	8.5	3.0	12.4	12.4	5.5	8.0	8.0	8.6	24.7	25.7
Cycle Q Clear(g_c), s	23.1	8.4	8.5	11.5	12.4	12.4	31.2	8.0	8.0	16.6	24.7	25.7
Prop In Lane	1.00		0.46	1.00		0.15	1.00		0.10	1.00		0.69
Lane Grp Cap(c), veh/h	240	688	668	321	688	701	136	822	849	373	822	761
V/C Ratio(X)	0.46	0.43	0.44	0.15	0.59	0.59	0.85	0.39	0.39	0.34	0.88	0.90
Avail Cap(c_a), veh/h	255	727	705	338	727	741	136	822	849	373	822	761
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	26.2	15.7	15.7	20.0	16.9	16.9	33.5	12.4	12.4	17.9	16.9	17.2
Incr Delay (d2), s/veh	1.4	0.4	0.5	0.2	1.2	1.2	37.4	0.3	0.3	0.5	10.5	13.3
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	1.6	3.0	3.0	0.5	4.5	4.6	3.2	2.7	2.8	1.4	10.5	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	16.1	16.2	20.2	18.1	18.1	71.0	12.7	12.7	18.4	27.4	30.5
LnGrp LOS	C	B	B	C	B	B	E	B	B	B	C	C
Approach Vol, veh/h		701			870			766			1528	
Approach Delay, s/veh		18.0			18.2			21.5			28.0	
Approach LOS		B			B			C			C	

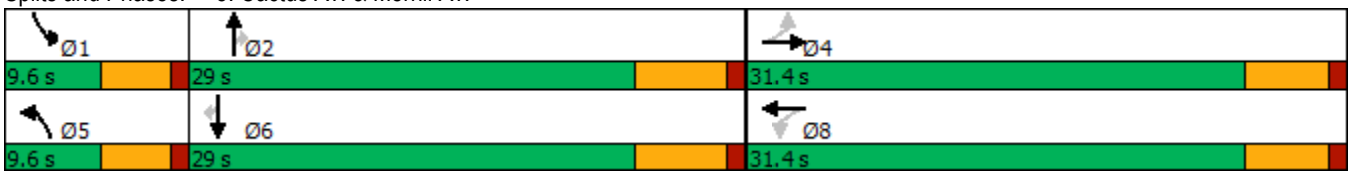
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.5		37.0		31.5		37.0				
Change Period (Y+Rc), s		5.4		5.8		5.4		5.8				
Max Green Setting (Gmax), s		27.6		31.2		27.6		31.2				
Max Q Clear Time (g_c+I1), s		25.1		27.7		14.4		33.2				
Green Ext Time (p_c), s		1.0		2.6		4.1		0.0				

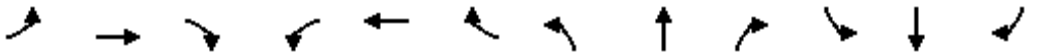
Intersection Summary												
HCM 6th Ctrl Delay			22.7									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	124	316	57	285	73	413	60	71	636	139
Future Volume (vph)	124	316	57	285	73	413	60	71	636	139
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.4	31.4	9.6	28.8	28.8	9.6	28.8	28.8
Total Split (s)	31.4	31.4	31.4	31.4	9.6	29.0	29.0	9.6	29.0	29.0
Total Split (%)	44.9%	44.9%	44.9%	44.9%	13.7%	41.4%	41.4%	13.7%	41.4%	41.4%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	15.9	15.9	15.9	15.9	5.4	18.0	18.0	5.4	18.0	18.0
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.10	0.34	0.34	0.10	0.34	0.34
v/c Ratio	0.52	0.42	0.25	0.39	0.48	0.41	0.12	0.47	0.63	0.26
Control Delay	24.6	16.0	18.4	15.3	39.9	15.8	2.2	39.4	18.5	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	16.0	18.4	15.3	39.9	15.8	2.2	39.4	18.5	4.4
LOS	C	B	B	B	D	B	A	D	B	A
Approach Delay		18.1		15.7		17.5			17.9	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 53.1	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 17.5	Intersection LOS: B
Intersection Capacity Utilization 61.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cactus Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	316	56	57	285	61	73	413	60	71	636	139
Future Volume (veh/h)	124	316	56	57	285	61	73	413	60	71	636	139
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		1.00	1.00		1.00	1.00		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	149	381	53	69	343	50	88	498	50	86	766	143
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	374	1008	139	355	1002	145	126	1111	495	124	1108	487
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.07	0.31	0.31	0.07	0.31	0.31
Sat Flow, veh/h	1007	3183	439	966	3165	457	1810	3610	1610	1810	3610	1587
Grp Volume(v), veh/h	149	215	219	69	194	199	88	498	50	86	766	143
Grp Sat Flow(s),veh/h/ln	1007	1805	1817	966	1805	1818	1810	1805	1610	1810	1805	1587
Q Serve(g_s), s	6.9	4.8	4.8	3.1	4.2	4.3	2.4	5.7	1.1	2.4	9.6	3.5
Cycle Q Clear(g_c), s	11.2	4.8	4.8	7.9	4.2	4.3	2.4	5.7	1.1	2.4	9.6	3.5
Prop In Lane	1.00		0.24	1.00		0.25	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	572	575	355	572	576	126	1111	495	124	1108	487
V/C Ratio(X)	0.40	0.38	0.38	0.19	0.34	0.35	0.70	0.45	0.10	0.69	0.69	0.29
Avail Cap(c_a), veh/h	564	912	918	537	912	918	176	1627	726	176	1627	715
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	17.8	13.6	13.7	16.7	13.5	13.5	23.4	14.3	12.7	23.4	15.7	13.6
Incr Delay (d2), s/veh	0.7	0.4	0.4	0.3	0.4	0.4	2.7	0.3	0.1	2.6	0.8	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	1.4	1.6	1.7	0.6	1.5	1.5	1.0	1.9	0.3	1.0	3.2	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.5	14.1	14.1	17.0	13.8	13.9	26.1	14.6	12.8	26.0	16.5	13.9
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		583			462			636			995	
Approach Delay, s/veh		15.2			14.3			16.0			16.9	
Approach LOS		B			B			B			B	

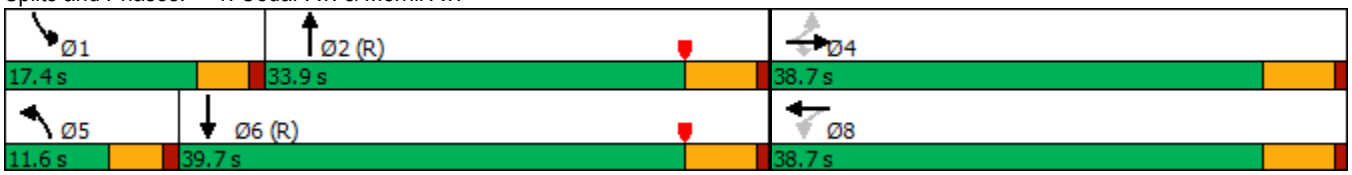
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	21.6		21.7	8.2	21.6		21.7				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		5.4				
Max Green Setting (Gmax), s	5.0	23.2		26.0	5.0	23.2		26.0				
Max Q Clear Time (g_c+I1), s	4.4	7.7		13.2	4.4	11.6		9.9				
Green Ext Time (p_c), s	0.0	2.8		2.5	0.0	4.1		2.2				

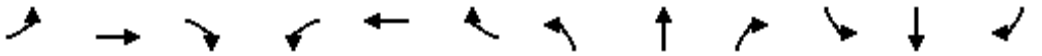
Intersection Summary			
HCM 6th Ctrl Delay		15.9	
HCM 6th LOS		B	

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	160	293	62	71	277	53	684	117	706
Future Volume (vph)	160	293	62	71	277	53	684	117	706
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4			8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	4	4	4	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	27.8	27.8	27.8	27.8	27.8	9.6	27.8	9.6	27.8
Total Split (s)	38.7	38.7	38.7	38.7	38.7	11.6	33.9	17.4	39.7
Total Split (%)	43.0%	43.0%	43.0%	43.0%	43.0%	12.9%	37.7%	19.3%	44.1%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8	4.6	5.8	4.6	5.8
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	23.7	23.7	23.7	23.7	23.7	6.7	40.0	10.1	45.3
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.07	0.44	0.11	0.50
v/c Ratio	0.89	0.62	0.13	0.40	0.47	0.42	0.50	0.61	0.47
Control Delay	73.3	33.7	0.5	31.4	18.3	49.1	21.2	50.9	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	33.7	0.5	31.4	18.3	49.1	21.2	50.9	17.8
LOS	E	C	A	C	B	D	C	D	B
Approach Delay		42.0			20.1		23.0		22.0
Approach LOS		D			C		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 25.7	Intersection LOS: C
Intersection Capacity Utilization 69.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Cedar Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	293	62	71	277	169	53	684	61	117	706	93
Future Volume (veh/h)	160	293	62	71	277	169	53	684	61	117	706	93
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		1.00	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	170	312	52	76	295	149	56	728	62	124	751	92
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	280	591	500	261	728	359	76	1423	121	156	1513	185
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.42	0.42	0.09	0.47	0.47
Sat Flow, veh/h	961	1900	1607	1034	2343	1154	1810	3363	286	1810	3237	396
Grp Volume(v), veh/h	170	312	52	76	226	218	56	391	399	124	419	424
Grp Sat Flow(s),veh/h/ln	961	1900	1607	1034	1805	1692	1810	1805	1844	1810	1805	1828
Q Serve(g_s), s	15.3	12.2	2.1	5.9	8.9	9.2	2.8	14.3	14.4	6.1	14.5	14.5
Cycle Q Clear(g_c), s	24.5	12.2	2.1	18.1	8.9	9.2	2.8	14.3	14.4	6.1	14.5	14.5
Prop In Lane	1.00		1.00	1.00		0.68	1.00		0.16	1.00		0.22
Lane Grp Cap(c), veh/h	280	591	500	261	561	526	76	764	780	156	843	854
V/C Ratio(X)	0.61	0.53	0.10	0.29	0.40	0.42	0.74	0.51	0.51	0.80	0.50	0.50
Avail Cap(c_a), veh/h	333	695	587	318	660	619	141	764	780	257	843	854
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	34.2	25.6	22.1	33.0	24.4	24.5	42.6	19.1	19.1	40.4	16.6	16.6
Incr Delay (d2), s/veh	2.3	0.7	0.1	0.6	0.5	0.5	5.2	2.4	2.4	3.5	2.1	2.1
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	3.5	5.2	0.7	1.4	3.6	3.5	1.3	5.9	6.1	2.7	5.8	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	26.3	22.2	33.6	24.9	25.1	47.8	21.5	21.5	43.9	18.7	18.7
LnGrp LOS	D	C	C	C	C	C	D	C	C	D	B	B
Approach Vol, veh/h		534			520			846			967	
Approach Delay, s/veh		29.1			26.2			23.3			21.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.3	43.9		33.8	8.4	47.9		33.8				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		5.8				
Max Green Setting (Gmax), s	12.8	28.1		32.9	7.0	33.9		32.9				
Max Q Clear Time (g_c+I1), s	8.1	16.4		26.5	4.8	16.5		20.1				
Green Ext Time (p_c), s	0.1	3.5		1.5	0.0	4.5		2.2				

Intersection Summary			
HCM 6th Ctrl Delay		24.5	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	11	742	12	16	635
Future Vol, veh/h	7	11	742	12	16	635
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	12	789	13	17	676

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1162	396	0	0	803	0
Stage 1	790	-	-	-	-	-
Stage 2	372	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	191	609	-	-	830	-
Stage 1	413	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	187	608	-	-	829	-
Mov Cap-2 Maneuver	363	-	-	-	-	-
Stage 1	413	-	-	-	-	-
Stage 2	659	-	-	-	-	-

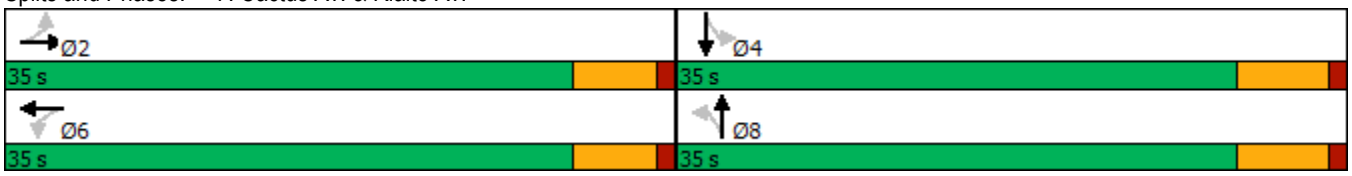
Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	482	829	-
HCM Lane V/C Ratio	-	-	0.04	0.021	-
HCM Control Delay (s)	-	-	12.8	9.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	92	311	24	246	71	578	52	507
Future Volume (vph)	92	311	24	246	71	578	52	507
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.4	32.4	32.4	32.4	32.8	32.8	32.8	32.8
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.8	5.8	5.8	5.8
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.2	13.2	13.2	13.2	14.4	14.4	14.4	14.4
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.36	0.36	0.36	0.36
v/c Ratio	0.29	0.36	0.08	0.29	0.27	0.50	0.20	0.49
Control Delay	13.3	9.6	11.0	8.5	12.7	11.4	11.7	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	9.6	11.0	8.5	12.7	11.4	11.7	10.9
LOS	B	A	B	A	B	B	B	B
Approach Delay		10.3		8.7		11.6		11.0
Approach LOS		B		A		B		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 39.7	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 10.6	Intersection LOS: B
Intersection Capacity Utilization 63.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Cactus Av. & Rialto Av.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	311	93	24	246	83	71	578	30	52	507	84
Future Volume (veh/h)	92	311	93	24	246	83	71	578	30	52	507	84
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		1.00	1.00		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	99	334	84	26	265	66	76	622	26	56	545	57
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	447	841	209	409	843	206	421	1325	55	405	1238	129
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1064	2866	711	984	2874	702	830	3531	147	796	3299	344
Grp Volume(v), veh/h	99	209	209	26	165	166	76	318	330	56	298	304
Grp Sat Flow(s),veh/h/ln	1064	1805	1772	984	1805	1771	830	1805	1873	796	1805	1838
Q Serve(g_s), s	2.7	3.1	3.2	0.7	2.4	2.5	2.6	4.5	4.5	1.9	4.2	4.2
Cycle Q Clear(g_c), s	5.2	3.1	3.2	3.9	2.4	2.5	6.7	4.5	4.5	6.5	4.2	4.2
Prop In Lane	1.00		0.40	1.00		0.40	1.00		0.08	1.00		0.19
Lane Grp Cap(c), veh/h	447	530	520	409	530	520	421	677	703	405	677	690
V/C Ratio(X)	0.22	0.39	0.40	0.06	0.31	0.32	0.18	0.47	0.47	0.14	0.44	0.44
Avail Cap(c_a), veh/h	1067	1580	1552	981	1580	1551	827	1559	1618	794	1559	1588
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	11.3	9.5	9.6	11.1	9.3	9.3	10.4	8.0	8.0	10.5	7.9	7.9
Incr Delay (d2), s/veh	0.2	0.5	0.5	0.1	0.3	0.4	0.2	0.5	0.5	0.2	0.4	0.4
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	0.4	0.8	0.8	0.1	0.6	0.6	0.3	1.0	1.0	0.2	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	10.0	10.1	11.2	9.6	9.7	10.6	8.5	8.5	10.6	8.4	8.4
LnGrp LOS	B	B	B	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		517			357			724			658	
Approach Delay, s/veh		10.3			9.8			8.7			8.5	
Approach LOS		B			A			A			A	

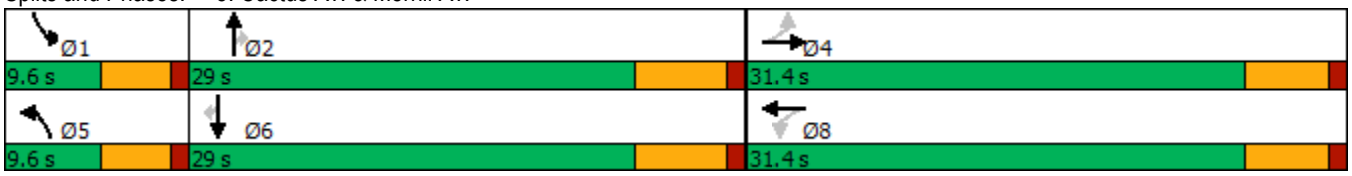
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.3		18.5		15.3		18.5				
Change Period (Y+Rc), s		5.4		5.8		5.4		5.8				
Max Green Setting (Gmax), s		29.6		29.2		29.6		29.2				
Max Q Clear Time (g_c+I1), s		7.2		8.5		5.9		8.7				
Green Ext Time (p_c), s		2.6		3.6		1.8		4.0				

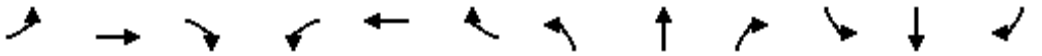
Intersection Summary												
HCM 6th Ctrl Delay			9.2									
HCM 6th LOS			A									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	123	300	33	315	55	512	20	46	490	89
Future Volume (vph)	123	300	33	315	55	512	20	46	490	89
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.4	31.4	9.6	28.8	28.8	9.6	28.8	28.8
Total Split (s)	31.4	31.4	31.4	31.4	9.6	29.0	29.0	9.6	29.0	29.0
Total Split (%)	44.9%	44.9%	44.9%	44.9%	13.7%	41.4%	41.4%	13.7%	41.4%	41.4%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	14.1	14.1	14.1	14.1	5.5	16.0	16.0	5.5	14.0	14.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.12	0.35	0.35	0.12	0.31	0.31
v/c Ratio	0.42	0.33	0.11	0.34	0.27	0.42	0.03	0.22	0.46	0.17
Control Delay	19.3	13.0	14.5	13.2	27.7	14.0	0.1	27.2	15.6	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	13.0	14.5	13.2	27.7	14.0	0.1	27.2	15.6	4.1
LOS	B	B	B	B	C	B	A	C	B	A
Approach Delay		14.6		13.3		14.8			14.8	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 45.4	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.46	
Intersection Signal Delay: 14.5	Intersection LOS: B
Intersection Capacity Utilization 55.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cactus Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	300	48	33	315	50	55	512	20	46	490	89
Future Volume (veh/h)	123	300	48	33	315	50	55	512	20	46	490	89
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		1.00	1.00		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	129	316	38	35	332	41	58	539	15	48	516	73
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	404	978	117	412	977	120	107	929	414	93	902	402
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.06	0.26	0.26	0.05	0.25	0.25
Sat Flow, veh/h	1025	3242	386	1042	3237	397	1810	3610	1608	1810	3610	1608
Grp Volume(v), veh/h	129	175	179	35	184	189	58	539	15	48	516	73
Grp Sat Flow(s),veh/h/ln	1025	1805	1823	1042	1805	1829	1810	1805	1608	1810	1805	1608
Q Serve(g_s), s	4.5	3.0	3.1	1.1	3.2	3.3	1.3	5.3	0.3	1.0	5.1	1.4
Cycle Q Clear(g_c), s	7.8	3.0	3.1	4.2	3.2	3.3	1.3	5.3	0.3	1.0	5.1	1.4
Prop In Lane	1.00		0.21	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	404	545	550	412	545	552	107	929	414	93	902	402
V/C Ratio(X)	0.32	0.32	0.33	0.08	0.34	0.34	0.54	0.58	0.04	0.52	0.57	0.18
Avail Cap(c_a), veh/h	752	1157	1168	766	1157	1172	223	2064	920	223	2064	920
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	14.1	11.0	11.0	12.6	11.0	11.0	18.6	13.2	11.3	18.8	13.3	12.0
Incr Delay (d2), s/veh	0.5	0.3	0.3	0.1	0.4	0.4	1.6	0.6	0.0	1.6	0.6	0.2
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	0.9	0.9	1.0	0.2	1.0	1.0	0.5	1.6	0.1	0.4	1.5	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.5	11.3	11.3	12.7	11.4	11.4	20.1	13.7	11.3	20.4	13.9	12.2
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		483			408			612			637	
Approach Delay, s/veh		12.2			11.5			14.3			14.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	16.2		17.6	7.0	15.9		17.6				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		5.4				
Max Green Setting (Gmax), s	5.0	23.2		26.0	5.0	23.2		26.0				
Max Q Clear Time (g_c+I1), s	3.0	7.3		9.8	3.3	7.1		6.2				
Green Ext Time (p_c), s	0.0	2.9		2.2	0.0	3.0		2.1				

Intersection Summary			
HCM 6th Ctrl Delay		13.2	
HCM 6th LOS		B	

APPENDIX 5.2: EAP (2024) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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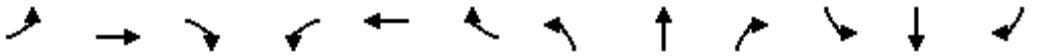
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	152	279	78	99	341	64	659	161	923
Future Volume (vph)	152	279	78	99	341	64	659	161	923
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4			8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	4	4	4	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	27.8	27.8	27.8	27.8	27.8	9.6	27.8	9.6	27.8
Total Split (s)	38.0	38.0	38.0	38.0	38.0	12.0	34.0	18.0	40.0
Total Split (%)	42.2%	42.2%	42.2%	42.2%	42.2%	13.3%	37.8%	20.0%	44.4%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8	4.6	5.8	4.6	5.8
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	25.3	25.3	25.3	25.3	25.3	6.8	36.9	11.5	43.6
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.08	0.41	0.13	0.48
v/c Ratio	0.98	0.54	0.15	0.45	0.54	0.49	0.52	0.73	0.62
Control Delay	96.7	30.1	1.0	31.1	19.4	52.4	23.2	55.8	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.7	30.1	1.0	31.1	19.4	52.4	23.2	55.8	21.4
LOS	F	C	A	C	B	D	C	E	C
Approach Delay		45.5			21.1		25.6		26.1
Approach LOS		D			C		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 28.1	Intersection LOS: C
Intersection Capacity Utilization 76.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Cedar Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	279	78	99	341	219	64	659	70	161	923	106
Future Volume (veh/h)	152	279	78	99	341	219	64	659	70	161	923	106
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		1.00	1.00		0.99	1.00		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	158	291	71	103	355	187	67	686	70	168	961	99
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	261	629	525	297	761	394	87	1245	127	203	1456	150
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.05	0.38	0.38	0.11	0.44	0.44
Sat Flow, veh/h	878	1900	1587	1036	2300	1191	1810	3302	337	1810	3299	340
Grp Volume(v), veh/h	158	291	71	103	277	265	67	375	381	168	526	534
Grp Sat Flow(s),veh/h/ln	878	1900	1587	1036	1805	1686	1810	1805	1834	1810	1805	1834
Q Serve(g_s), s	15.7	10.9	2.8	7.9	10.9	11.2	3.3	14.7	14.7	8.2	20.7	20.7
Cycle Q Clear(g_c), s	26.9	10.9	2.8	18.7	10.9	11.2	3.3	14.7	14.7	8.2	20.7	20.7
Prop In Lane	1.00		1.00	1.00		0.71	1.00		0.18	1.00		0.19
Lane Grp Cap(c), veh/h	261	629	525	297	597	558	87	681	691	203	796	809
V/C Ratio(X)	0.61	0.46	0.14	0.35	0.46	0.47	0.77	0.55	0.55	0.83	0.66	0.66
Avail Cap(c_a), veh/h	285	680	568	325	646	603	149	681	691	269	796	809
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	34.6	23.8	21.1	31.2	23.8	23.9	42.4	22.0	22.1	39.1	19.8	19.8
Incr Delay (d2), s/veh	3.1	0.5	0.1	0.7	0.6	0.6	5.4	3.2	3.2	11.5	4.3	4.2
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	3.4	4.6	1.0	1.9	4.4	4.2	1.5	6.3	6.4	4.1	8.7	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.7	24.3	21.2	31.9	24.4	24.5	47.8	25.2	25.2	50.6	24.1	24.0
LnGrp LOS	D	C	C	C	C	C	D	C	C	D	C	C
Approach Vol, veh/h		520			645			823			1228	
Approach Delay, s/veh		28.0			25.6			27.1			27.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.7	39.7		35.6	8.9	45.5		35.6				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		5.8				
Max Green Setting (Gmax), s	13.4	28.2		32.2	7.4	34.2		32.2				
Max Q Clear Time (g_c+I1), s	10.2	16.7		28.9	5.3	22.7		20.7				
Green Ext Time (p_c), s	0.1	3.3		0.9	0.0	4.8		2.7				

Intersection Summary												
HCM 6th Ctrl Delay			27.2									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	530	1040	13	0	1
Future Vol, veh/h	10	530	1040	13	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	576	1130	14	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1144	0	-	0	1447	572
Stage 1	-	-	-	-	1137	-
Stage 2	-	-	-	-	310	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	618	-	-	-	125	468
Stage 1	-	-	-	-	272	-
Stage 2	-	-	-	-	723	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	618	-	-	-	123	468
Mov Cap-2 Maneuver	-	-	-	-	247	-
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	723	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	618	-	-	-	468
HCM Lane V/C Ratio	0.018	-	-	-	0.002
HCM Control Delay (s)	10.9	-	-	-	12.7
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	530	1054	8	0	0
Future Vol, veh/h	0	530	1054	8	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	576	1146	9	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	578
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	464
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	464
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	0
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	583	1199	2
Future Vol, veh/h	0	1	0	583	1199	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1	0	634	1303	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	653	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	415	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	415	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	415	-	-
HCM Lane V/C Ratio	-	0.003	-	-
HCM Control Delay (s)	-	13.7	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	8	575	13	30	1170
Future Vol, veh/h	7	8	575	13	30	1170
Conflicting Peds, #/hr	0	0	0	8	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	10	710	16	37	1444

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1514	363	0	0	734	0
Stage 1	718	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	113	640	-	-	880	-
Stage 1	449	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	107	635	-	-	873	-
Mov Cap-2 Maneuver	297	-	-	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	393	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	415	873	-
HCM Lane V/C Ratio	-	-	0.045	0.042	-
HCM Control Delay (s)	-	-	14.1	9.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	0	588	1177	0
Future Vol, veh/h	0	15	0	588	1177	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	16	0	639	1279	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	640	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	423	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	423	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

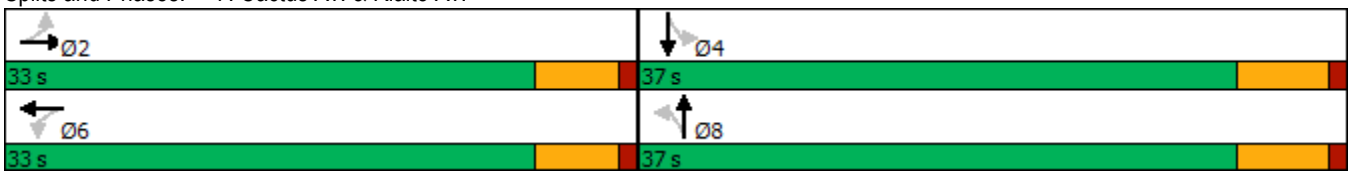
Approach	EB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

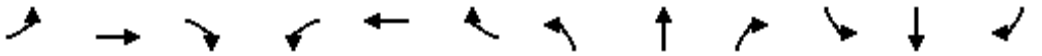
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	423	-	-
HCM Lane V/C Ratio	-	0.039	-	-
HCM Control Delay (s)	-	13.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	80	332	34	558	103	450	92	697
Future Volume (vph)	80	332	34	558	103	450	92	697
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.4	32.4	32.4	32.4	32.8	32.8	32.8	32.8
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.8	5.8	5.8	5.8
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	22.1	22.1	22.1	22.1	31.4	31.4	31.4	31.4
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.48	0.48	0.48	0.48
v/c Ratio	0.83	0.51	0.21	0.69	1.22	0.38	0.37	0.89
Control Delay	66.0	16.4	17.2	20.9	177.5	11.9	16.2	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	16.4	17.2	20.9	177.5	11.9	16.2	25.0
LOS	E	B	B	C	F	B	B	C
Approach Delay		23.9		20.7		41.1		24.3
Approach LOS		C		C		D		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 64.8	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.22	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 87.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Cactus Av. & Rialto Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	332	118	34	558	58	103	450	33	92	697	401
Future Volume (veh/h)	80	332	118	34	558	58	103	450	33	92	697	401
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		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	110	455	136	47	764	64	141	616	34	126	955	468
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	239	1049	311	321	1286	108	131	1581	87	372	1069	514
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	670	2743	813	838	3363	282	383	3479	192	794	2351	1130
Grp Volume(v), veh/h	110	298	293	47	410	418	141	319	331	126	729	694
Grp Sat Flow(s),veh/h/ln	670	1805	1751	838	1805	1840	383	1805	1865	794	1805	1676
Q Serve(g_s), s	10.8	8.4	8.5	3.0	12.5	12.5	4.7	8.0	8.1	8.6	25.4	26.5
Cycle Q Clear(g_c), s	23.2	8.4	8.5	11.5	12.5	12.5	31.2	8.0	8.1	16.7	25.4	26.5
Prop In Lane	1.00		0.46	1.00		0.15	1.00		0.10	1.00		0.67
Lane Grp Cap(c), veh/h	239	690	670	321	690	703	131	820	848	372	820	762
V/C Ratio(X)	0.46	0.43	0.44	0.15	0.59	0.59	1.07	0.39	0.39	0.34	0.89	0.91
Avail Cap(c_a), veh/h	253	726	704	338	726	740	131	820	848	372	820	762
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	26.2	15.7	15.7	20.0	16.9	16.9	33.9	12.4	12.4	17.9	17.1	17.4
Incr Delay (d2), s/veh	1.4	0.4	0.5	0.2	1.2	1.2	100.0	0.3	0.3	0.5	11.7	15.2
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	1.6	3.0	3.0	0.5	4.6	4.7	5.7	2.7	2.8	1.4	11.0	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.6	16.1	16.2	20.2	18.1	18.1	133.8	12.7	12.7	18.5	28.8	32.6
LnGrp LOS	C	B	B	C	B	B	F	B	B	B	C	C
Approach Vol, veh/h		701			875			791			1549	
Approach Delay, s/veh		17.9			18.2			34.3			29.7	
Approach LOS		B			B			C			C	

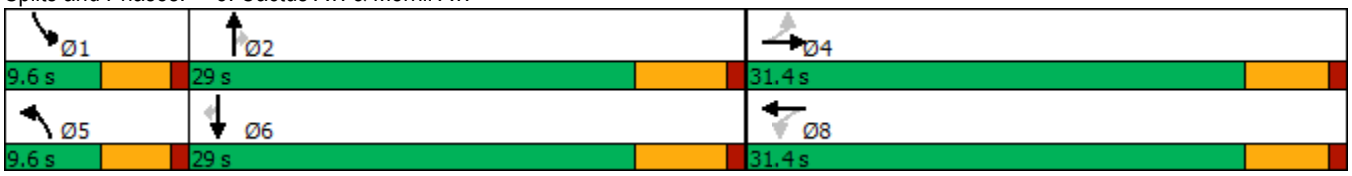
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.7		37.0		31.7		37.0				
Change Period (Y+Rc), s		5.4		5.8		5.4		5.8				
Max Green Setting (Gmax), s		27.6		31.2		27.6		31.2				
Max Q Clear Time (g_c+I1), s		25.2		28.5		14.5		33.2				
Green Ext Time (p_c), s		1.0		2.1		4.2		0.0				

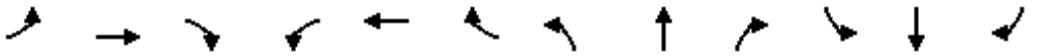
Intersection Summary												
HCM 6th Ctrl Delay			26.0									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	141	316	57	285	73	414	60	71	636	154
Future Volume (vph)	141	316	57	285	73	414	60	71	636	154
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.4	31.4	9.6	28.8	28.8	9.6	28.8	28.8
Total Split (s)	31.4	31.4	31.4	31.4	9.6	29.0	29.0	9.6	29.0	29.0
Total Split (%)	44.9%	44.9%	44.9%	44.9%	13.7%	41.4%	41.4%	13.7%	41.4%	41.4%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	16.8	16.8	16.8	16.8	5.4	18.2	18.2	5.4	18.2	18.2
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.10	0.34	0.34	0.10	0.34	0.34
v/c Ratio	0.57	0.40	0.24	0.37	0.49	0.41	0.12	0.48	0.63	0.28
Control Delay	25.9	15.7	18.0	15.0	41.0	16.4	2.2	40.5	19.1	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	15.7	18.0	15.0	41.0	16.4	2.2	40.5	19.1	4.4
LOS	C	B	B	B	D	B	A	D	B	A
Approach Delay		18.5		15.4		18.1			18.3	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 54.3	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 17.8	Intersection LOS: B
Intersection Capacity Utilization 61.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cactus Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	316	56	57	285	61	73	414	60	71	636	154
Future Volume (veh/h)	141	316	56	57	285	61	73	414	60	71	636	154
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		1.00	1.00		1.00	1.00		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	170	381	53	69	343	50	88	499	50	86	766	162
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	385	1050	145	366	1044	151	124	1100	491	123	1097	482
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.07	0.30	0.30	0.07	0.30	0.30
Sat Flow, veh/h	1007	3183	439	966	3165	457	1810	3610	1610	1810	3610	1587
Grp Volume(v), veh/h	170	215	219	69	194	199	88	499	50	86	766	162
Grp Sat Flow(s),veh/h/ln	1007	1805	1817	966	1805	1818	1810	1805	1610	1810	1805	1587
Q Serve(g_s), s	8.1	4.8	4.9	3.1	4.3	4.4	2.5	5.9	1.2	2.5	9.9	4.2
Cycle Q Clear(g_c), s	12.5	4.8	4.9	8.0	4.3	4.4	2.5	5.9	1.2	2.5	9.9	4.2
Prop In Lane	1.00		0.24	1.00		0.25	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	385	595	599	366	595	600	124	1100	491	123	1097	482
V/C Ratio(X)	0.44	0.36	0.37	0.19	0.33	0.33	0.71	0.45	0.10	0.70	0.70	0.34
Avail Cap(c_a), veh/h	546	885	891	520	885	891	171	1579	704	171	1579	694
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	18.1	13.5	13.5	16.6	13.4	13.4	24.2	14.9	13.2	24.2	16.3	14.3
Incr Delay (d2), s/veh	0.8	0.4	0.4	0.2	0.3	0.3	3.8	0.3	0.1	3.0	0.8	0.4
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	1.7	1.6	1.7	0.6	1.5	1.5	1.1	2.0	0.4	1.0	3.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	13.9	13.9	16.8	13.7	13.7	28.0	15.2	13.3	27.2	17.1	14.7
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		604			462			637			1014	
Approach Delay, s/veh		15.3			14.2			16.8			17.6	
Approach LOS		B			B			B			B	

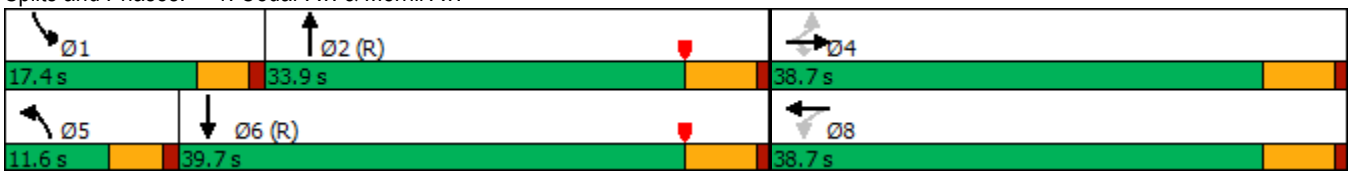
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	22.0		22.9	8.2	21.9		22.9				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		5.4				
Max Green Setting (Gmax), s	5.0	23.2		26.0	5.0	23.2		26.0				
Max Q Clear Time (g_c+I1), s	4.5	7.9		14.5	4.5	11.9		10.0				
Green Ext Time (p_c), s	0.0	2.8		2.5	0.0	4.1		2.2				

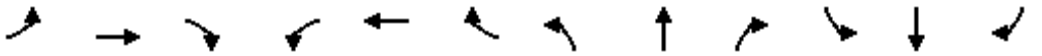
Intersection Summary												
HCM 6th Ctrl Delay			16.3									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	160	293	62	84	277	53	685	122	712
Future Volume (vph)	160	293	62	84	277	53	685	122	712
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4			8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	4	4	4	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	27.8	27.8	27.8	27.8	27.8	9.6	27.8	9.6	27.8
Total Split (s)	38.7	38.7	38.7	38.7	38.7	11.6	33.9	17.4	39.7
Total Split (%)	43.0%	43.0%	43.0%	43.0%	43.0%	12.9%	37.7%	19.3%	44.1%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8	4.6	5.8	4.6	5.8
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	23.9	23.9	23.9	23.9	23.9	6.7	39.6	10.3	45.1
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	0.07	0.44	0.11	0.50
v/c Ratio	0.89	0.62	0.12	0.47	0.47	0.42	0.52	0.63	0.48
Control Delay	72.7	33.4	0.5	33.8	17.7	49.1	21.6	51.4	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.7	33.4	0.5	33.8	17.7	49.1	21.6	51.4	18.0
LOS	E	C	A	C	B	D	C	D	B
Approach Delay		41.6			20.2		23.4		22.4
Approach LOS		D			C		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 25.8	Intersection LOS: C
Intersection Capacity Utilization 70.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Cedar Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	293	62	84	277	173	53	685	75	122	712	93
Future Volume (veh/h)	160	293	62	84	277	173	53	685	75	122	712	93
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		1.00	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	170	312	52	89	295	153	56	729	77	130	757	92
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	280	593	502	263	725	366	76	1375	145	162	1510	183
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.42	0.42	0.09	0.47	0.47
Sat Flow, veh/h	957	1900	1607	1034	2321	1173	1810	3290	347	1810	3240	394
Grp Volume(v), veh/h	170	312	52	89	228	220	56	400	406	130	422	427
Grp Sat Flow(s),veh/h/ln	957	1900	1607	1034	1805	1689	1810	1805	1832	1810	1805	1829
Q Serve(g_s), s	15.4	12.2	2.1	7.0	8.9	9.3	2.8	14.9	14.9	6.3	14.6	14.7
Cycle Q Clear(g_c), s	24.7	12.2	2.1	19.1	8.9	9.3	2.8	14.9	14.9	6.3	14.6	14.7
Prop In Lane	1.00		1.00	1.00		0.69	1.00		0.19	1.00		0.22
Lane Grp Cap(c), veh/h	280	593	502	263	564	527	76	755	766	162	841	852
V/C Ratio(X)	0.61	0.53	0.10	0.34	0.40	0.42	0.74	0.53	0.53	0.80	0.50	0.50
Avail Cap(c_a), veh/h	331	695	587	318	660	617	141	755	766	257	841	852
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	34.2	25.5	22.0	33.3	24.4	24.5	42.6	19.6	19.6	40.2	16.7	16.8
Incr Delay (d2), s/veh	2.3	0.7	0.1	0.8	0.5	0.5	5.2	2.7	2.6	3.8	2.1	2.1
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	3.5	5.2	0.7	1.7	3.6	3.5	1.3	6.2	6.3	2.9	5.9	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	26.2	22.1	34.1	24.8	25.0	47.8	22.2	22.2	44.0	18.9	18.9
LnGrp LOS	D	C	C	C	C	C	D	C	C	D	B	B
Approach Vol, veh/h		534			537			862			979	
Approach Delay, s/veh		29.1			26.4			23.9			22.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.7	43.4		33.9	8.4	47.7		33.9				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		5.8				
Max Green Setting (Gmax), s	12.8	28.1		32.9	7.0	33.9		32.9				
Max Q Clear Time (g_c+I1), s	8.3	16.9		26.7	4.8	16.7		21.1				
Green Ext Time (p_c), s	0.1	3.5		1.4	0.0	4.6		2.2				

Intersection Summary			
HCM 6th Ctrl Delay		24.7	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	496	403	10	2	7
Future Vol, veh/h	2	496	403	10	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	539	438	11	2	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	449	0	-	0	718	225
Stage 1	-	-	-	-	444	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1122	-	-	-	368	784
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	753	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1122	-	-	-	367	784
Mov Cap-2 Maneuver	-	-	-	-	538	-
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	753	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1122	-	-	-	712
HCM Lane V/C Ratio	0.002	-	-	-	0.014
HCM Control Delay (s)	8.2	-	-	-	10.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	498	413	9	0	0
Future Vol, veh/h	0	498	413	9	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	541	449	10	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	230
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	779
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	779
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	0
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	0	755	652	0
Future Vol, veh/h	0	6	0	755	652	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	7	0	821	709	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	355	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	647	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	647	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	647	-	-
HCM Lane V/C Ratio	-	0.01	-	-
HCM Control Delay (s)	-	10.6	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	11	744	12	16	641
Future Vol, veh/h	7	11	744	12	16	641
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	12	791	13	17	682

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1167	397	0	0	805	0
Stage 1	792	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	190	608	-	-	828	-
Stage 1	412	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	186	607	-	-	827	-
Mov Cap-2 Maneuver	362	-	-	-	-	-
Stage 1	412	-	-	-	-	-
Stage 2	657	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	481	827	-
HCM Lane V/C Ratio	-	-	0.04	0.021	-
HCM Control Delay (s)	-	-	12.8	9.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	0	755	649	0
Future Vol, veh/h	0	17	0	755	649	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	18	0	821	705	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	353	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	649	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	649	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

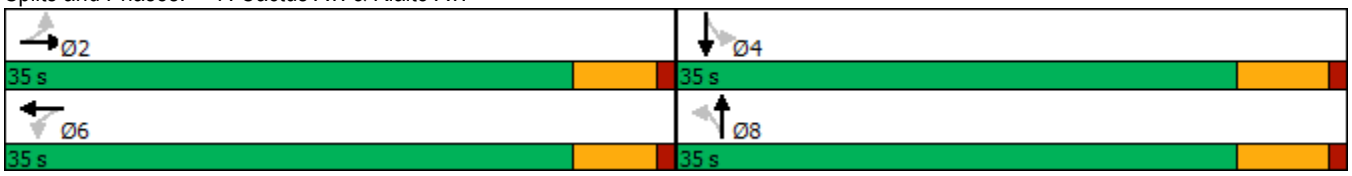
Approach	EB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

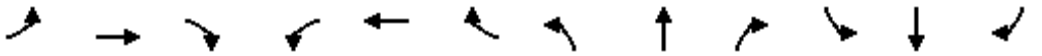
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	649	-	-
HCM Lane V/C Ratio	-	0.028	-	-
HCM Control Delay (s)	-	10.7	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	94	312	24	247	89	578	55	525
Future Volume (vph)	94	312	24	247	89	578	55	525
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.4	32.4	32.4	32.4	32.8	32.8	32.8	32.8
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.8	5.8	5.8	5.8
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.2	13.2	13.2	13.2	14.4	14.4	14.4	14.4
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.36	0.36	0.36	0.36
v/c Ratio	0.30	0.36	0.08	0.30	0.35	0.50	0.21	0.50
Control Delay	13.4	9.6	11.0	8.5	14.2	11.4	11.9	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	9.6	11.0	8.5	14.2	11.4	11.9	11.1
LOS	B	A	B	A	B	B	B	B
Approach Delay		10.3		8.7		11.8		11.2
Approach LOS		B		A		B		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 39.7	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 10.8	Intersection LOS: B
Intersection Capacity Utilization 64.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Cactus Av. & Rialto Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	312	93	24	247	83	89	578	30	55	525	86
Future Volume (veh/h)	94	312	93	24	247	83	89	578	30	55	525	86
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		1.00	1.00		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	101	335	84	26	266	66	96	622	26	59	565	59
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	431	822	203	392	824	201	424	1394	58	416	1302	136
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1063	2868	709	983	2876	700	813	3531	147	796	3299	344
Grp Volume(v), veh/h	101	209	210	26	165	167	96	318	330	59	309	315
Grp Sat Flow(s),veh/h/ln	1063	1805	1772	983	1805	1771	813	1805	1873	796	1805	1838
Q Serve(g_s), s	2.9	3.3	3.4	0.8	2.5	2.6	3.4	4.5	4.6	2.1	4.4	4.4
Cycle Q Clear(g_c), s	5.5	3.3	3.4	4.1	2.5	2.6	7.8	4.5	4.6	6.6	4.4	4.4
Prop In Lane	1.00		0.40	1.00		0.40	1.00		0.08	1.00		0.19
Lane Grp Cap(c), veh/h	431	517	508	392	517	508	424	712	739	416	712	725
V/C Ratio(X)	0.23	0.40	0.41	0.07	0.32	0.33	0.23	0.45	0.45	0.14	0.43	0.43
Avail Cap(c_a), veh/h	1021	1520	1493	939	1520	1492	779	1500	1557	763	1500	1527
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	12.0	10.1	10.1	11.8	9.8	9.9	10.6	7.8	7.8	10.3	7.8	7.8
Incr Delay (d2), s/veh	0.3	0.5	0.5	0.1	0.4	0.4	0.3	0.4	0.4	0.2	0.4	0.4
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	0.9	0.9	0.1	0.7	0.7	0.4	1.0	1.0	0.2	0.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	10.6	10.7	11.9	10.2	10.2	10.9	8.3	8.2	10.4	8.2	8.2
LnGrp LOS	B	B	B	B	B	B	B	A	A	B	A	A
Approach Vol, veh/h		520			358			744			683	
Approach Delay, s/veh		11.0			10.3			8.6			8.4	
Approach LOS		B			B			A			A	

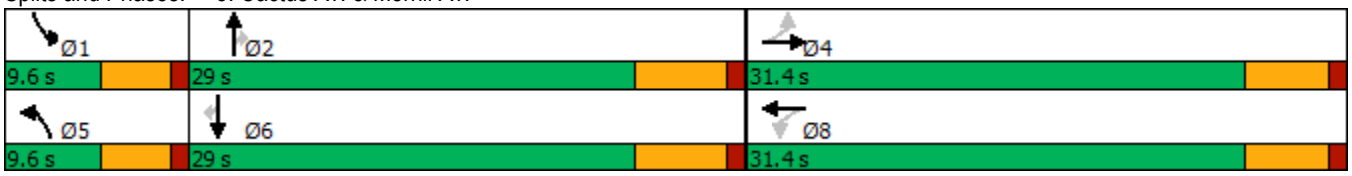
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.5		19.7		15.5		19.7				
Change Period (Y+Rc), s		5.4		5.8		5.4		5.8				
Max Green Setting (Gmax), s		29.6		29.2		29.6		29.2				
Max Q Clear Time (g_c+I1), s		7.5		8.6		6.1		9.8				
Green Ext Time (p_c), s		2.6		3.7		1.8		4.0				

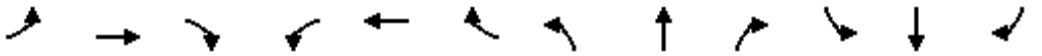
Intersection Summary												
HCM 6th Ctrl Delay			9.3									
HCM 6th LOS			A									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	141	300	33	315	55	512	20	46	491	106
Future Volume (vph)	141	300	33	315	55	512	20	46	491	106
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.4	31.4	9.6	28.8	28.8	9.6	28.8	28.8
Total Split (s)	31.4	31.4	31.4	31.4	9.6	29.0	29.0	9.6	29.0	29.0
Total Split (%)	44.9%	44.9%	44.9%	44.9%	13.7%	41.4%	41.4%	13.7%	41.4%	41.4%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	14.7	14.7	14.7	14.7	5.5	16.2	16.2	5.5	14.2	14.2
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.12	0.35	0.35	0.12	0.31	0.31
v/c Ratio	0.47	0.32	0.11	0.34	0.27	0.43	0.03	0.22	0.46	0.20
Control Delay	20.4	12.9	14.5	13.1	28.4	14.2	0.1	27.8	15.9	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	12.9	14.5	13.1	28.4	14.2	0.1	27.8	15.9	4.9
LOS	C	B	B	B	C	B	A	C	B	A
Approach Delay		15.1		13.2		15.0			14.9	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 46.1	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 14.7	Intersection LOS: B
Intersection Capacity Utilization 55.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cactus Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	300	48	33	315	50	55	512	20	46	491	106
Future Volume (veh/h)	141	300	48	33	315	50	55	512	20	46	491	106
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		1.00	1.00		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	148	316	38	35	332	41	58	539	15	48	517	91
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	414	1021	122	423	1020	125	106	923	411	93	896	399
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.06	0.26	0.26	0.05	0.25	0.25
Sat Flow, veh/h	1025	3242	386	1042	3237	397	1810	3610	1608	1810	3610	1608
Grp Volume(v), veh/h	148	175	179	35	184	189	58	539	15	48	517	91
Grp Sat Flow(s),veh/h/ln	1025	1805	1823	1042	1805	1829	1810	1805	1608	1810	1805	1608
Q Serve(g_s), s	5.4	3.1	3.1	1.1	3.2	3.3	1.3	5.5	0.3	1.1	5.2	1.9
Cycle Q Clear(g_c), s	8.7	3.1	3.1	4.2	3.2	3.3	1.3	5.5	0.3	1.1	5.2	1.9
Prop In Lane	1.00		0.21	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	414	569	574	423	569	576	106	923	411	93	896	399
V/C Ratio(X)	0.36	0.31	0.31	0.08	0.32	0.33	0.55	0.58	0.04	0.52	0.58	0.23
Avail Cap(c_a), veh/h	730	1124	1135	743	1124	1138	217	2005	893	217	2005	893
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	14.2	10.8	10.9	12.5	10.9	10.9	19.1	13.6	11.7	19.3	13.8	12.5
Incr Delay (d2), s/veh	0.5	0.3	0.3	0.1	0.3	0.3	1.6	0.6	0.0	1.7	0.6	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	1.0	0.9	1.0	0.2	1.0	1.0	0.5	1.7	0.1	0.4	1.6	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	11.2	11.2	12.6	11.2	11.3	20.7	14.2	11.7	21.0	14.4	12.8
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		502			408			612			656	
Approach Delay, s/veh		12.2			11.4			14.8			14.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	16.5		18.6	7.0	16.2		18.6				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		5.4				
Max Green Setting (Gmax), s	5.0	23.2		26.0	5.0	23.2		26.0				
Max Q Clear Time (g_c+I1), s	3.1	7.5		10.7	3.3	7.2		6.2				
Green Ext Time (p_c), s	0.0	2.9		2.3	0.0	3.0		2.1				

Intersection Summary			
HCM 6th Ctrl Delay		13.5	
HCM 6th LOS		B	

APPENDIX 5.3: EA (2024) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EA 2024
				CALC CS	DATE	05/12/23
Jurisdiction: City of Rialto				CHK CS	DATE	05/12/23
Major Street: Cactus Av.				Critical Approach Speed (Major)		45 mph
Minor Street: 1st St.				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **18,013** vpd Minor Street Future ADT = **283** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ..... √

or

In built up area of isolated community of < 10,000 population .....

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT: Vehicles Per Day on Major Street (Total of Both Approaches)		Minimum Requirements EADT: Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
CONDITION A - Minimum Vehicular Volume	Urban	Rural	Urban	Rural
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach: Major Street / Minor Street				
1 / *1*	8,000	5,600	2,400	1,680
2 + **18,013** / *1* **283**	9,600	6,720 *	2,400	1,680
2 + / *2* +	9,600	6,720	3,200	2,240
1 / *2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach: Major Street / Minor Street	Urban	Rural	Urban	Rural
1 / *1*	12,000	8,400	1,200	850
2 + **18,013** / *1* **283**	14,400	10,080 *	1,200	850
2 + / *2* +	14,400	10,080	1,600	1,120
1 / *2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX				
No one condition satisfied, but following conditions fulfilled 80% of more ..... A: 17% B: 33%	2 CONDITIONS 80%		2 CONDITIONS 80%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

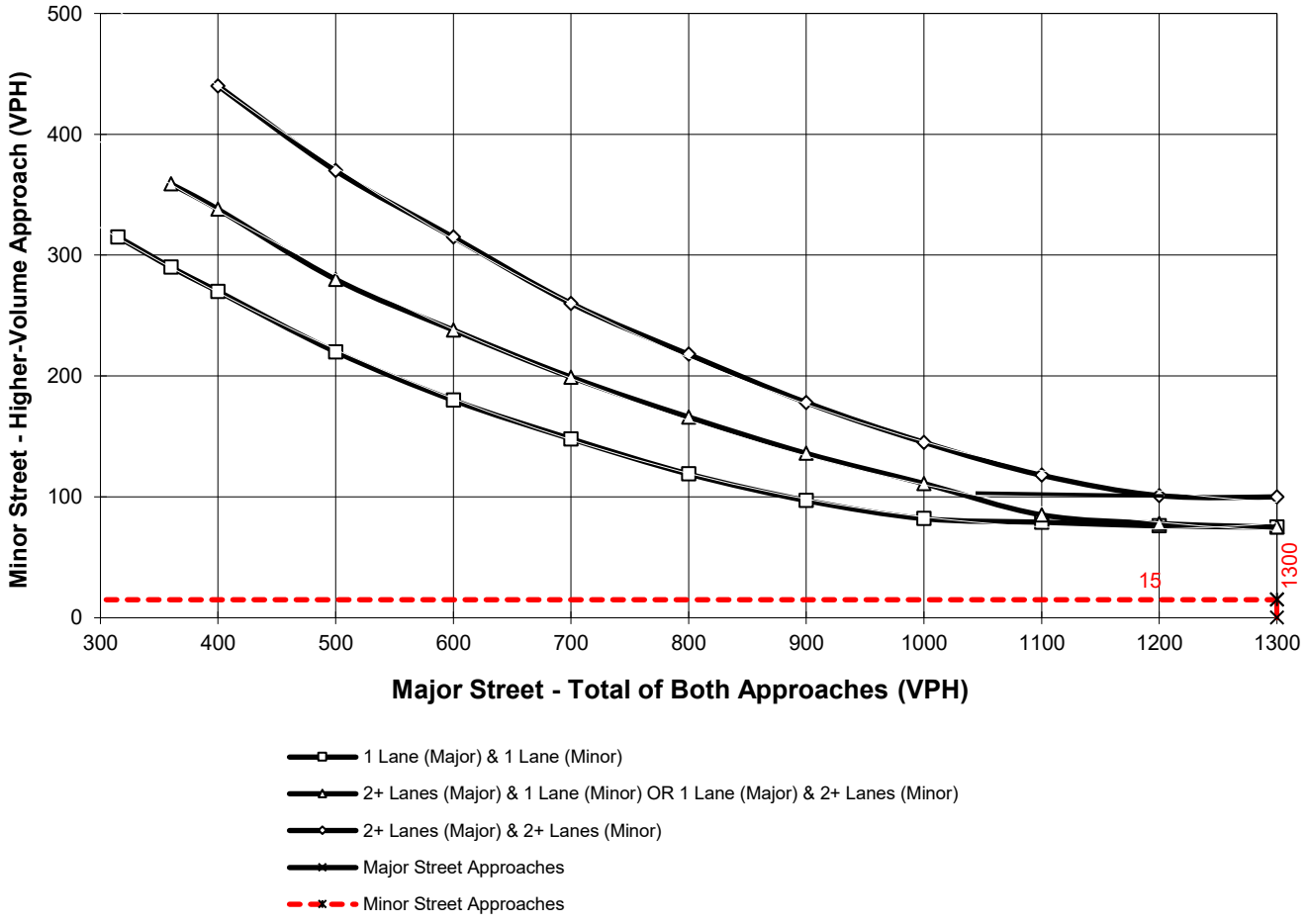
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EA (2024) Conditions - Weekday AM Peak Hour**

Major Street Name = **Cactus Av.**
Total of Both Approaches (VPH) = **1787**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **1st St.**
High Volume Approach (VPH) = **15**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 5.4: EAP (2024) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAP 2024
				CALC CS	DATE	05/12/23
Jurisdiction: **City of Rialto**				CHK CS	DATE	05/12/23
Major Street: **Rialto Av.**				Critical Approach Speed (Major)		40 mph
Minor Street: **Driveway 1**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **11,394** vpd Minor Street Future ADT = **76** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **11,394**	*1* **76**	9,600 *	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **11,394**	*1* **76**	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 3% **B** 6%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAP 2024
				CALC CS	DATE	05/12/23
Jurisdiction: City of Rialto				CHK CS	DATE	05/12/23
Major Street: Cactus Av.				Critical Approach Speed (Major)		45 mph
Minor Street: 1st St.				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **18,054** vpd Minor Street Future ADT = **283** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ..... [√]

or

In built up area of isolated community of < 10,000 population ..... [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Number of lanes for moving traffic on each approach: Major Street	Minor Street	Minimum Requirements EADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
CONDITION A - Minimum Vehicular Volume						
Satisfied / Not Satisfied XX						
	1	*1*	8,000	5,600	2,400	1,680
XX	*2* + **18,054**	*1* **283**	9,600	6,720 *	2,400	1,680
	2 +	*2* +	9,600	6,720	3,200	2,240
	1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic						
Satisfied / Not Satisfied XX						
	1	*1*	12,000	8,400	1,200	850
XX	*2* + **18,054**	*1* **283**	14,400	10,080 *	1,200	850
	2 +	*2* +	14,400	10,080	1,600	1,120
	1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B						
Satisfied / Not Satisfied XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more	**A** 17%	**B** 33%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

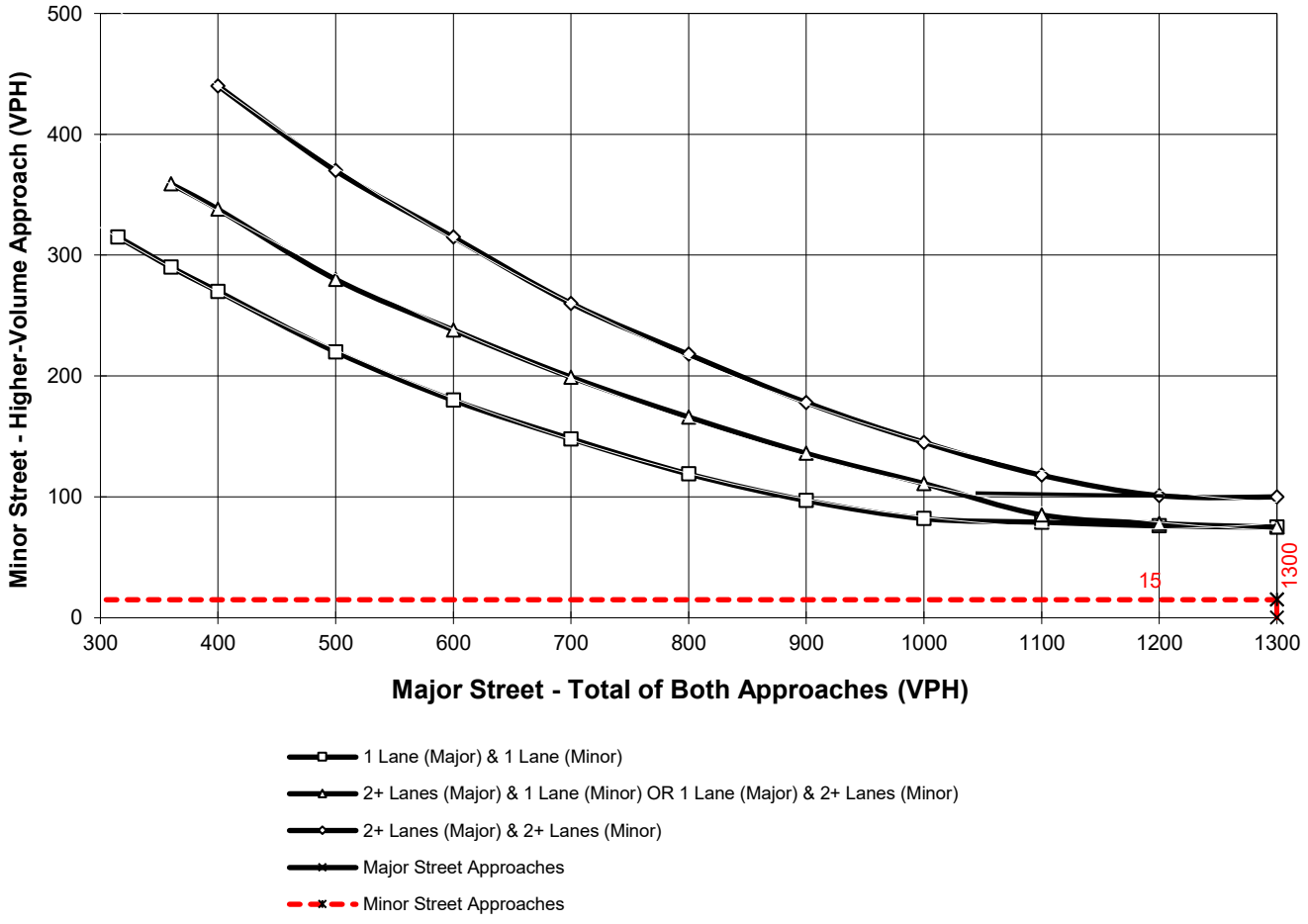
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAP (2024) Conditions - Weekday AM Peak Hour**

Major Street Name = **Cactus Av.**
Total of Both Approaches (VPH) = **1788**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **1st St.**
High Volume Approach (VPH) = **15**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.1: EAPC (2024) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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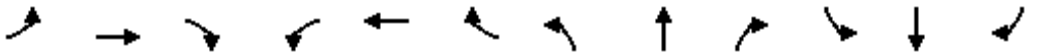
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	154	279	112	152	341	90	842	168	1060
Future Volume (vph)	154	279	112	152	341	90	842	168	1060
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4			8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	4	4	4	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	27.8	27.8	27.8	27.8	27.8	9.6	27.8	9.6	27.8
Total Split (s)	38.0	38.0	38.0	38.0	38.0	12.0	34.0	18.0	40.0
Total Split (%)	42.2%	42.2%	42.2%	42.2%	42.2%	13.3%	37.8%	20.0%	44.4%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8	4.6	5.8	4.6	5.8
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	26.0	26.0	26.0	26.0	26.0	7.5	36.0	11.8	42.3
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.08	0.40	0.13	0.47
v/c Ratio	0.96	0.53	0.21	0.66	0.53	0.63	0.70	0.74	0.72
Control Delay	92.1	29.3	3.1	40.6	18.3	59.5	27.8	56.6	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.1	29.3	3.1	40.6	18.3	59.5	27.8	56.6	25.0
LOS	F	C	A	D	B	E	C	E	C
Approach Delay		41.6			23.0		30.6		29.0
Approach LOS		D			C		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 30.2	Intersection LOS: C
Intersection Capacity Utilization 81.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Cedar Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	279	112	152	341	227	90	842	116	168	1060	106
Future Volume (veh/h)	154	279	112	152	341	227	90	842	116	168	1060	106
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		1.00	1.00		0.99	1.00		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	160	291	107	158	355	195	94	877	118	175	1104	99
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	262	637	532	296	759	410	120	1176	158	210	1399	125
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.07	0.37	0.37	0.12	0.42	0.42
Sat Flow, veh/h	871	1900	1587	1002	2263	1222	1810	3191	429	1810	3347	300
Grp Volume(v), veh/h	160	291	107	158	282	268	94	496	499	175	595	608
Grp Sat Flow(s),veh/h/ln	871	1900	1587	1002	1805	1680	1810	1805	1815	1810	1805	1842
Q Serve(g_s), s	16.0	10.8	4.3	13.2	11.1	11.4	4.6	21.5	21.5	8.5	25.8	25.8
Cycle Q Clear(g_c), s	27.4	10.8	4.3	24.0	11.1	11.4	4.6	21.5	21.5	8.5	25.8	25.8
Prop In Lane	1.00		1.00	1.00		0.73	1.00		0.24	1.00		0.16
Lane Grp Cap(c), veh/h	262	637	532	296	606	564	120	665	669	210	755	770
V/C Ratio(X)	0.61	0.46	0.20	0.53	0.47	0.48	0.78	0.75	0.75	0.83	0.79	0.79
Avail Cap(c_a), veh/h	282	680	568	318	646	601	149	665	669	269	755	770
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	34.5	23.5	21.3	32.9	23.5	23.6	41.4	24.7	24.7	38.9	22.7	22.7
Incr Delay (d2), s/veh	3.4	0.5	0.2	1.5	0.6	0.6	15.0	7.5	7.4	13.0	8.2	8.1
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	3.4	4.6	1.5	3.1	4.5	4.3	2.5	9.8	9.8	4.3	11.4	11.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	24.0	21.5	34.4	24.1	24.3	56.4	32.2	32.2	51.9	30.9	30.8
LnGrp LOS	D	C	C	C	C	C	E	C	C	D	C	C
Approach Vol, veh/h		558			708			1089			1378	
Approach Delay, s/veh		27.5			26.5			34.3			33.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	39.0		36.0	10.6	43.4		36.0				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		5.8				
Max Green Setting (Gmax), s	13.4	28.2		32.2	7.4	34.2		32.2				
Max Q Clear Time (g_c+I1), s	10.5	23.5		29.4	6.6	27.8		26.0				
Green Ext Time (p_c), s	0.1	2.4		0.8	0.0	3.6		2.0				

Intersection Summary			
HCM 6th Ctrl Delay		31.5	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	567	1044	13	0	1
Future Vol, veh/h	10	567	1044	13	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	616	1135	14	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1149	0	-	0	1472	575
Stage 1	-	-	-	-	1142	-
Stage 2	-	-	-	-	330	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	615	-	-	-	120	466
Stage 1	-	-	-	-	271	-
Stage 2	-	-	-	-	707	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	615	-	-	-	118	466
Mov Cap-2 Maneuver	-	-	-	-	246	-
Stage 1	-	-	-	-	266	-
Stage 2	-	-	-	-	707	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	615	-	-	-	466
HCM Lane V/C Ratio	0.018	-	-	-	0.002
HCM Control Delay (s)	11	-	-	-	12.7
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	567	1058	8	0	0
Future Vol, veh/h	0	567	1058	8	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	616	1150	9	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	580
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	463
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	463
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	0
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	0	583	1199	2
Future Vol, veh/h	0	1	0	583	1199	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1	0	634	1303	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	653	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	415	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	415	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	415	-	-
HCM Lane V/C Ratio	-	0.003	-	-
HCM Control Delay (s)	-	13.7	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	8	575	13	30	1170
Future Vol, veh/h	7	8	575	13	30	1170
Conflicting Peds, #/hr	0	0	0	8	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	10	710	16	37	1444

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1514	363	0	0	734	0
Stage 1	718	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	113	640	-	-	880	-
Stage 1	449	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	107	635	-	-	873	-
Mov Cap-2 Maneuver	297	-	-	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	393	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	415	873	-
HCM Lane V/C Ratio	-	-	0.045	0.042	-
HCM Control Delay (s)	-	-	14.1	9.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	0	588	1177	0
Future Vol, veh/h	0	15	0	588	1177	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	16	0	639	1279	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	640	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	423	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	423	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

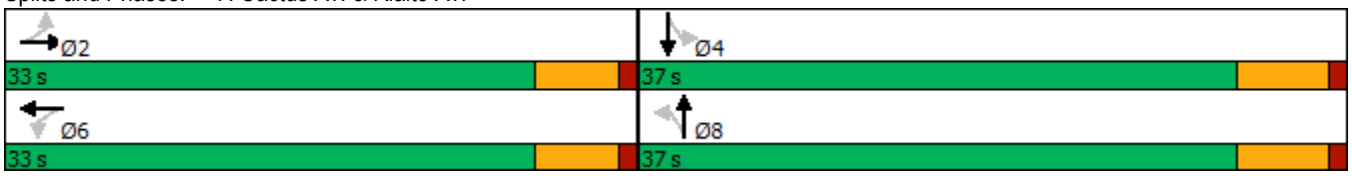
Approach	EB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

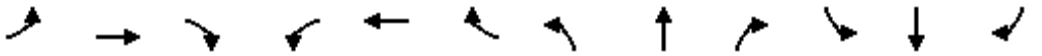
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	423	-	-
HCM Lane V/C Ratio	-	0.039	-	-
HCM Control Delay (s)	-	13.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	80	369	58	562	103	450	92	697
Future Volume (vph)	80	369	58	562	103	450	92	697
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.4	32.4	32.4	32.4	32.8	32.8	32.8	32.8
Total Split (s)	33.0	33.0	33.0	33.0	37.0	37.0	37.0	37.0
Total Split (%)	47.1%	47.1%	47.1%	47.1%	52.9%	52.9%	52.9%	52.9%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.8	5.8	5.8	5.8
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	22.5	22.5	22.5	22.5	31.4	31.4	31.4	31.4
Actuated g/C Ratio	0.35	0.35	0.35	0.35	0.48	0.48	0.48	0.48
v/c Ratio	0.82	0.54	0.39	0.69	1.22	0.41	0.39	0.90
Control Delay	65.0	16.9	22.0	20.8	180.9	12.1	17.2	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.0	16.9	22.0	20.8	180.9	12.1	17.2	25.6
LOS	E	B	C	C	F	B	B	C
Approach Delay		23.7		20.9		40.4		25.0
Approach LOS		C		C		D		C

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 65.1	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.22	
Intersection Signal Delay: 26.9	Intersection LOS: C
Intersection Capacity Utilization 87.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Cactus Av. & Rialto Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	369	118	58	562	58	103	450	62	92	697	401
Future Volume (veh/h)	80	369	118	58	562	58	103	450	62	92	697	401
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		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	110	505	136	79	770	64	141	616	74	126	955	468
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	239	1081	289	303	1292	107	130	1471	176	353	1066	512
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.45	0.45	0.45	0.45	0.45	0.45
Sat Flow, veh/h	667	2814	754	800	3365	280	383	3245	389	765	2351	1130
Grp Volume(v), veh/h	110	323	318	79	413	421	141	342	348	126	729	694
Grp Sat Flow(s),veh/h/ln	667	1805	1762	800	1805	1840	383	1805	1830	765	1805	1676
Q Serve(g_s), s	10.9	9.2	9.3	5.7	12.6	12.6	4.6	8.8	8.8	9.2	25.5	26.6
Cycle Q Clear(g_c), s	23.5	9.2	9.3	15.0	12.6	12.6	31.2	8.8	8.8	18.0	25.5	26.6
Prop In Lane	1.00		0.43	1.00		0.15	1.00		0.21	1.00		0.67
Lane Grp Cap(c), veh/h	239	693	677	303	693	707	130	818	829	353	818	760
V/C Ratio(X)	0.46	0.47	0.47	0.26	0.60	0.60	1.08	0.42	0.42	0.36	0.89	0.91
Avail Cap(c_a), veh/h	250	724	707	317	724	738	130	818	829	353	818	760
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	26.3	15.9	15.9	21.6	16.9	16.9	34.0	12.7	12.7	18.8	17.3	17.6
Incr Delay (d2), s/veh	1.4	0.5	0.5	0.5	1.2	1.2	103.1	0.3	0.3	0.6	12.0	15.5
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	1.6	3.3	3.3	1.0	4.6	4.7	5.7	3.0	3.0	1.5	11.1	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7	16.4	16.4	22.0	18.2	18.2	137.1	13.0	13.0	19.4	29.2	33.1
LnGrp LOS	C	B	B	C	B	B	F	B	B	B	C	C
Approach Vol, veh/h		751			913			831			1549	
Approach Delay, s/veh		18.1			18.5			34.1			30.2	
Approach LOS		B			B			C			C	

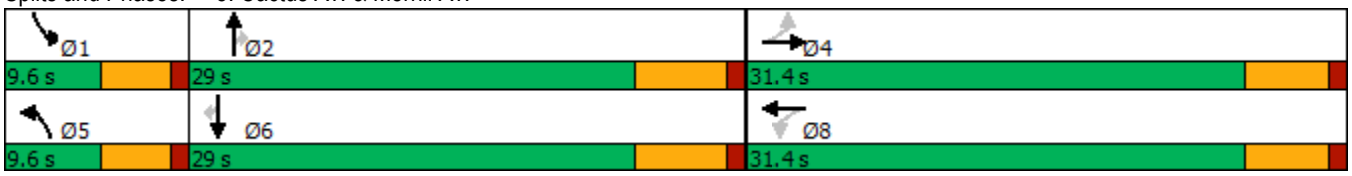
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.8		37.0		31.8		37.0				
Change Period (Y+Rc), s		5.4		5.8		5.4		5.8				
Max Green Setting (Gmax), s		27.6		31.2		27.6		31.2				
Max Q Clear Time (g_c+I1), s		25.5		28.6		17.0		33.2				
Green Ext Time (p_c), s		1.0		2.0		3.9		0.0				

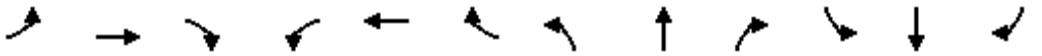
Intersection Summary												
HCM 6th Ctrl Delay			26.1									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	169	341	57	321	73	415	60	71	636	178
Future Volume (vph)	169	341	57	321	73	415	60	71	636	178
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.4	31.4	9.6	28.8	28.8	9.6	28.8	28.8
Total Split (s)	31.4	31.4	31.4	31.4	9.6	29.0	29.0	9.6	29.0	29.0
Total Split (%)	44.9%	44.9%	44.9%	44.9%	13.7%	41.4%	41.4%	13.7%	41.4%	41.4%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	19.2	19.2	19.2	19.2	5.5	18.7	18.7	5.5	18.7	18.7
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.10	0.33	0.33	0.10	0.33	0.33
v/c Ratio	0.67	0.40	0.24	0.38	0.51	0.42	0.12	0.50	0.65	0.32
Control Delay	30.4	15.4	17.6	15.0	43.7	17.6	2.2	43.1	20.7	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	15.4	17.6	15.0	43.7	17.6	2.2	43.1	20.7	4.4
LOS	C	B	B	B	D	B	A	D	C	A
Approach Delay		19.9		15.4		19.4			19.2	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 57.1	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 18.7	Intersection LOS: B
Intersection Capacity Utilization 61.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cactus Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	341	56	57	321	61	73	415	60	71	636	178
Future Volume (veh/h)	169	341	56	57	321	61	73	415	60	71	636	178
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		1.00	1.00		1.00	1.00		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	204	411	53	69	387	50	88	500	50	86	766	190
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	391	1166	149	378	1167	150	119	1069	477	118	1067	469
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.07	0.30	0.30	0.07	0.30	0.30
Sat Flow, veh/h	967	3216	412	940	3218	413	1810	3610	1610	1810	3610	1586
Grp Volume(v), veh/h	204	230	234	69	216	221	88	500	50	86	766	190
Grp Sat Flow(s),veh/h/ln	967	1805	1823	940	1805	1826	1810	1805	1610	1810	1805	1586
Q Serve(g_s), s	11.1	5.3	5.4	3.3	5.0	5.0	2.7	6.5	1.3	2.7	10.9	5.5
Cycle Q Clear(g_c), s	16.1	5.3	5.4	8.7	5.0	5.0	2.7	6.5	1.3	2.7	10.9	5.5
Prop In Lane	1.00		0.23	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	654	661	378	654	662	119	1069	477	118	1067	469
V/C Ratio(X)	0.52	0.35	0.35	0.18	0.33	0.33	0.74	0.47	0.10	0.73	0.72	0.41
Avail Cap(c_a), veh/h	480	820	828	465	820	830	158	1464	653	158	1464	643
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	19.1	13.3	13.3	16.5	13.2	13.2	26.2	16.4	14.6	26.2	18.0	16.1
Incr Delay (d2), s/veh	1.1	0.3	0.3	0.2	0.3	0.3	7.4	0.3	0.1	6.3	1.1	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	2.2	1.8	1.9	0.6	1.7	1.8	1.3	2.3	0.4	1.2	3.9	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.1	13.6	13.7	16.8	13.5	13.5	33.7	16.8	14.7	32.6	19.1	16.7
LnGrp LOS	C	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		668			506			638			1042	
Approach Delay, s/veh		15.6			14.0			18.9			19.8	
Approach LOS		B			B			B			B	

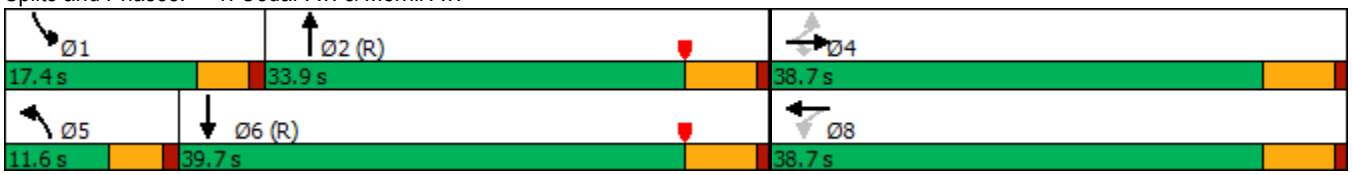
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	22.7		26.1	8.4	22.7		26.1				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		5.4				
Max Green Setting (Gmax), s	5.0	23.2		26.0	5.0	23.2		26.0				
Max Q Clear Time (g_c+I1), s	4.7	8.5		18.1	4.7	12.9		10.7				
Green Ext Time (p_c), s	0.0	2.7		2.3	0.0	3.9		2.4				

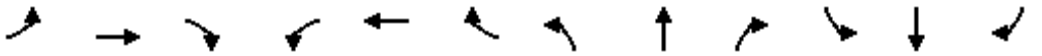
Intersection Summary												
HCM 6th Ctrl Delay			17.6									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	161	293	92	137	277	89	838	132	908
Future Volume (vph)	161	293	92	137	277	89	838	132	908
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4			8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	4	4	4	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	27.8	27.8	27.8	27.8	27.8	9.6	27.8	9.6	27.8
Total Split (s)	38.7	38.7	38.7	38.7	38.7	11.6	33.9	17.4	39.7
Total Split (%)	43.0%	43.0%	43.0%	43.0%	43.0%	12.9%	37.7%	19.3%	44.1%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.8	3.6	4.8	3.6	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8	4.6	5.8	4.6	5.8
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effct Green (s)	24.3	24.3	24.3	24.3	24.3	8.0	38.8	10.7	43.5
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.27	0.09	0.43	0.12	0.48
v/c Ratio	0.90	0.61	0.18	0.74	0.46	0.59	0.68	0.66	0.62
Control Delay	73.1	32.6	2.0	50.9	16.3	56.0	25.7	52.3	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	32.6	2.0	50.9	16.3	56.0	25.7	52.3	21.5
LOS	E	C	A	D	B	E	C	D	C
Approach Delay		39.4			24.3		28.2		25.1
Approach LOS		D			C		C		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 28.3	Intersection LOS: C
Intersection Capacity Utilization 76.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Cedar Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	293	92	137	277	182	89	838	136	132	908	95
Future Volume (veh/h)	161	293	92	137	277	182	89	838	136	132	908	95
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		1.00	1.00		0.99	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	171	312	84	146	295	163	95	891	142	140	966	94
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	281	602	510	264	718	387	121	1267	202	173	1448	141
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.07	0.41	0.41	0.10	0.44	0.44
Sat Flow, veh/h	948	1900	1607	1004	2266	1220	1810	3112	496	1810	3323	323
Grp Volume(v), veh/h	171	312	84	146	233	225	95	517	516	140	525	535
Grp Sat Flow(s),veh/h/ln	948	1900	1607	1004	1805	1680	1810	1805	1803	1810	1805	1842
Q Serve(g_s), s	15.6	12.1	3.4	12.5	9.1	9.5	4.7	21.4	21.4	6.8	20.8	20.8
Cycle Q Clear(g_c), s	25.1	12.1	3.4	24.6	9.1	9.5	4.7	21.4	21.4	6.8	20.8	20.8
Prop In Lane	1.00		1.00	1.00		0.73	1.00		0.28	1.00		0.18
Lane Grp Cap(c), veh/h	281	602	510	264	572	533	121	735	734	173	787	803
V/C Ratio(X)	0.61	0.52	0.16	0.55	0.41	0.42	0.78	0.70	0.70	0.81	0.67	0.67
Avail Cap(c_a), veh/h	327	695	587	312	660	614	141	735	734	257	787	803
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	34.1	25.1	22.1	35.2	24.1	24.2	41.3	22.2	22.2	39.9	20.2	20.2
Incr Delay (d2), s/veh	2.5	0.7	0.2	1.8	0.5	0.5	18.1	5.6	5.6	6.6	4.4	4.4
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	3.6	5.2	1.2	3.0	3.7	3.6	2.6	9.3	9.3	3.2	8.8	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	25.8	22.3	37.0	24.6	24.8	59.5	27.7	27.7	46.5	24.6	24.6
LnGrp LOS	D	C	C	D	C	C	E	C	C	D	C	C
Approach Vol, veh/h		567			604			1128			1200	
Approach Delay, s/veh		28.5			27.6			30.4			27.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.2	42.4		34.3	10.6	45.0		34.3				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		5.8				
Max Green Setting (Gmax), s	12.8	28.1		32.9	7.0	33.9		32.9				
Max Q Clear Time (g_c+I1), s	8.8	23.4		27.1	6.7	22.8		26.6				
Green Ext Time (p_c), s	0.1	2.5		1.4	0.0	4.7		1.7				

Intersection Summary												
HCM 6th Ctrl Delay			28.5									
HCM 6th LOS			C									

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	507	441	10	2	7
Future Vol, veh/h	2	507	441	10	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	551	479	11	2	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	490	0	-	0	765	245
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	280	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1084	-	-	-	344	762
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	748	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1084	-	-	-	343	762
Mov Cap-2 Maneuver	-	-	-	-	516	-
Stage 1	-	-	-	-	590	-
Stage 2	-	-	-	-	748	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1084	-	-	-	689
HCM Lane V/C Ratio	0.002	-	-	-	0.014
HCM Control Delay (s)	8.3	-	-	-	10.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	509	451	9	0	0
Future Vol, veh/h	0	509	451	9	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	553	490	10	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	250
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	756
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	756
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	0
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	0	755	652	0
Future Vol, veh/h	0	6	0	755	652	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	7	0	821	709	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	355	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	647	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	647	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	647	-	-
HCM Lane V/C Ratio	-	0.01	-	-
HCM Control Delay (s)	-	10.6	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	11	744	12	16	641
Future Vol, veh/h	7	11	744	12	16	641
Conflicting Peds, #/hr	0	0	0	1	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	50	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	12	791	13	17	682

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1167	397	0	0	805	0
Stage 1	792	-	-	-	-	-
Stage 2	375	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	190	608	-	-	828	-
Stage 1	412	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	186	607	-	-	827	-
Mov Cap-2 Maneuver	362	-	-	-	-	-
Stage 1	412	-	-	-	-	-
Stage 2	657	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	481	827	-
HCM Lane V/C Ratio	-	-	0.04	0.021	-
HCM Control Delay (s)	-	-	12.8	9.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	0	755	649	0
Future Vol, veh/h	0	17	0	755	649	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	18	0	821	705	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	353	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	649	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	649	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

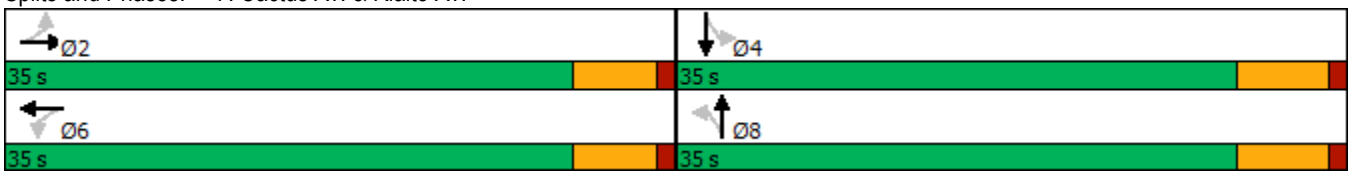
Approach	EB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

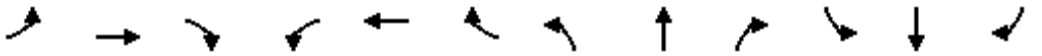
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	649	-	-
HCM Lane V/C Ratio	-	0.028	-	-
HCM Control Delay (s)	-	10.7	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	94	323	55	285	89	578	55	525
Future Volume (vph)	94	323	55	285	89	578	55	525
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	32.4	32.4	32.4	32.4	32.8	32.8	32.8	32.8
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	5.8	5.8	5.8	5.8
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.3	13.3	13.3	13.3	14.9	14.9	14.9	14.9
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.37	0.37	0.37	0.37
v/c Ratio	0.31	0.37	0.19	0.33	0.34	0.52	0.22	0.49
Control Delay	14.0	10.0	12.4	9.5	14.0	11.4	12.1	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.0	10.0	12.4	9.5	14.0	11.4	12.1	11.0
LOS	B	B	B	A	B	B	B	B
Approach Delay		10.7		9.9		11.7		11.1
Approach LOS		B		A		B		B

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 40.2	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 65.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Cactus Av. & Rialto Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	323	93	55	285	83	89	578	62	55	525	86
Future Volume (veh/h)	94	323	93	55	285	83	89	578	62	55	525	86
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		1.00	1.00		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	101	347	84	59	306	66	96	622	61	59	565	59
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	418	857	205	392	877	187	418	1313	129	395	1304	136
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1025	2890	691	972	2960	629	813	3321	325	770	3299	344
Grp Volume(v), veh/h	101	215	216	59	185	187	96	338	345	59	309	315
Grp Sat Flow(s),veh/h/ln	1025	1805	1776	972	1805	1784	813	1805	1841	770	1805	1838
Q Serve(g_s), s	3.1	3.5	3.5	1.9	2.9	3.0	3.5	5.1	5.1	2.2	4.5	4.6
Cycle Q Clear(g_c), s	6.1	3.5	3.5	5.4	2.9	3.0	8.1	5.1	5.1	7.3	4.5	4.6
Prop In Lane	1.00		0.39	1.00		0.35	1.00		0.18	1.00		0.19
Lane Grp Cap(c), veh/h	418	535	526	392	535	529	418	713	728	395	713	727
V/C Ratio(X)	0.24	0.40	0.41	0.15	0.35	0.35	0.23	0.47	0.47	0.15	0.43	0.43
Avail Cap(c_a), veh/h	949	1471	1447	896	1471	1454	750	1451	1480	710	1451	1477
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	12.4	10.2	10.2	12.4	10.0	10.0	11.0	8.2	8.2	10.9	8.0	8.0
Incr Delay (d2), s/veh	0.3	0.5	0.5	0.2	0.4	0.4	0.3	0.5	0.5	0.2	0.4	0.4
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	0.9	0.9	0.3	0.8	0.8	0.4	1.1	1.2	0.3	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	10.7	10.7	12.6	10.4	10.4	11.3	8.7	8.7	11.1	8.4	8.4
LnGrp LOS	B	B	B	B	B	B	B	A	A	B	A	A
Approach Vol, veh/h		532			431			779			683	
Approach Delay, s/veh		11.1			10.7			9.0			8.7	
Approach LOS		B			B			A			A	

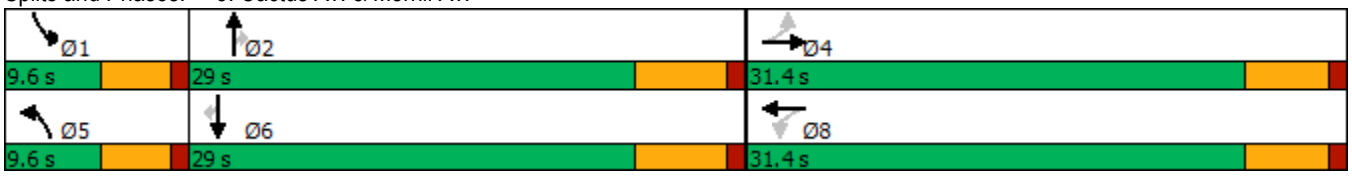
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.2		20.2		16.2		20.2				
Change Period (Y+Rc), s		5.4		5.8		5.4		5.8				
Max Green Setting (Gmax), s		29.6		29.2		29.6		29.2				
Max Q Clear Time (g_c+I1), s		8.1		9.3		7.4		10.1				
Green Ext Time (p_c), s		2.7		3.7		2.2		4.3				

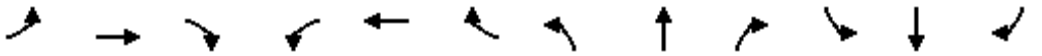
Intersection Summary												
HCM 6th Ctrl Delay			9.7									
HCM 6th LOS			A									

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	173	339	33	346	55	512	20	46	492	136
Future Volume (vph)	173	339	33	346	55	512	20	46	492	136
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	31.4	31.4	31.4	31.4	9.6	28.8	28.8	9.6	28.8	28.8
Total Split (s)	31.4	31.4	31.4	31.4	9.6	29.0	29.0	9.6	29.0	29.0
Total Split (%)	44.9%	44.9%	44.9%	44.9%	13.7%	41.4%	41.4%	13.7%	41.4%	41.4%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.8	4.8	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6	5.8	5.8	4.6	5.8	5.8
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	16.0	16.0	16.0	16.0	5.5	16.4	16.4	5.5	14.6	14.6
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.12	0.34	0.34	0.12	0.31	0.31
v/c Ratio	0.56	0.34	0.11	0.35	0.28	0.43	0.03	0.23	0.47	0.24
Control Delay	22.9	13.0	14.3	13.1	29.7	15.0	0.1	29.1	16.7	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	13.0	14.3	13.1	29.7	15.0	0.1	29.1	16.7	4.9
LOS	C	B	B	B	C	B	A	C	B	A
Approach Delay		16.1		13.2		15.8			15.2	
Approach LOS		B		B		B			B	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 47.8	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 56.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Cactus Av. & Merrill Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	339	48	33	346	50	55	512	20	46	492	136
Future Volume (veh/h)	173	339	48	33	346	50	55	512	20	46	492	136
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		1.00	1.00		1.00	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	182	357	38	35	364	41	58	539	15	48	518	122
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	427	1150	122	431	1145	128	104	900	401	91	874	389
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.06	0.25	0.25	0.05	0.24	0.24
Sat Flow, veh/h	996	3288	348	1004	3273	366	1810	3610	1608	1810	3610	1608
Grp Volume(v), veh/h	182	195	200	35	200	205	58	539	15	48	518	122
Grp Sat Flow(s),veh/h/ln	996	1805	1831	1004	1805	1834	1810	1805	1608	1810	1805	1608
Q Serve(g_s), s	7.4	3.5	3.6	1.2	3.6	3.7	1.4	5.9	0.3	1.2	5.7	2.8
Cycle Q Clear(g_c), s	11.1	3.5	3.6	4.8	3.6	3.7	1.4	5.9	0.3	1.2	5.7	2.8
Prop In Lane	1.00		0.19	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	427	631	641	431	631	642	104	900	401	91	874	389
V/C Ratio(X)	0.43	0.31	0.31	0.08	0.32	0.32	0.56	0.60	0.04	0.53	0.59	0.31
Avail Cap(c_a), veh/h	653	1042	1057	659	1042	1058	201	1859	828	201	1859	828
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	14.8	10.7	10.7	12.4	10.7	10.7	20.7	14.9	12.8	20.9	15.1	14.0
Incr Delay (d2), s/veh	0.7	0.3	0.3	0.1	0.3	0.3	1.8	0.6	0.0	1.8	0.6	0.5
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	1.4	1.1	1.1	0.2	1.1	1.2	0.5	1.9	0.1	0.5	1.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	10.9	11.0	12.5	11.0	11.0	22.4	15.6	12.9	22.7	15.7	14.5
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		577			440			612			688	
Approach Delay, s/veh		12.4			11.1			16.1			16.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	17.0		21.2	7.2	16.7		21.2				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		5.4				
Max Green Setting (Gmax), s	5.0	23.2		26.0	5.0	23.2		26.0				
Max Q Clear Time (g_c+I1), s	3.2	7.9		13.1	3.4	7.7		6.8				
Green Ext Time (p_c), s	0.0	2.9		2.5	0.0	3.1		2.2				

Intersection Summary			
HCM 6th Ctrl Delay		14.2	
HCM 6th LOS		B	

APPENDIX 6.2: EAPC (2024) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAPC 2024	
				CALC	CS	DATE	05/12/23
Jurisdiction:	City of Rialto			CHK	CS	DATE	05/12/23
Major Street:	Rialto Av.			Critical Approach Speed (Major)		40	mph
Minor Street:	Driveway 1			Critical Approach Speed (Minor)		25	mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **11,650** vpd Minor Street Future ADT = **76** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **11,650**	*1* **76**	9,600 *	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic					
Satisfied	Not Satisfied	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **11,650**	*1* **76**	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 3% **B** 6%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		EAPC 2024
				CALC CS	DATE	05/12/23
Jurisdiction: City of Rialto				CHK CS	DATE	05/12/23
Major Street: Cactus Av.				Critical Approach Speed (Major)		45 mph
Minor Street: 1st St.				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **18,054** vpd Minor Street Future ADT = **283** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ..... √

or

In built up area of isolated community of < 10,000 population .....

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **18,054**	*1* **283**	9,600	6,720 *	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **18,054**	*1* **283**	14,400	10,080 *	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more	A: 17% B: 33%	2 CONDITIONS 80%		2 CONDITIONS 80%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

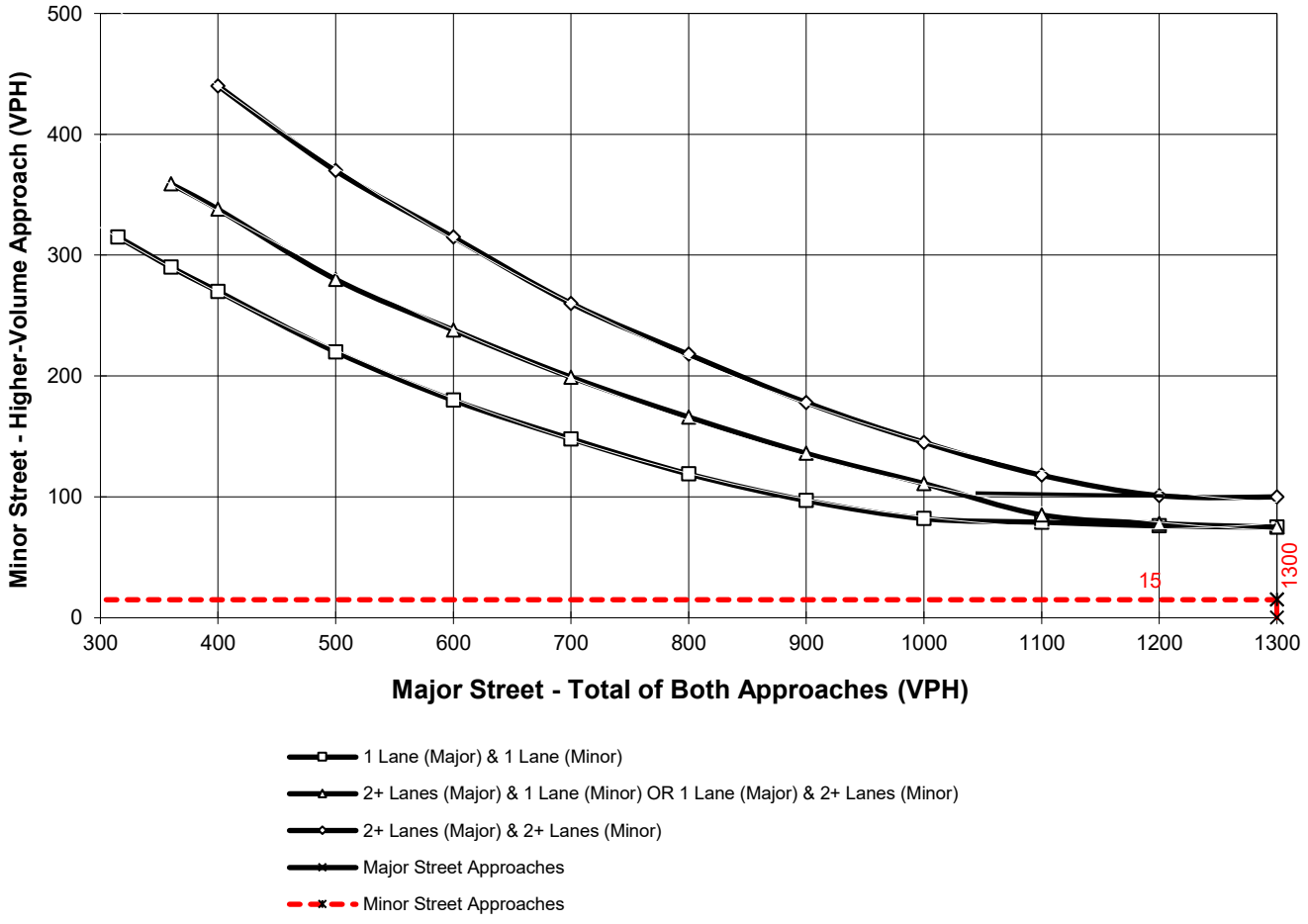
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EAPC (2024) Conditions - Weekday AM Peak Hour**

Major Street Name = **Cactus Av.**
Total of Both Approaches (VPH) = **1788**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **1st St.**
High Volume Approach (VPH) = **15**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 8.1: VEHICLE MILES TRAVELED (VMT) ANALYSIS

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VMT Analysis Project Scoping Form

This scoping form shall be submitted to the City of Rialto to assist in identifying infrastructure improvements that may be required to support traffic from the proposed project.

Project Identification:

Case Number:	
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	160 N. Cactus Avenue
Project Address:	160 N. Cactus Avenue
Project Opening Year:	
Project Description:	159,680 square foot warehouse

	Consultant:	**Developer:**
Name:	Urban Crossroads - Alex So	Lincoln Property Company
Address:	1133 Camelback St, #8329	915 Wilshire Bl., Suite 2050
	Newport Beach, CA 92658	Los Angeles, CA
Telephone:	909-664-4511	
Fax/Email:	aso@urbanxroads.com	

Trip Generation Information:

Trip Generation Data Source: ITE Trip Generation Manual (11th Edition, 2021) + Rialto Truck Mix

Current General Plan Land Use: Light Industrial

Proposed General Plan Land Use: Light Industrial

Current Zoning: Light Industrial (M-1)

Proposed Zoning: Light Industrial (M-1)

	Existing Trip Generation (PCE)			Proposed Trip Generation (PCE)		
	In	Out	Total	In	Out	Total
AM Trips	13	6	18	31	15	46
PM Trips	6	14	20	18	31	49

Trip Internalization: ☐ Yes ☑ No (_____% Trip Discount)

Pass-By Allowance: ☐ Yes ☑ No (_____% Trip Discount)

Potential Screening Checks

Is the project screened from VMT assessment? ☑ Yes ☐ No

VMT screening justification: Project located in a low VMT area and net new daily trips are below the 110 daily vehicle trip threshold.

VMT Scoping

For projects that are not screened, identify the following:

- Travel Demand Forecasting Model Used N/A
- Attach SBCTA Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

Approved by:

Public Works Department Date

NOTE:

The Applicant/Engineer acknowledges that the Scoping Agreement is intended to assist in the preparation of any required TIA. It is preliminary in nature and the City does not have sufficient data to determine the ultimate conditions that may be imposed for the project. It does not provide nor limit the requirements imposed on the Project but is intended only to provide initial input into the parameters for review of the traffic generated by the Project and the initial areas to be considered and studied. Subsequent changes to scope of required analysis to be included in the TIA may be required by the Transportation Commission, Planning Commission, and/or the City Council upon Public Works Director/City Engineer review and approval

MEMORANDUM

URBAN CROSSROADS

DATE: March 10, 2023
TO: Jennifer Dorgan, Allen Matkins
FROM: Alex So, Urban Crossroads, Inc.
JOB NO: 15203-01 VMT

160 NORTH CACTUS VEHICLE MILES TRAVELED (VMT) SCREENING EVALUATION

Urban Crossroads, Inc. is pleased to provide the following Vehicle Miles Traveled (VMT) Screening Evaluation for the 160 North Cactus (**Project**), which is located at 160 North Cactus Avenue in the City of Rialto.

PROJECT OVERVIEW

The Project consists of a 159,680 square foot warehouse building of which 152,930 square feet is for warehouse use, 6,750 square feet is for office space and 1,500 square feet is the mezzanine area. A preliminary site plan for proposed Project can be found in attachment A.

BACKGROUND

The California Environmental Quality Act (CEQA) requires all lead agencies to adopt VMT as the measure for identifying transportation impacts for land use projects. To comply with CEQA, the City of Rialto adopted their Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS) (October 2021) (1) (**City Guidelines**). This VMT analysis has been developed based on the adopted City Guidelines.

VMT SCREENING

The City Guidelines provides details on appropriate screening criteria that can be used to identify when a proposed land use project is anticipated to result in a less-than-significant impact without conducting a more detailed analysis. It is our understanding the City of Rialto utilizes the San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool (**Screening Tool**). The Screening Tool allows users to select an assessor's parcel number (APN) to determine if a project's location meets one or more of the screening criteria for land use projects identified in the City Guidelines. The Screening criteria are broken into the following three types:

- Step 1: Transit Priority Area (TPA) Screening
- Step 2: Low VMT Area Screening
- Step 3: Project Type Screening

A land use project need only to meet one of the above screening steps to result in a less than significant impact.

STEP 1: TPA SCREENING

Consistent with guidance identified in the City Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"[1] or an existing stop along a "high-quality transit corridor"[2]) may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

The Project site is not located within ½ mile of an existing major transit stop, or along a high-quality transit corridor (See Attachment B).

TPA screening criteria is not met.

STEP 2: LOW VMT AREA SCREENING

As noted in the City Guidelines, "Residential and office projects located within a low VMT generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment related uses and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker, or per service population that is similar to the existing land uses in the low VMT area." The Screening Tool uses the sub-regional San Bernardino Transportation Analysis Model (SBTAM) to measure VMT performance within individual traffic analysis zones (TAZ's) within the region. The Project's physical location based on parcel number is selected in the Screening Tool to determine the TAZ in which the Project will reside. The Project's TAZ VMT per service population was compared to the County of San Bernardino baseline average VMT per service population or 33.3. The parcel containing the proposed Project was

[1] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a 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 commute periods.").
[2] Pub. Resources Code, § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").

selected and the Screening Tool was run for Origin-Destination (OD) VMT per service population. The Project TAZ 53748501 was found to have a VMT per service population of 21.9 and, therefore, the Project is located within a low VMT generating area (see Attachment B).

Low VMT Area screening criteria is met

STEP 3: PROJECT TYPE SCREENING

The City Guidelines states that projects generating less than 110 daily vehicle trips are presumed to have a less than significant impact on VMT. The Project is estimated to generate 274 trips per day (see Attachment C) and would therefore exceed the City's 110 daily vehicle trip threshold.

Project Type Screening criteria is not met.

CONCLUSION

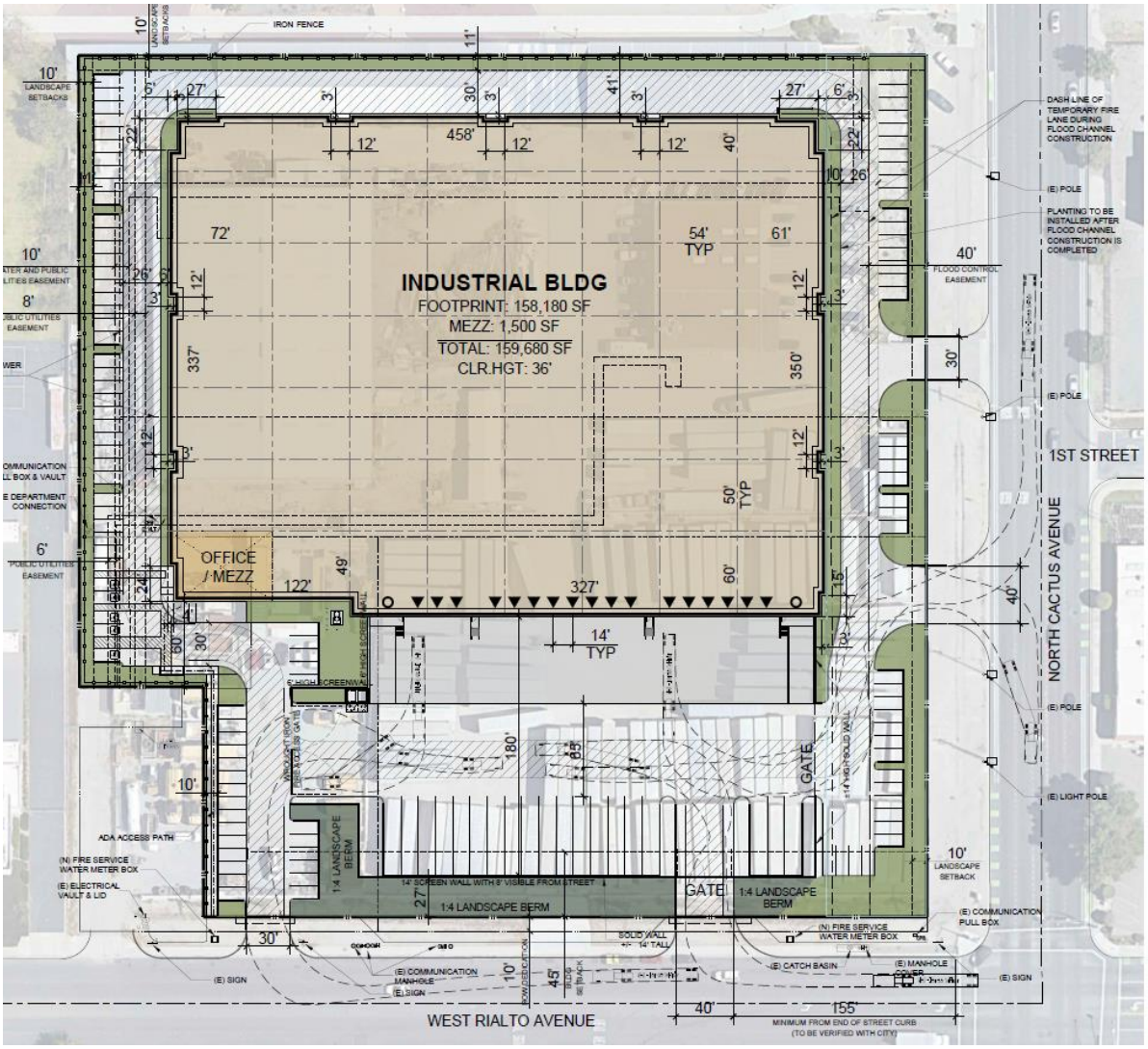
In summary, the Project was evaluated consistent with the available screening criteria and the Project was found to meet the Low VMT Area screening step. Therefore, the proposed Project is presumed to result in a less than significant impact for VMT; no further VMT analysis required.

If you have any questions, please contact me directly at aso@urbanxroads.com.

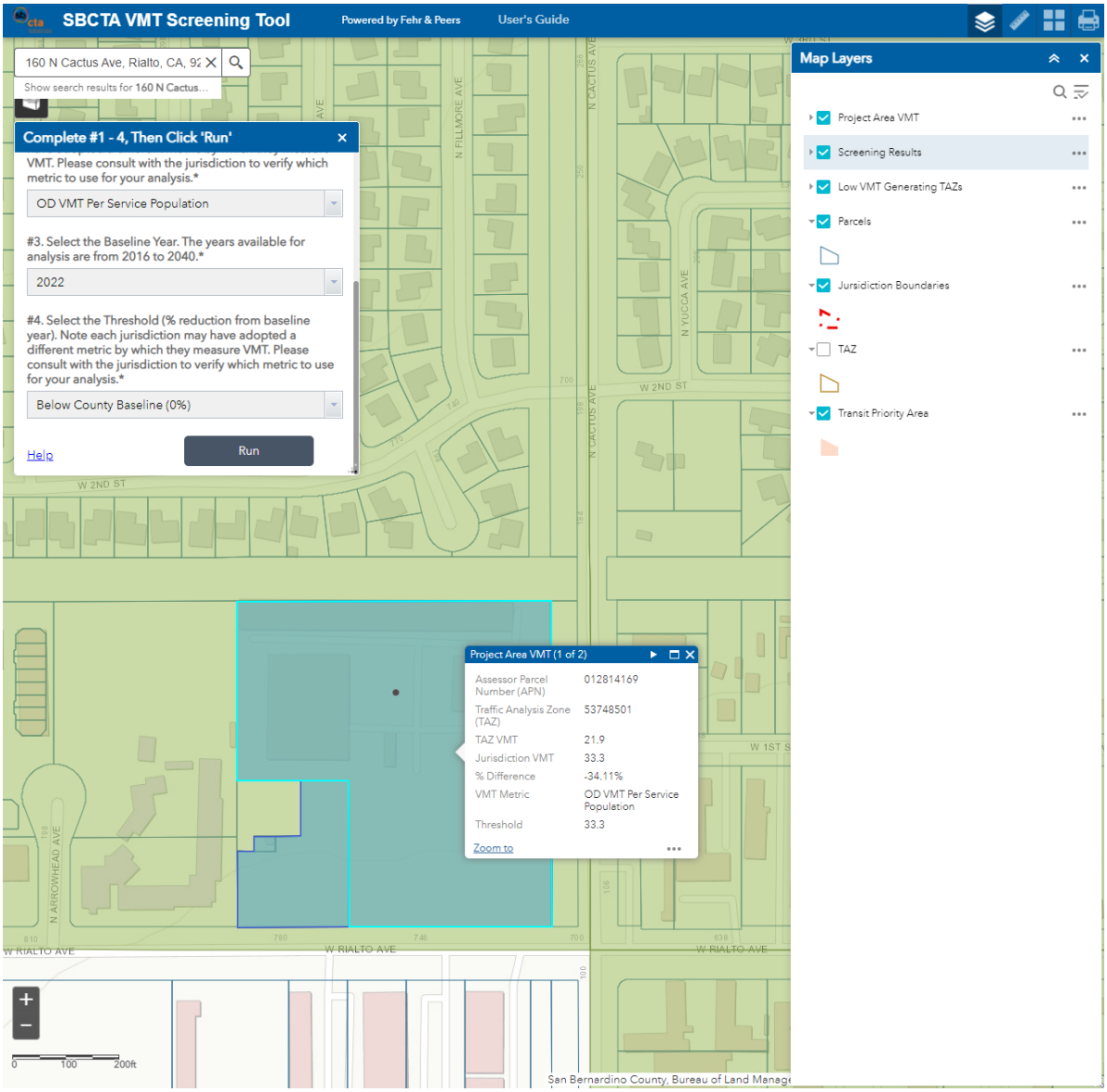
REFERENCES

1. **City of Rialto.** *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS).* October 2021.

ATTACHMENT A
PRELIMINARY SITE PLAN


INDUSTRIAL BLDG
FOOTPRINT: 158,180 SF
MEZZ: 1,500 SF
TOTAL: 159,680 SF
CLR.HGT: 36'
OFFICE / MEZZ
1ST STREET
NORTH CACTUS AVENUE
WEST RIALTO AVENUE
GATE
1:4 LANDSCAPE BERM
14' SCREEN WALL WITH 8' VISIBLE FROM STREET
ADA ACCESS PATH
IRON FENCE
DASH LINE OF TEMPORARY FIRE LANE DURING FLOOD CHANNEL CONSTRUCTION
PLANTING TO BE INSTALLED AFTER FLOOD CHANNEL CONSTRUCTION IS COMPLETED
(E) POLE
(E) LIGHT POLE
(E) SIGN
(E) CATCH BASIN
(E) COMMUNICATION MANHOLE
(E) COMMUNICATION PULL BOX
(N) FIRE SERVICE WATER METER BOX
(E) ELECTRICAL VAULT & LID
MINIMUM FROM END OF STREET CURB (TO BE VERIFIED WITH CITY)

ATTACHMENT B
SBCTA VMT SCREENING TOOL RESULTS


SBCTA VMT Screening Tool
Powered by Fehr & Peers
User's Guide
160 N Cactus Ave, Rialto, CA, 92
Show search results for 160 N Cactus...
Complete #1 - 4, Then Click 'Run'
VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
OD VMT Per Service Population
#3. Select the Baseline Year. The years available for analysis are from 2016 to 2040.*
2022
#4. Select the Threshold (% reduction from baseline year). Note each jurisdiction may have adopted a different metric by which they measure VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
Below County Baseline (0%)
Help
Run
Map Layers
Project Area VMT
Screening Results
Low VMT Generating TAZs
Parcels
Jurisdiction Boundaries
TAZ
Transit Priority Area
Project Area VMT (1 of 2)
Assessor Parcel Number (APN) 012814169
Traffic Analysis Zone (TAZ) 53748501
TAZ VMT 21.9
Jurisdiction VMT 33.3
% Difference -34.11%
VMT Metric OD VMT Per Service Population
Threshold 33.3
Zoom to
W 2ND ST
W RIALTO AVE
N CACTUS AVE
N FILLMORE AVE
N YUCCA AVE
N ARROWHEAD AVE
W 1ST S
0 100 200ft
San Bernardino County, Bureau of Land Manage

ATTACHMENT C
TRIP GENERATION DATA

TABLE C-1: PROJECT TRIP GENERATION RATES

Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicle Trip Generation Rates:									
Warehousing[3]	150	TSF	0.131	0.039	0.170	0.050	0.130	0.180	1.710
Passenger Cars (60.0%)			0.095	0.007	0.102	0.013	0.095	0.108	1.026
2-Axle Trucks (0.8%)			0.001	0.000	0.001	0.001	0.000	0.001	0.014
3-Axle Trucks (11.2%)			0.010	0.009	0.019	0.010	0.010	0.020	0.192
4+-Axle Trucks (28.0%)			0.025	0.023	0.048	0.026	0.024	0.050	0.479

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

[2] TSF = thousand square feet

[3] Vehicle and Truck Mix Source: City of Rialto Traffic Impact Analysis Guidelines for VMT & LOS (October 2021).

[4] PCE rates are per City of Rialto Traffic Impact Analysis Guidelines for VMT & LOS (October 2021).

TABLE C-2: PROJECT TRIP GENERATION SUMMARY

Project	Quantity Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles:								
160 N. Cactus Av.	159.680 TSF							
Passenger Cars:		15	1	16	2	15	17	164
2-Axle Trucks:		0	0	0	0	0	0	2
3-Axle Trucks:		2	1	3	2	2	4	32
4+-Axle Trucks:		4	4	8	4	4	8	76
Total Trucks:		6	5	11	6	6	12	110
Total Trips (Actual Vehicles)[2]		**21**	**6**	**27**	**8**	**21**	**29**	**274**

[1] TSF = Thousand Square Feet

[2] Total Trips = Passenger Cars + Truck Trips

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