REVISED TERMINAL ONE PROJECT

Addendum to the Terminal One Project EIR

1. General Project Information

1.1 Project Title

Terminal One Project

1.2 Lead Agency Name and Address

City of Richmond
Community Development Department
450 Civic Center Plaza
PO Box 4046
Richmond, CA 94804-1630

1.3 Project Case File Number

City Project Case Number: PLN#14-316; State Clearinghouse (SCH) Number: 2014112050
Terminal One Project EIR certified 7/5/2016

1.4 Contact Person and Phone Number

Lina Velasco, Director of Community Development
Community Development Department
Lina_Velasco@ci.richmond.ca.us
(510) 620-6841

1.5 Project Location

1500 Dornan Drive, Richmond, CA.
Assessor's Parcel Nos. 560-420-006, 560-420-007, 560-420-010

1.6 Project Applicant's Name and Address

Terminal One Development LLC
Attn: Paul Menzies
Laconia Development LLC
1981 North Broadway, Suite 350
Walnut Creek, CA 94596
Phone: 510-409-1838

1.7 Existing General Plan Designations

Medium Density Residential (10-40 DU/Acre)

1.8 Existing Zoning

Planned Area District (PA) / -S, Shoreline Overlay

1.9 Requested Permits

CEQA determination, Major Amendment to Planned Area Plan, Vesting Tentative Subdivision Map, Use Permit for uses in the "–S, Shoreline Overlay" District, Design Review, grading permits, encroachment permits, building permits, other City approvals as necessary to develop the Project. Other agency permits requested include a San Francisco Bay Conservation & Development Commission (BCDC) Permit Amendment, and various approvals by the San Francisco Bay Regional Water Quality Control Board (SFRWQCB).

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2. Purpose and Determination

2.1 Project Overview and Purpose

Terminal One Development LLC (Project Applicant) proposes revisions to the Terminal One Project (Original Project) that was analyzed under the 2016 Terminal One Project Environmental Impact Report (2016 EIR) (SCH No. 2014112050), certified by the City Council of the City of Richmond on July 5, 2016.[1] The Original Project with the proposed revisions is referred to as the "Modified Project".

The previously approved Original Project proposed to redevelop an approximately 13-acre former port terminal site that had been previously used by the Port of Richmond for shipping, transport, warehousing, bulk liquid storage and other industrial uses. The Original Project involved an approximately 7.6-acre residential neighborhood of 316 multi-family condominium units and an approximately 6.0-acre public Waterfront Park that incorporated the structural retrofit and repurpose of Municipal Wharf No. 1, a Shoreline Drive ring road, and an extension of the San Francisco Bay Trail. The Modified Project that is the subject of this EIR Addendum proposes development of a residential neighborhood consisting of approximately 154 single-family homes on fee-simple lots and 30 junior accessory dwelling units (JADUs). Also, the Modified Project would retain the other principal features of the Waterfront Park and Bay Trail extension approved for the Original Project, with the primary exception of the Shoreline Drive ring road.

The City of Richmond (City) has prepared this Addendum to the certified 2016 EIR to analyze the environmental impacts associated with the proposed revisions to the Original Project and if those impacts are adequately covered by the analysis in the 2016 EIR, per the requirements of the California Environmental Quality Act (CEQA) statutes (Public Resources Code [PRC] Section 21000 *et seq.*), the CEQA Guidelines (California Code of Regulations 15000 *et seq.*), and the City of Richmond Guidelines and Procedures for the Implementation of CEQA.

An evaluation of the Modified Project is provided in Section 4, *CEQA Analysis*, of this Addendum. This environmental review document is intended to present the analysis necessary to assist the City to determine the appropriate CEQA documentation for the Modified Project.

2.2 Applicable Provisions for CEQA Compliance

CEQA Guidelines Section 15164 provides that the lead agency or a responsible agency shall prepare an Addendum to a previously certified Environmental Impact Report (EIR) or adopted Negative Declaration (ND) if some changes or additions are necessary but none of the conditions

[1] For the purpose of this Addendum analysis, the 2016 EIR is comprised of the following documents: *Terminal One Project Draft EIR*, February 2016 (Draft EIR), *Terminal One Project Final EIR Response to Comments,* June 2016 (Final EIR), including all appendices and references incorporated to each.

described in CEQA Guidelines Section 15162 calling for preparation of a subsequent EIR or ND have occurred (CEQA Guidelines, Section 15164).

An Addendum need not be circulated for public review but can be included in or attached to the Final EIR or ND (CEQA Guidelines Section 15164, subd. (c)). The decision-making body shall consider the Addendum to the Final EIR prior to making a decision on the Project (CEQA Guidelines Section 15164, subd. (d)). An agency must also include a brief explanation of the decision not to prepare a subsequent EIR or ND pursuant to Section 15162 (CEQA Guidelines Section 15164, subd. (e)).

Consequently, once an EIR or ND has been certified or adopted for a Project, no subsequent EIR or ND shall be prepared under CEQA unless, based on substantial evidence:

1. Substantial changes are proposed in the project that will require major revisions of the previous EIR or ND . . . due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

2. Substantial changes occur with respect to the circumstances under which the project is undertaken that will require major revisions of the previous EIR or ND . . . due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance, that was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the ND was adopted. . . shows any of the following:

    a) The project will have one or more significant effects not discussed in the previous EIR or ND or negative declaration;

    b) Significant effects previously examined will be substantially more severe than shown in the previous EIR or ND;

    c) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

    d) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR or ND would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative (CEQA Guidelines, Section 15162, subd. (a); see also Pub. Resources Code, Section 21166).

2.3 Determination

This Addendum, inclusive of the detailed analysis and conclusions set forth in this environmental review document, in addition to the analysis and findings of the certified 2016 EIR, constitute substantial evidence supporting the determination that the Modified Project qualifies for an EIR

Addendum as none of the criteria calling for preparation of a subsequent EIR or negative declaration under CEQA Guidelines Section 15162 have occurred, and the Modified Project meets all requirements under CEQA Guidelines Section 15164. See Section 5, *Conclusions*, of this document for specific CEQA Findings.

The Modified Project is also required to comply with the mitigation measures identified in the Project EIR, as included in the previously approved Mitigation Monitoring and Reporting Program (MMRP) adopted with the 2016 EIR, which is included as **Attachment A** to this Addendum.

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3. Project Description

3.1 Project Site

The Modified Project site (Project site) is the same as the Project site for the Original Project. As described in the 2016 EIR (Draft EIR page 3-6), the Project site is located on the San Francisco Bay within an area identified by the City of Richmond as the Brickyard Cove area, with panoramic views of San Francisco and the East Bay waterfront. **Figure 3-1, Site Location and Aerial,** illustrates the Project site's local context. The Project site is owned by the City and consists of three parcels totaling approximately 13.3 acres in size located southeast of the intersection of Dornan Drive and Brickyard Cove Road, at 1500 Dornan Drive.

The site is bounded by the San Francisco Bay on the south, the Richmond Yacht Club on the east, Brickyard Cove Road to the north, and Dornan Drive to the west. The site is generally flat and slopes gently from Brickyard Cove Road in the north to lower points along the shoreline.

The site includes approximately 12.6 acres of dry land and 0.7 acre of submerged tidelands. The site is edged by approximately 1,100 linear feet of shoreline, which is armored with rock and concrete rip rap, and approximately 550 linear feet of which consists of a shoreline pier that extends along part of the southern site boundary. The pier consists of a concrete deck supported by pre-cast concrete piles. Other hardscape (as opposed to vegetated) surfaces on the site include former building foundations, storage tank pads, and asphalt paving, as well as disconnected sections of former railroad tracks. Vegetation on the site consists largely of grasses, shrubs, and a few trees."

Former and Surrounding Land Uses

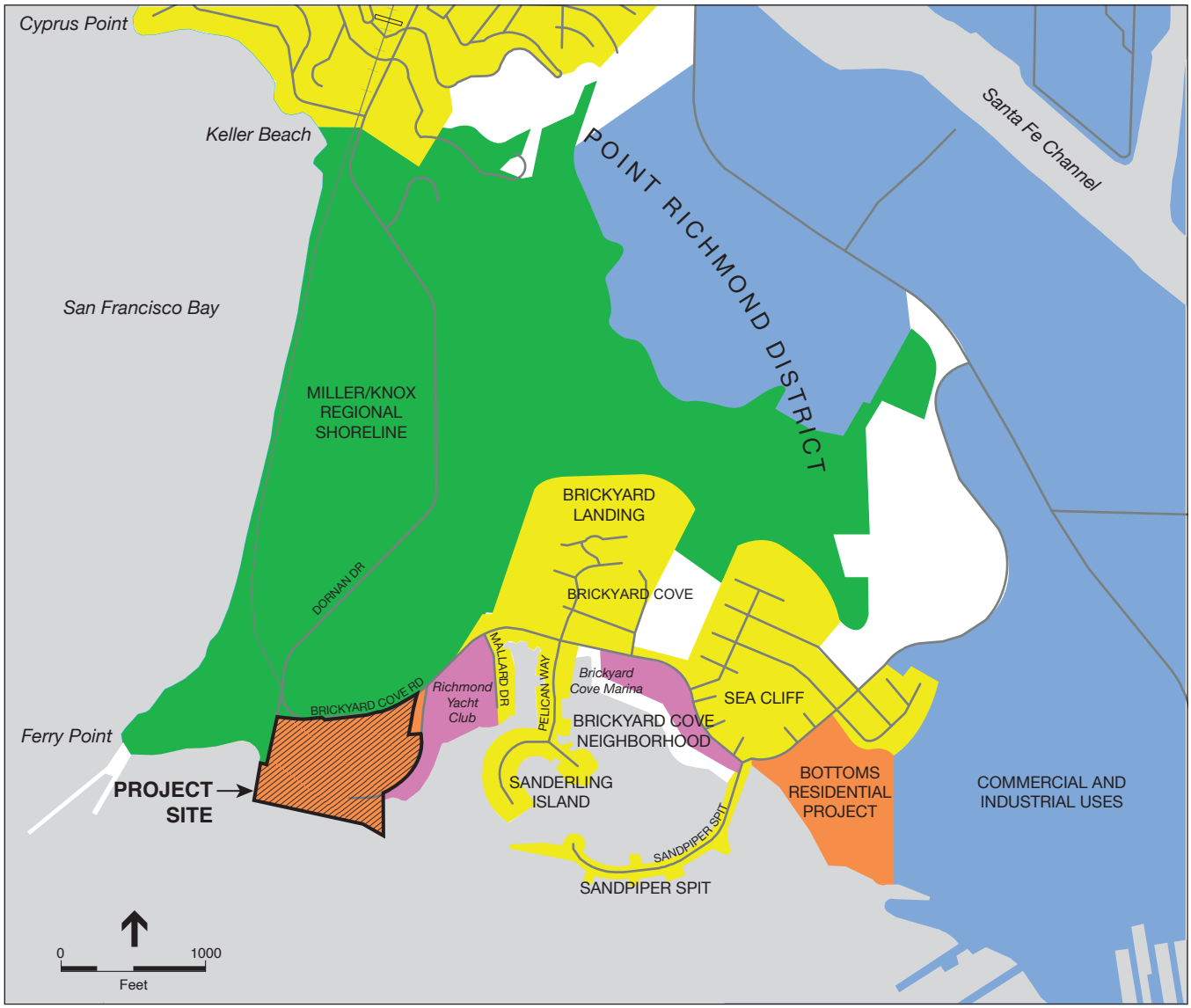
The 2016 EIR (Draft EIR at page 3-6) also describes prior and existing land uses at the Project site. Until the early 1990s, the Project site was a port terminal, used by the Port of Richmond for shipping, transport, and related industrial activities. Most buildings and structures have been demolished and removed from the site, with the exception of an approximately 94,000 square-foot former port operations warehouse (Terminal One Warehouse) building that is partially supported by the existing pier along the southern portion of the site, and some building foundations, railroad tracks, and other concrete surfaces. See **Figure 3-2, Site and Vicinity5 Land Uses**, showing adjacent to and nearby uses to the Project site. The Richmond Yacht Club is immediately east of the Project site. The Miller/Knox Regional Shoreline park (Miller/Knox park), a parkland resources established and maintained by the East Bay Regional Parks District that includes 307 acres of open space and recreational areas, is located west, north, and northeast of the Project site.



SOURCE: ESA; Google Maps

City of Richmond Terminal One Project EIR Addendum . 140325.01

Figure 3-1
Site Location and Aerial



SOURCE: Terminal One Development LLC, 2015

City of Richmond Terminal One Project EIR Addendum . 140325.01

Figure 3-2
Project Site and Surrounding Uses

Lands east of the Project site have transitioned from largely port-related heavy and light industrial uses to a mix of residential, marina, commercial and other non-industrial uses. The Brickyard Cove neighborhood located east of the Project site includes marinas and residential developments established in recent decades. These developments include the Brickyard Landing condominium complex and private recreation facility; the Seacliff Estates, a single-family residential subdivision; and waterfront single-family homes (largely constructed of engineered fill and concrete pilings, and/or supported on platforms over water) along South Mallard Drive, Sandpiper Spit, and Sanderling Island.

Since certification of the 2016 EIR, recently approved but not yet constructed is the Quarry residential project to be development on Canal Boulevard, northeast of the Project site. Also, currently under review is the Brickyard Cove residential project located adjacent to the existing Brickyard Landing development.

General Plan Land Use Designation and Zoning

The entire Project site has a General Plan land use designation of Medium Density Residential (10-40 DU/Acre). The Project site is zoned Planned Area (PA) District, which is the result of a rezoning requested and approved with the Original Project analyzed in the 2016 EIR. The PA District zoning designation facilitates the orderly development of larger sites in the City consistent with the General Plan, especially where a particular mix of uses or character is desired that can best be achieved through an integrated development plan. The Project site is also zoned with the "–S, Shoreline Overlay" District, the purpose of which is to implement General Plan policies on shoreline protection and public access.

3.2 Original Project

The Original Project contemplated replacing the abandoned, heavy industrial, port-related land uses with a master planned development that features two principal land uses:

- A 6.0± acre public Waterfront Park that would encompass the entire Terminal One shoreline and would include both public park facilities and public access improvements.

- A 7.6± acre residential development that would be constructed in the interior of the Project site and would include 295 multi-family and 21 single-family condominium units (the "Residential Neighborhood").

Waterfront Park and Bay Trail

The land use plan for the Waterfront Park with the Original Project included the following principal public features:

1. The existing approximately 49,950 square-foot Richmond Municipal Wharf No. 1 structurally retrofitted and repurposed as a public park (the "Wharf Park" within the larger Waterfront Park);

2. A shoreline extension of the San Francisco Bay Trail (the "Bay Trail Loop"), set at a minimum elevation of 14.5 feet, addressing a 100-year base flood event and a rise in sea level of up to 3 feet;

3. A new shoreline ring road ("Shoreline Drive");

4. An entry plaza in the southeast corner of the Dornan Drive/Brickyard Cove Road intersection with outdoor café seating activated by a small pocket node of visitor-serving retail space (the "Entry Plaza");

5. A pedestrian/bicycle promenade and view corridor through the center of the residential project connecting the Brickyard Cove Road corridor to the Waterfront Park (the "Central Promenade");

6. A marine ecology preserve (the "Bay Tidelands Area");

7. A further extension of the Bay Trail to bridge the gap between the existing terminus of the Bay Trail previously constructed along the north side of Brickyard Cove Road and the existing segments of the Bay Trail in the Miller/Knox Regional Shoreline park (the "Bay Trail Commuter Extension"); and

8. A total of 49 on-street parking spaces for visitors to the Waterfront Park.

Residential Neighborhood

The land use plan for the Residential Neighborhood in the Original Project included the following principal features:

1. 295 condominium flats which:

    a) would be constructed within a residential development area of 7.6+ acres located at the interior of the Project site;

    b) would include one-, two- and three-bedroom units;

    c) would be developed in five four- and five-story multi-family residential buildings constructed over two single-story podium garages with a maximum building height of 61.5 feet and a gross floor area of 525,947 square feet; and

    d) would be built using Type IIIA and VA wood/steel frame construction.

2. 21 single-family condominium units which:

    a) would front on the shoreline reach of the Waterfront Park;

    b) would include three- and four-bedroom units;

    c) would be two- and three-stories in height;

    d) would overlay the southern edge of the two podium garages which would provide parking for residents and guests; and

    e) would be built using Type VA wood frame construction.

3. Two single-level podium garages which:

    a) would provide the structural foundation for the five four- and five-story multi-family residential buildings that would be built over the podiums;

    b) would providing private parking capacity (588 spaces) to accommodate resident/guest/employee parking demand;

    c) would have a gross floor area of approximately 180,000 square feet;

    d) would be constructed partially below grade with a minimum finished floor elevation of 14.5 feet;

    e) would be built using Type IA reinforced concrete construction;

    f) would require the support of approximately 1500 piles anchored in bedrock at a depth of between approximately 20 and 60 feet below existing grade;

    g) would include over 100,000 square feet of landscaped common area on the roof deck of the podium structure; and

    h) would be accessed by way of three entrances/exits off Brickyard Cove Road.

4. Associated common area amenities, including clubhouse and fitness center facilities, a lap pool/spa, and podium deck landscaping which will incorporate outdoor dining areas, formal gardens, walkways, and a children's play area;

5. Installation of utilities and infrastructure improvements that would be required to serve the new residential development; and

6. Improvements to the Brickyard Cove Road right-of-way along the site frontage and to the Dornan Drive/Brickyard Cove Road intersection at the northwest corner of the Project site.

Construction and Infrastructure

The Original Project would be developed in up to five phases, with almost all of the Waterfront Park public improvements constructed in the first phase of development. Project site preparation for the Original Project would include extensive site grading within the Project development area with a near on-site balance of cut and fill. Grading would raise areas of the site to result in minimum finished floor elevations of 14.5 feet. The phased development could involve occupancy of early-phase residential units during the development of latter development phases. All construction staging would also be contained within the Project development area.

The Original Project would use existing water and wastewater treatment transmission/conveyance infrastructure, including existing off-site facilities. The Project Applicant assumed responsibility for constructing all required additional on-site and off-site utility connections. Project site stormwater associated with the Original Project would be collected and treated onsite (using bioretention features incorporated in the Project landscape) and discharged offsite using the existing 54-inch storm drain line in the Dornan Drive corridor.

See **Figure 3-3, Original Project Conceptual Site Plan** (2016 Draft EIR Figure 3-4).

General Plan and Rezoning

The Original Project was consistent with the existing Medium Density Residential General Plan land use designation and involved a rezone of the Project site from Coastline Commercial District to the Planned Area (PA) District to best achieve an integrated development plan. In November 2016, the Zoning Update included map amendments adding "-S/Shoreline Overlay" District to the site.

3.3 Modified Project

As an alternative to the Original Project analyzed in the 2016 EIR, the Project Applicant proposes a Modified Project that would retain most of the principal features of the Waterfront Park (now wholly referred to as "Wharf Park") approved with the Original Project, with modifications to the shoreline circulation and to the proposed residential development. See **Figure 3-4, Conceptual Site Plan for Modified Project**.

This section enumerates the proposed revisions to the Original Project described in section 3.2 above, in addition to the Original Project components that the Modified Project would retain. In addition, **Table 3-1, Land use Program and Major Project Characteristics – Original Project and Modified Project,** is a comparative summary of the respective development programs and characteristics of the Original Project and the Modified Project and focuses on factors that are particularly relevant to the environmental analysis under CEQA.

Revisions to the Waterfront Park and Bay Trail

The land use plan for the Modified Project would incorporate the following changes to the Waterfront Park proposed by the Original Project (referred to as "Wharf Park" in Figure 3-3 of the Modified Project):

1. The Modified Project would not include the Shoreline Drive ring road approved with the Original Project. Instead, the Modified Project proposes an extension of Dornan Drive from its Brickyard Cove Road intersection at the northwest corner of the Project site to a new drop-off/loading circle at the western end of the Wharf Park. (Also see *Dornan Drive Alternative,* discussed below.) In place of the southern and eastern legs of the previous Shoreline Drive ring road, the Modified Project proposes to expand the site area that is programmed for residential land use.

2. The Modified Project would increase the minimum elevation of the Bay Trail to 15.5 feet and would provide an increased level of flood protection to address the hazard posed by a 100-year base flood event in combination with a rise in sea level of up to 4 feet. (The Original Project set the minimum elevation of the Bay Trail at 14.5 feet, addressing a 100-year base flood event and a rise in sea level of up to 3 feet.)



SOURCE: Terminal One Development LLC, 2015

Figure 3-3
Project Annotated Conceptual Site and Landscape Plan



SOURCE: Laconia Development LLC, 2022

City of Richmond Terminal One Project EIR Addendum . 140325.01

Figure 3-4
Modified Project Concept Site Plan

TABLE 3-1
LAND USE PROGRAM AND MAJOR PROJECT CHARACTERISTICS
MODIFIED PROJECT AND ORIGINAL PROJECT

Proposed Land Use	Original Project	Modified Project
Residential (units)		
Multi-Family Condominium Flats	295	--
Detached Single-Family Condominiums	21	--
Detached Single-Family Homes	0	93
Single-Family Duplex Homes	0	62
Detached Junior Accessory Dwelling Units	--	30
TOTAL	316	184
Residential Unit Characteristics		
Average Unit Size	1,475 sf	2,200 sf
Total Gross Floor Area	785,000 gsf	372,000 gsf
Multi-Family Condominium Buildings	525,947 gsf	--
Single-Family Condominiums	79,422 gsf	--
Podium Garages	179,584 gsf	--
Building Height[1]	4-5 Stories over Single-Story Podium Garages Maximum Height 61.5 ft	2-3 stories with Optional Roof Decks Maximum Height 46 ft
Residential Amenities		
Clubhouse / Recreation Facility	7,000 sf (incl. Pool)	3,500 sf
Retail		
Neighborhood Retail	2,000 sf	2,000 sf
Parking Spaces (approx.)		
Resident Spaces	497 Podium Garages	308 2-Car Garage/Unit 18 Tandem Driveway
Guest Spaces	91 Podium Garages	16 On-Street Spaces 21 On-Street Parking Stalls
TOTAL	588 Podium Garages	363 Parking within Subdivision
Resident/Guest Ratio	1.86 Spaces/Unit	2.35 Spaces/Unit
Public Parking (Park Visitors)	49 On-Street Spaces	53 On-Street/Parking Lot Spaces
TOTAL PARKING	**637 Spaces**	**418 Spaces**
Development Areas (approx.)		
Area of Residential Neighborhood	7.6 acres	9.4 acres
Area of Public Park/Access/Open Space	6.0 acres	4.2 acres
Total Land Area of Site	13.6 acres	13.6 acres
Stormwater Treatment and Earthwork (approx.)		
Total Pervious Area	7.0 acres	3.2 acres
Stormwater Bioretention Area	16,250 sf	18,928 sf
Net Estimated Export/Fill (cubic yards)	15,735 cy / 14,850 (on-site balance)	1,500 cy / 43,500 cy

4. The southern reach of the Bay Trail Loop would be moved closer to the waterfront and on to the northern edge of the wharf, where it would:

    a) become an integrated feature of the Wharf Park;

    b) provide the public with more intimate access to the Terminal One shoreline; and

    c) expand the interior area of the site that is afforded protection from sea-level-rise.

5. The Modified Project includes low walls generally around the perimeter of the Residential Neighborhood to provide separation between homes and Brickyard Cove Road, as well as between homes and the Shoreline Greenbelt and/or Bay Trail. (The Original Project did not include separation walls between the residential and public spaces.)

6. The shoreline relocation of the southern reach of the Bay Trail would also have the effect of displacing the at-grade Rails-to-Trails pathway the Original Project proposed along the Bay-front east of the wharf.

Revisions to the Residential Neighborhood

The land use plan for the Modified Project would incorporate the following changes to the Residential Neighborhood proposed by the Original Project:

1. The Modified Project proposes the development of a 154 home single-family residential neighborhood consisting of 93 detached units and 62 duplex units – both containing 3- and 4-bedrooms. The 62 duplex units will incorporate a live/work option with first floor flex-space that can function as a fourth bedroom or as a home office or commercial workspace. Approximately 30 of the detached single-family 3-story residences will include ground floor (JADUs with separate entrances at the side or rear of the homes. (The Original Project consisted of 316 primarily multi-family condominium and townhome units.)

2. The Modified Project's residential development program would have a total gross floor area of approximately 372,000 square feet. (The Original Project included approximately 785,000 square foot residential development.)

    The Modified Project's detached single-family homes and duplexes will be two- and three-stories and range in size from approximately 1,800 to 2,700 square feet (average size 2,200 square feet). Each unit will include a two-car 400± square-foot garage, and will be built at grade on slab foundations using Type VA wood frame construction. (The Modified Project would eliminate the Original Project's two pile-supported podium garages [179,584 square feet] that would be Type IA reinforced concrete construction; the five four- and five-story multi-family buildings [525,947 square feet] built using Type IIIA wood/steel frame construction; and the 21 townhomes [79,422 square feet] built using Type VA wood frame construction.)

3. The Residential Neighborhood will provide a total of approximately 363 parking spaces for resident and guest use -- a parking ratio of approximately 2.35 spaces per single family home. Specifically, each of the 154 single-family homes will have two-car garages providing 308 garage spaces for Project residents. Of the single-family detached homes,

18 will also have driveways that can accommodate tandem parking, resulting in 18 additional off-street parking spaces for use by residents or their guests. Additional on-street guest parking will be provided within the Residential Neighborhood: 16 on-street parallel parking spaces and 21 on-street parking stalls. (The Original Project would provide residential/guest parking in the two podium garages at a ratio of approximately 1.86 spaces per dwelling unit.)

4. A total of approximately 53 on-street and parking lot parking spaces for park visitors. (The Original Project proposed approximately 49 on-street spaces for park visitors.)

5. The area of the site that will be programmed for residential land use under the Modified Project will be 9.4± acres compared to the Original Project. The site area that will be programmed for public park, open space, and public access-related land uses will be reduced from 6.0± acres to 4.2± acres compared to the Original Project. This increase in residential acreage is primarily attributable to the expansion of residential development into that portion of the Project site that was vacated by the elimination of Original Project's southern and eastern legs of Shoreline Drive, described above.

6. The Modified Project will include a Resident Clubhouse with a fitness center and multi-purpose amenity space. (The Original Project clubhouse also included a lap pool/spa and other common area amenities on the roof decks of the two podium garages.)

7. The grading plan for the Modified Project would involve the import of approximately 43,500 cubic yards of fill. This increase in the volume of fill is in large part due to the elimination of the two podium garages proposed with the Original Project. Site grades of the Modified Project will be predominantly set at an elevation of 15.5 feet or higher and by single-family homes that will be built at grade with minimum finished floor elevations of 16.5 feet. (The Original Project included partially sub-grade parking structures that would have minimum finished floor elevations of 14.5 feet.)

8. The Modified Project will replace the vehicular circulation that was provided by the podium garage with a limited network of homeowners association (HOA)-owned and maintained streets and alleys which will provide access to the single-family residences. In a manner similar to the Original Project, the Modified Project will provide access to the internal roadway network of the Residential Neighborhood from outside the subdivision by way of two street connections to Brickyard Cove Road – a main entry to the Project located at the midpoint of the Project's Brickyard Cove Road frontage and a secondary entry at the northeast corner of the site. (The Original Project provided access to the podium garages by way of three entrances/exits off of Brickyard Cove Road.)

9. The Modified Project will provide an at-grade pedestrian circulation plan that includes extensive use of off-street greenway corridors, a central pedestrian promenade, and a sidewalk network to provide both internal pedestrian circulation within the Residential Neighborhood and access to the shoreline and parkland resources at the perimeter of the subdivision. (The Original Project involved landscaping and walkways on the podium deck that created similar off-street greenway corridors and a central pedestrian promenade.)

10. The Modified Project will provide 53 public parking spaces for park visitors including 16 on-street spaces along the Project's Dornan Drive frontage, 19 spaces in the Wharf

Parking Lot, and 18 on-street spaces along the Project's Brickyard Cove Road frontage. (The Original Project would provide 49 on-street public parking spaces for visitors to the Waterfront Park and shoreline.)

Construction and Infrastructure

The Modified Project would modify and retain the following elements of the Original Project's development and construction program:

1. Both the Original and the Modified Projects would be developed in multiple phases, with almost all of the Wharf Park public improvements to be constructed in the first phase of development.

2. The Modified Project will involve phased development that would complete all site preparation, including installation of roadway infrastructure, prior to the occupancy of any residential units onsite. (The Original Project could involve occupancy of early-phase residential units during the latter site development.)

3. The grading plan for the Modified Project will involve the import of approximately 43,500 cubic yards of fill. This increase in the volume of fill is in large part due to the elimination of the two podium garages proposed with the Original Project. Site grades of the Modified Project will be predominantly set at an elevation of 15.5 feet or higher; single-family homes will be built at grade with minimum finished floor elevations of at least 16.0 feet. (The Original Project included partially sub-grade parking structures, a near on-site balance of cut and fill, and minimum finished floor elevations of 14.5 feet.)

4. Both Projects would use existing water and wastewater treatment transmission/conveyance infrastructure, including existing off-site facilities.

5. All construction staging for both Projects would be contained within the Project development area.

6. The Modified Project will restrict haul trucks to the established construction route along Canal Boulevard/ Seacliff Drive, and Brickyard Cove Road to/from Cutting Boulevard. Only small delivery trucks would use the Dornan Drive access/egress to the Project site. (The 2016 EIR analysis also assumed use of South Garrard/Dornan Drive to/from Cutting Boulevard by haul trucks for the Original Project construction.)

7. The Project Applicant will assume responsibility for constructing all additional on-site and off-site utility connections required by both Projects.

8. Both Projects would employ stormwater management systems which would collect and treat stormwater run-off on-site, using bioretention features incorporated in the Project landscape, and would discharge the treated stormwater off-site using the existing 54-inch storm drain line in the Dornan Drive corridor.

9. The Modified Project will adhere to the City's Natural Gas Ban Code that became effective January 1, 2022 (Richmond Municipal Code new Chapter 9.64), adopted since certification of the 2016 EIR for the Original Project.

10. The Modified Project will equip all construction equipment, diesel trucks, and generators with Best Available Control Technology. In addition, the Modified Project will use off-road equipment that has engines that meet or exceed CARB Tier 4 off-road emission standards and that use CARB's most current certification standards for off-road heavy duty diesel engines.

General Plan and Rezoning

The Modified Project is consistent with the existing Medium Density Residential General Plan land use designation, as well as the Planned Area (PA) District zoning that was designated on the Project site as a result of the rezoning requested by and approved with the Original Project. The Modified Project is also consistent with the "-S, Shoreline Overlay" District which requires approval of a conditional use permit for the proposed land uses.

Dornan Drive Alternative

The Project Applicant seeks approval of the Modified Project shown in Figure 3-4, which includes an extension of Dornan Drive from its intersection with Brickyard Cove Road at the northwest corner of the Project site to a new drop-off/loading circle at the western end of the site, serving Wharf Park and the Resident Plaza/Recreational Area. Parallel parking would be included along the west side of the street. As illustrated in **Figure 3-5, Dornan Drive Alternative**, an alternative design scenario would not extend Dornan Drive from Brickyard Cove Road. Instead of the paved driveway extension with parallel parking, a planted berm would be provided, edged on the west by a low curvilinear wall and privacy buffer between the westernmost residences. The circular drop-off/loading would instead be an emergency vehicle access (EVA) turn-around with grass pavers, in addition to extended lawn area and a bioretention basin adjacent to the Bay Trail and Wharf Park. Compared to the Original Project, the Dornan Drive Alternative would replace the west end stretch of the Shoreline Drive ring road.



SOURCE: Laconia Development LLC, 2022

City of Richmond Terminal One Project EIR Addendum . 140325.01

Figure 3-5
Dornan Drive Alternative

3.4 Modified Project Approvals

Required Jurisdictional Approvals

City of Richmond

Implementation of the Modified Project would require a series of interrelated planning and regulatory approvals by the City, as Lead Agency. Specifically, the City is considering taking the following approval actions, which are generally the same as those previously approved for the Original Project:

1. **Approval of the Addendum to the Terminal One Project EIR** pursuant to CEQA;
2. **Approval of a Major Amendment to a Planned Area Plan** in the form of an addendum to accommodate the Modified Project;
3. **Approval of a Vesting Tentative Subdivision Map** for the purpose of subdividing a 9.4± acre portion of the Project site into 154 single-family home lots;
4. **Approval of Design Review Permits** for the design of the residential structures;
5. **Approval of a Use Permit** for land uses in the "-S, Shoreline Overlay" District; and
6. **Other City Approvals that may be required**, such as:
    - Grading permits
    - Encroachment permits
    - Building permits
    - Other City approvals as necessary to develop the Modified Project.

The Modified Project and associated approvals would require review and recommendation by the Design Review Board (DRB) and the Planning Commission to the City Council, followed by consideration and action by the City Council. As discussed in Section 2, *Purpose and Determination,* of this document, this Addendum is intended to provide the CEQA-required environmental documentation for use in considering these and any other City approvals required to approve the Project.

Other Governmental Agency Approvals

As the Lead Agency and as appropriate under CEQA, the City also intends this Addendum to serve as the CEQA-required environmental documentation for consideration of the Modified Project by other Responsible Agencies and Trustee Agencies which may have limited discretionary authority over development proposals associated with the Modified Project. Under the CEQA Guidelines, the term "Responsible Agency" includes all public agencies, other than the Lead Agency, which have discretionary approval power over aspects of a project for which the Lead Agency has prepared an EIR (Section 15381); and the term "Trustee Agency" means a State

agency having jurisdiction by law over natural resources affected by the project which are held in trust by the people of California (Section 15386).

Responsible Agencies and Trustee Agency approvals for the Modified Project may include, but are not limited to, the following:

Local Agencies

- Richmond Municipal Sewer District approvals will be required for sewer hookups and any upgrades to the backbone sewer system.
- Contra Costa Environmental Health Department review and permits may be required, if wells or soil borings are required (for geotechnical studies, for example.)

Regional and State Agencies

- San Francisco Bay Conservation and Development Commission (BCDC) Permit Amendment.
- Encroachment Permit from East Bay Regional Park District (EBRPD) as needed to accommodate construction of the Bay Trail Commuter Extension.
- East Bay Municipal Utilities District (EBMUD) approvals will be required for water hookups and water lines. EBMUD review of the Project's water needs assessment will also be required.
- San Francisco Bay Regional Water Quality Control Board (SFRWQCB) required approvals will include:
  - National Pollution Discharge Elimination System (NPDES) General Permit for storm water discharges associated with construction activity,
  - Notice of Intent for construction activities, and
  - Storm Water Pollution Prevention Plan (SWPPP) for on-site storm water management and pollution prevention.

3.5 References

City of Richmond, 2016. *Terminal One Project Draft Environmental Impact Report* (Draft EIR). February, 2016.

City of Richmond, 2016. *Terminal One Project Final EIR Response to Comments* (Final EIR). June, 2016.

Terminal One Development LLC, 2022. Terminal One Project Submittal. October 5, 2022 – October 19, 2022.

BKF Engineers, 2022. Vesting Tentative Subdivision Map, 2022. Terminal One Planned Area District. October 5, 2022

4. CEQA Analysis

Overview

This CEQA analysis summarizes the impacts and findings of the Original Project analysis from the *Terminal One Project EIR* (2016 EIR), followed by a discussion of any changes in circumstances, new information, or differences between the proposed Modified Project and the Original Project that could result in changes to the previous impacts and/or mitigation measures. Specifically, the analysis discussion is framed to determine for each environmental topic if any of the CEQA provisions calling for the preparation of a subsequent EIR or negative declaration have occurred.[1]

This CEQA analysis hereby incorporates by reference the discussion and analysis of all potential environmental impact topics as presented in the certified 2016 EIR and explains the various mitigation measures that apply to the Modified Project by impact area. The analysis provides a determination of whether the Modified Project would result in:

- Equal or Less Severity of Impact Previously Identified in 2016 EIR;
- Substantial Increase in Severity of Previously Identified Significant Impact in the 2016 EIR; and/or
- New Significant Impact.

This CEQA analysis also identifies where the Modified Project would result in significant impacts that are:

- Not identified in the 2016 EIR, including offsite and cumulative impacts;
- Due to substantial changes in the Project;
- Due to substantial changes in circumstances under which the Project will be undertaken; and/or
- Due to substantial new information not known at the time the 2016 EIR was prepared and certified.

However, none of the aforementioned conditions were found for the Modified Project, as demonstrated throughout the following CEQA analysis that specifically describes how the Modified Project meets the criteria and standards specified in the CEQA Guidelines Section 15164.

Since the City certified the Project EIR, there have been modifications to Appendix G to the CEQA Guidelines that affect the organization and/or text of certain environmental topics and significance criteria. Any notable differences are disclosed herein, and for ease of review, the analysis presentation in this CEQA analysis largely aligns with that presented in the Project EIR.

[1] Public Resources Code Section 21166 and CEQA Guidelines Sections 15162 and 15164 (Subsequent EIRs, Supplements and Addenda to an EIR or Negative Declaration).

4.1 Aesthetics

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact AES-1: The project would not have a substantial adverse effect on a scenic vista nor substantially damage scenic resources. (Criteria a and b) (Less than Significant, No Mitigation Required)
Impact AES-2: The project would not substantially degrade the existing visual character or quality of the site and its surroundings. (Criterion c) (Less than Significant, No Mitigation Required)
Impact AES -3: The proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. (Criterion d) (Less than Significant, No Mitigation Required)
Impact C-AES-1: The proposed project would not result in a cumulative aesthetics impact when considering the combined effect of the project, and past, present, approved, pending, and reasonably foreseeable future projects. *(Less than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.1-1 through 4.1-48 of the Draft EIR; pages 2-11, 2-21 through 2-22, and 4-4 through 4-6 of the Responses to Comments/Final EIR document; and pages 1-10 of the Memorandum dated June 30, 2016 from Christy Herron (ESA) to Lina Velasco and Rachel Sommovilla (City of Richmond) Re "Additional Information Regarding the Terminal One Project Final Environmental Impact Report, in Support of City Council Staff Report" ("2016 FEIR Memorandum").

Views

The 2016 EIR employed photo-simulations to evaluate the potential impact of the Original Project on views from seven (7) public viewpoints and concluded that, although the Original Project would change views from public access areas such as the Miller/Knox Ridge and the Miller/Knox Uplands Bench immediately to the north of the Project, the Ferry Point Fishing Pier to the west of the Project, the Brickyard Cove Road corridor to the north and northeast of the Project, and the Dornan Drive corridor to the north of the Project, the change would not have a significant adverse effect.

Similar to the Original Project, the Modified Project would include both the demolition of the 95,040-square foot, approximately 50-foot tall, abandoned Terminal One Warehouse presently occupying the southwest corner of the Project Site and the development of a waterfront park that would occupy the Site's entire shoreline reach with features that would include Municipal Wharf No. 1 repurposed as a public park amenity, the shoreline extension of the Bay Trail at the perimeter of the Site, an entry plaza and small (2,000± square foot) retail node in the northwest corner of the Site, a shoreline extension of Dornan Drive, and a Central Pedestrian Promenade. The proposed features of the Waterfront Park contemplated by the Modified Project differ from those of the Original Project in two principal respects:

1. The Modified Project would not include the Shoreline Drive ring road approved with the Original Project. Instead, the Modified Project proposes an extension of Dornan Drive from its Brickyard Cove Road intersection at the northwest corner of the Project site to a new drop-off/loading circle at the western end of the Wharf Park; and
2. The southern reach of the Bay Trail Loop would be moved closer to the waterfront and on to the northern edge of the wharf, where it would become an integrated feature of the Wharf Park.

With the two exceptions referenced above, the Waterfront Park improvements of the Modified Project would be similar in character to those proposed by the Original Project. Because these publicly accessible features of the Modified Project would be built at roughly the same grade as those of the Original Project and would have a similar low profile, they will have an impact on views from off-site locations that will be both modest in effect and roughly comparable to the impacts of the Waterfront Park improvements of the Original Project.

The major difference between the view impacts of the Original Project and the Modified Project are attributable to differences in the character of the residential development to be constructed at the interior of the Site. As initially conceived, the residential component of the Original Project that was the subject of the 2016 EIR consisted of 334 residential units including 308 multi-family condominium flats and 26 attached (duplex) townhomes, together with associated common area amenities. This residential neighborhood was proposed for development on a 7.6+ acre portion of the Project Site. The residential units would be built on top of and abutting two single-story, partially sub-grade podium parking garages. Building heights would "step up" across the Site from the low-rise two- and three-story townhomes to be constructed at the southern edge of the parking podiums to the five mid-rise multi-family buildings that would be constructed over the parking podiums located at the interior of the Site. The mid-rise buildings would extend four- and five-stories above the parking podiums, would range in height[2] from 54- to 62-feet, respectively, and would incorporate flat roofs to reduce impacts on views of the Bay from off-site locations. The five multi-family buildings would have a total gross floor area of 505,350+ square feet, and the two parking podium garages would have a total gross floor area of 180,000+ square feet – resulting in a combined total gross floor area under roof of 737,650+ square feet.

The residential component of the Modified Project would consist of 154 single-family homes (plus 30 junior assessor dwelling units [JADUs]) that would be constructed within a 9.2+ acre development area, the eastern and southern limits of which would extend approximately 30 feet into the portion of the Site that would have been occupied by the southern and eastern segments of the Shoreline Drive ring road under the land use plan of the Original Project. These 154 single-family homes would be two- and three-stories tall, with a maximum building height of 37 feet. Approximately half of the 123 three-story units will provide home buyers with the option of adding an open-air roof deck which will be accessed by way of an enclosed staircase that will extend above the roofline of the three-story structure. The 154 single-family residences will all include a two-car garage approximately 400-square feet in size and will have a combined total gross floor area of approximately 404,700 square feet. In addition, the residential component of the Modified Project will include a 3,500+ square foot, three-story resident recreation center to be constructed adjacent to the Dornan Drive cul-de-sac as well as a two-story 2,000+ square foot retail building situated in the northwest corner of the site.

As the following table indicates, the Modified Project would have an intensity of land use that is substantially lower than the Original Project.

[2] Building heights do not include elevator overruns, staircase penthouses, mechanical screening and associated mechanical equipment that extend above the horizontal plane of the roof.

TABLE AES-1
LAND USE PROGRAM AND MAJOR PROJECT CHARACTERISTICS
MODIFIED PROJECT AND ORIGINAL PROJECT

Land Use Intensity	Original Project	Modified Project
Maximum Building Height	62 Feet	37 Feet
Building Area	737,650+ SF	404,700+ SF
Dwelling Unit Density	33.13 DU/NetAc	15.38 DU/NetAc
Building Coverage	252,500+ SF	164,730+ SF

These reductions in the Modified Project's intensity of land use, as compared to the Original Project, would have the effect of reducing the extent to which the Modified Project would obstruct or otherwise interfere with the public's access to views from the off-site locations evaluated in the 2016 EIR, as compared to the existing conditions.

The Modified Project proposes a greater portion of the Project site be dedicated to residential development - approximately 9.2 acres compared to approximately 7.6 acres. As a result, the Modified Project could be considered to provide less opportunities for the public's access to view scenic vistas through the Residential Neighborhood. Also, the Modified Project's expanded residential area of the Project site is proposed primarily along the southern and eastern edges of the residential area, thereby reducing opportunities from new public views from off-site locations to the west and north of the Project site.

Under existing conditions, views across the site from the west (i.e., from the Ferry Point Fishing Pier) are already obstructed by the presence of the Terminal One Warehouse and the Modified Project's expansion of the residential area along the southern edge, when compared to the Original Project, would have no additional impact on scenic views to the east. Although the Modified Project's increase in the area of residential development at the eastern edge of the Residential Neighborhood, again as compared to the Original Project, would have a modest additional impact on views of the Site itself from the Miller/Knox Ridge and the Miller/Knox Uplands Bench, the additional area of residential development would have little if any additional impact on the panoramic scenic views over the Site to the Bay and points beyond.

The only cross-site scenic views that would be adversely affected by the expanded area of residential development are the transitory views from the Brickyard Cove Road corridor immediately to the north of the Project site. Not only would these view impacts be transitory in character, but they would also be relatively modest in scope when compared to the impact on views resulting from the residential component of the Original Project. In this regard, any adverse impacts on scenic views and scenic resources attributed to the Modified Project's larger area of residential development would be more than offset by the reduction in view impacts attributable to the Modified Project's lower building heights and reduced density, massing, floor area ratio, and coverage.

As a result, when compared to the Original Project, the Modified Project would result in an overall reduction in impacts with respect to scenic views and scenic resources.

Visual Character / Visual Quality

The 2016 EIR concluded that the Original Project would alter but not substantially degrade the existing visual character or quality of the Project site and its surroundings.

The Modified Project would develop the Waterfront Park and the Residential Neighborhood within the same 13+ acre Project development area. As noted above, with the single exception of the Shoreline Drive ring road (which the Modified Project proposes to replace (a) with a southern extension of Dornan Drive and (b) with an extension of the residential neighborhood into the area of the Site that would have been occupied by the southern and eastern legs of Shoreline Drive), the Modified Project would retain the principal features and design character of the proposed Terminal One Waterfront Park. As a result, the visual character and quality of the Waterfront Park component of the Original and Modified Projects are roughly comparable.

With regard to the residential component of the proposed development program, however, the residential development of the Modified Project (154 total units and 30 JADUs) would result in a reduction in the visual impacts associated with the intensity of land use (including building height, massing, scale, coverage, and density) when compared to the Original Project (323-unit multi-family podium-based residential neighborhood contemplated by the Original Project). Both the Modified Project and the Original Project would incorporate high quality materials, color palettes, and landscaping specifically tailored to the conditions and natural context of the Site and its adjacent uses. In addition, the Modified Project will be subject to the same City of Richmond design review process as the Original Project – a process pursuant to which all aspects of the Project's design has been or will be assessed for compatibility with applicable design criteria not only by the City's Design Review Board, but also by the Planning Commission and ultimately, the City Council, and Conditions of Approval have been or will be imposed as needed to assure the Project's overall aesthetic appearance will be visually appealing.

As a result, the Modified Project, like the Original Project, would constitute a substantial upgrade in the visual character and visual quality of a site the existing aesthetics of which are defined by:

Lighting / Glare

The 2016 EIR concluded that the Original Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.
The Modified Project would result in shorter buildings, fewer units, less floor area, fewer residents and guests, and less vehicular activity compared with the Original Project. The Modified Project would include a similar color and materials palette purposefully selected to minimize effects related to glare. Like the Original Project, the Modified Project would be subject to the City's development standards set forth in Zoning Ordinance Section 15.04.604 (Lighting and Illumination), which establish standards for light and glare. As noted above, the Modified Project would also be subject to the same design review process and applicable design review criteria. Overall, the Modified Project, as compared to the Original Project, would result in reduced impacts with respect to light and glare.

Cumulative

As discussed above in this section, the Modified Project would not result in new or substantially more severe impacts compared to those identified in the 2016 EIR, and its contribution to cumulative aesthetic effects would be the less than those identified for the Original Project in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of 2016 EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts related to aesthetics (of which none were identified in the 2016 EIR), nor would it result in new significant impacts related to aesthetics that were not identified in the 2016 EIR. Nor are any revisions required to the analysis of the Original Project in the 2016 EIR to address potential aesthetic impacts of the Modified Project.

Mitigation Measures

No mitigation measures were identified in the 2016 EIR to address aesthetics impacts.

The 2016 EIR does include the following Project Design Feature to specify lighting criteria for the Waterfront Park and Residential Neighborhood.

PROJECT DESIGN FEATURE AES-1: Site Lighting Strategy. The Site Lighting Strategy specifies lighting criteria for the Waterfront Park, podium gardens, and streetscapes, which the project would be required to implement. Per the Site Lighting Strategy, the applicant will ensure the following is included in project design:

- **Waterfront Park Lighting Criteria:** Illuminate paths of travel along the base of walls, decks, and trusses with integrated site lighting fixtures that provide low-level safety lighting without blocking nighttime views.
- **Podium Gardens Lighting Criteria:** Illuminate garden paths with low-level bollards. Light standards to be incorporated as needed for emergency egress lighting. Standards will have cut-off shields to control light trespass into units. Amenity pavilions will include accent and task lighting as needed. Up-lighting will be avoided in order to reduce light pollution.
- **Streetscape Lighting**: A combination of vehicle and pedestrian lighting standards will illuminate the streetscapes and Terminal One Mews to provide the required light levels on both roadways and pedestrian paths. Cutoff shields will be incorporated to control light trespass into residential units. All fixtures will be selected to minimize energy consumption and increase public safety.

4.2 Air Quality

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact AIR-1: The project could conflict with or obstruct implementation of the applicable air quality plan. (Criterion a.) *(Less than Significant, No Mitigation Required)*
Impact AIR-2: Project construction would result in increased emissions of criteria air pollutants. (Criterion b.) *(Less than Significant With Mitigation)*
Impact AIR-3: Operation of the project would result in increased emissions of criteria air pollutants. (Criterion b.) *(Less than Significant, No Mitigation Required)*
Impact AIR-4: Construction of the project would increase emission of toxic air contaminants (TACs), and increase health risks for nearby residents. (Criterion d.) *(Less than Significant, No Mitigation Required)*
Impact AIR-5: Project operations could expose sensitive receptors to substantial pollutant concentrations including toxic air contaminants and increase health risks for existing and proposed residents. (Criterion d.) *(Less than Significant, No Mitigation Required)*
Impact AIR-6: The project could create objectionable odors affecting a substantial number of people. (Criterion e.) *(Less than Significant, No Mitigation required)*
CUMULATIVE IMPACT - AIR QUALITY: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to air quality. *(Less than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.6-16 through 4.6-21 of the Draft EIR. Cumulative air quality and health risk impacts are discussed on pages 6-10 and 6-11 of the Draft EIR.

Evaluation of Construction-related Criteria Air Pollutants Emissions of the Modified Project

The analysis in the 2016 EIR (Impact AIR-2) found that construction of 334 multi-family units and 2,000 square feet of retail/restaurant space on site would result in estimated average daily construction-related exhaust emissions that would not exceed the thresholds for reactive organic gases (ROG), oxides of nitrogen (NOx), respirable particulate matter less than 10 microns in size (PM_{10}) or fine particulate matter less than 2.5 microns in size ($PM_{2.5}$) thereby resulting in a less-than-significant impact. The Modified Project would only construct 154 single-family residences and 30 JADUs, and would retain the proposed retail/restaurant use proposed in the Original Project. The Modified Project also includes an approximately 3,500 square-foot recreation building for residents use.

Construction activities associated with the Modified Project would be similar to the Original Project analyzed in the 2016 EIR. The most recent version of CalEEMod model (version 2020.4.0) was used to estimate construction emissions associated with the Modified Project. While the 2016 EIR for the Original Project anticipated to generate a near balance of cut and fill, the grading plan for the Modified Project calls for the import of approximately 43,500 cubic yards of fill and 1,500 cubic yards of off haul resulting in an increase in the number of haul truck trips during the site preparation and grading phases of construction. However, similar to the Original Project, the model indicates that construction-related emissions of NOx ROG, PM_{10}, and $PM_{2.5}$ under the Modified Project would be well below the construction significance thresholds for these pollutants recommended by the BAAQMD. Estimated construction emissions for the Original

Project and Modified Project are summarized in Table AIR-1. The reductions in emissions overall are the result of improved on-road emission factors in the updated version of CalEEMod for future years. Therefore, the Modified Project would result in the same less-than-significant impact with respect to construction-related exhaust emissions of criteria pollutant emissions of concern. **Mitigation Measure AIR-1: Best Management Practices for Controlling Particulate Emissions** would still apply to address fugitive dust emissions, updated to reflect the most recent practices according to the City and Air District.

TABLE AIR-1
UNMITIGATED AVERAGE DAILY CONSTRUCTION EMISSIONS
FOR THE ORIGINAL AND MODIFIED PROJECT

Project (Construction Years)	Average Daily Emissions (pounds/day)			
	ROG	NO_X	Exhaust PM_{10}[a]	Exhaust $PM_{2.5}$[a]
Original Project (2017 – 2018)	16.6	33.6	1.9	1.8
Modified Project[b] (2023 – 2027)	6.0	3.8	0.1	0.1
BAAQMD Thresholds for Significant Construction Impacts[c]	54	54	82	54
Significant Impact?	No	No	No	No

[a] Consistent with BAAQMD methodology, only the exhaust PM_{10} and $PM_{2.5}$ emissions have been compared to the significance thresholds.
[b] Assumes all construction equipment used for the Modified Project would comply with Tier 4 Final standards.
[c] Operational thresholds are from Table 2-1 of BAAQMD's 2017 CEQA Air Quality Guidelines (BAAQMD, 2017).

SOURCE: Table compiled by ESA in 2022 based on Appendix B.

Evaluation of Construction-related Health Risk Impacts of the Modified Project

The 2016 EIR (Impact AIR-4) did not include a quantitative construction health risk assessment, but instead relied on a construction health risk screening table developed by the BAAQMD in its 2010 (BAAQMD, 2010) to determine that the distance to the nearest sensitive receptors is sufficient to ensure that construction-related impacts from increased cancer risk and localized $PM_{2.5}$ concentrations would be less than significant. The table lists the minimum distance required between the fence line of a construction site and a nearby sensitive receptor to ensure that cancer and non-cancer risks associated with the project are less than significant when compared to the BAAQMD's health risk significance thresholds for construction. The nearest sensitive receptors are the residences located approximately 450 feet of the Project site on Sanderling Island and along South Mallard Drive.

The health risk impact of construction activities associated with the Modified Project was quantified through a project-level health risk assessment (HRA). The Modified Project will equip all construction equipment, diesel trucks, and generators with Best Available Control Technology, and will use off-road equipment that has engines that meet or exceed CARB Tier 4 off-road emission standards and that use CARB's most current certification standards for off-road heavy duty diesel engines.

The HRA was prepared for the Project to evaluate the potential health risks to nearby sensitive receptors from construction emissions of diesel particulate matter (DPM) and $PM_{2.5.}$ DPM is a

toxic air contaminant (TAC) identified by the California Air Resources Board (CARB). DPM would be generated by construction equipment and associated heavy-duty truck traffic associated with Project construction, which may pose health risks to sensitive receptors in the vicinity. As discussed above, the nearest sensitive receptors are located approximately 450 feet to the east of the Project site boundary. The HRA included dispersion modeling to predict the off-site concentrations resulting from Project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

The HRA was conducted using the USEPA's AERMOD dispersion model (version 21112) and uses representative terrain and meteorological data to predict conservative concentrations at specific locations defined by a Cartesian coordinate system. A conservative representation of the on-site construction equipment was modeled as an area source with emissions occurring between the hours of 7:00 AM and 7:00 PM on weekdays and 8:00 AM and 6:00 PM on weekends, a receptor grid with a receptor flagpole height of 1.5 meters (ground-level receptor at breathing height), and meteorological data from the Oakland International Airport for the years 2013 through 2017. The area source was modeled with an emission rate of 1.0 gram per second to obtain a dispersion factor (unit concentration) at each receptor location. The DPM and $PM_{2.5}$ concentrations at each modeled receptor were calculated using the dispersion factors and the DPM and $PM_{2.5}$ emissions as estimated using CalEEMod.

The assessment of health risks was based on recommended methodology from the Office of Environmental of Health Hazard Assessment (OEHHA, 2015) and the BAAQMD (BAAQMD, 2016). The HRA calculates the health risks to a resident child with exposure starting in the third trimester. The 95th percentile daily child breathing rate is recommended by the BAAQMD for children under the age of two and 80th percentile rate for age groups that are two years old or older (BAAQMD, 2016). These breathing rates were used along with the modeled annual DPM concentrations assuming the exposure would occur for 350 days per year at the residence, as recommended by BAAQMD.

The Maximum Exposed Individual Sensitive Receptor (MEISR) was found to occur at a residence on Sanderling Island approximately 450 feet from the Project site's eastern boundary. **Table AIR-2** below summarizes the maximum cancer risk, $PM_{2.5}$ concentration, and chronic health hazard index at the residential MEISR, which would be below the BAAQMD's health risk thresholds for construction. Therefore, this would be a less than significant impact, similar to the Original Project analyzed in the 2016 EIR.

TABLE AIR-2
CONSTRUCTION HEALTH RISK IMPACTS AT THE MAXIMUM EXPOSED INDIVIDUAL SENSITIVE RECEPTOR

	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration ($\mu g/m^3$)
Construction Health Risk	2.4	<0.01	<0.01
BAAQMD Threshold of Significance	*10.0*	*1.0*	*0.3*
Exceeds Significance Threshold?	No	No	No

SOURCE: Table compiled by ESA based on Appendix B.

Evaluation of Operational Criteria Air Pollutant Emissions of the Modified Project

The analysis in the 2016 EIR (Impact AIR-3) found that, under the Original Project, operational emissions associated with 334 multi-family units would result in increased emissions of criteria air pollutants below the applicable BAAQMD thresholds of significance resulting in a less than significant impact. The Modified Project would construct 154 single-family residences and 30 JADUs resulting in lower operational emissions associated with vehicle trip generation and other area sources when compared to the Original Project analyzed in the 2016 EIR. The transportation analysis indicates that daily vehicle trip generation would be reduced by 20 percent, from 2,470 daily vehicle trips under the Original Project to 1,980 vehicle trips under the Modified Project (see Section 4.13, *Transportation and Traffic*, below). The trip generation for the Modified Project conservatively includes the 29 JADUs as single-family residential units; however, since JADUs generally have fewer residents and generate fewer vehicle trips than single-family units, the daily trips generated by the Modified Project would likely be even lower (see 4.13, *Transportation and Traffic*, below).

Table AIR-3 presents the operational criteria pollutants as estimated using CalEEMod (version 2020.4.0) of the Modified Project compared with the Original Project. As shown in the table, operational NOx emissions under the Modified Project would be 27 percent, 77 percent, 29 percent and 32 percent less than the Original Project for ROG, NOx, PM_{10} and $PM_{2.5}$, respectively. Emissions of all criteria air pollutants under the Modified Project would be below the respective operational significance thresholds. Therefore, the Modified Project would also have a less than significant impact with respect to operational criteria pollutant emissions of concern.

TABLE AIR-3
UNMITIGATED ANNUAL OPERATIONAL CRITERIA POLLUTANT EMISSIONS OF THE ORIGINAL AND MODIFIED PROJECT

Operational Source		Estimated Emissions (lbs/day)			
		ROG	NO_X	PM_{10}	$PM_{2.5}$
Mobile Sources[a] Original Project Mobile Sources[a] Modified Project		7.92 3.93	16.0 4.11	12.9 8.76	4.05 2.38
Area Sources[a]Original Project Area Sources[a] Modified Project		9.85 9.23	0.32 0.12	0.51 0.37	0.51 0.37
Energy Sources[a]Original Project Energy Sources[a] Modified Project		0.19 0.0	1.68 0.0	0.14 0.0	0.14 0.0
Total Original Project Total Modified Project		18.0 13.2	18.0 4.2	12.9 9.1	4.05 2.7
BAAQMD Significance Threshold for Operational Impact[b]		54	54	82	54
Significant Impact?		No	No	No	No

[a] Mobile sources are motor vehicles and trucks. Area sources include landscape maintenance (equipment used for these activities such as gasoline-powered lawnmowers and blowers), maintenance application of paints and other interior and exterior surface coatings, and use of consumer products that result in emissions of ROG. Energy sources include natural gas combustion for space and water heating.

[b] Operational thresholds are from Table 2-1 of BAAQMD's 2017 CEQA Air Quality Guidelines (BAAQMD, 2017).

SOURCE: Table compiled by ESA in 2022 based on Appendix B.

Evaluation of Operational Health Risk Impacts of the Modified Project

The analysis in the 2016 EIR (Impact AIR-5) found that operational emissions associated with the Original Project would not result in increased health risks associated with toxic air contaminants (TACs) to existing and proposed sensitive receptors and the impact would be less than significant. As the Modified Project would not result in any new, additional sources of TACs (e.g., backup diesel generators or industrial stationary sources), the Modified Project would also have a less-than-significant impact with respect to operational health risks.

Though the BAAQMD CEQA Guidelines was updated in 2017, after publication of the 2016 Draft EIR, the 2017 CEQA Guidelines do not include any changes to the air quality thresholds of significance.

Mitigation Measures

The following updated mitigation measure from the 2016 EIR will continue to apply to the Modified Project to address the significant air quality impact associated with fugitive dust emissions during construction.

Mitigation Measure AIR-1: Best Management Practices for Controlling Particulate Emissions. The following BAAQMD Best Management Practices for particulate control will be implemented for all project construction activities. These measures will reduce particulate emissions primarily during soil movement, grading and demolition activities but also during vehicle and equipment movement on unpaved project sites.

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, except when not required for dust control.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, § 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be in proper condition prior to operation.
8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

4.3 Biological Resources

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact BIO-1: Construction of the project could have a substantial adverse effect either directly or through habitat modifications, on migratory birds and/or on bird species identified as special-status in local or regional plans, policies, or regulations, or by the CDFW or USFWS. (Criterion a.) *(Less than Significant with Mitigation)*
Impact BIO-2: Construction of the project could have a substantial adverse effect either directly or through habitat modifications, on bats identified as special-status in local or regional plans, policies, or regulations, or by the CDFW or USFWS. (Criterion a.) *(Less than Significant with Mitigation)*
Impact BIO-3: Noise generated during proposed project construction activities could have a substantial adverse impact on fish and marine mammals. (Criterion a.) *(Less than Significant, No Mitigation Required)*
Impact BIO-4: Project construction activities, including re-surfacing of the Terminal One Pier, and any restoration of piles beneath the pier, could locally increase suspended contaminant levels and turbidity from re-suspended sediments, which could have indirect impacts on the marine environment, special-status and managed fish taxa, and spawning and foraging habitat for Pacific herring. (Criteria a., d.) *(Less than Significant with Mitigation)*
Impact BIO-5: Construction of the project could have a substantial adverse effect on Waters of the U.S. and the State (the San Francisco Bay). (Criterion c.) *(Less than Significant with Mitigation)*
Impact BIO-6: Project homes and other structures would result in an increased level of nighttime artificial illumination and building density in the project site, but would not substantially alter the behavior of fish, marine mammals, and birds. (Criterion d.) *(Less than Significant with Mitigation)*
Impact BIO-7: The project could otherwise 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, due to an increase in light and glare. (Criterion d.) *(Less than Significant with Mitigation)*
Impact BIO-8: The project would not conflict with any local policies or ordinances protecting biological resources, such as an ordinance or tree preservation policy, or adopted local, regional, or State Habitat Conservation Plan. (Criteria e., f.) (*Less than Significant, No Mitigation Required)*
Impact C-BIO-1: The proposed project, in conjunction with other past, current, or forseeable development in Richmond, could result in cumulative impacts on special-status species, habitats, wetlands and other waters of the U.S. *(Less than Significant with Mitigation)*

These impacts are addressed in detail on pages 4.3-1 through 4.3-51 of the Draft EIR and pages 4-14 through 4-15 of the Responses to Comments/Final EIR document.

Project Construction

The 2016 EIR concluded that construction of the Original Project would result in less than significant impacts on waters of the U.S. and the state, and less than significant impacts to both terrestrial and marine biological resources, including special-status and nesting birds, with implementation of **Mitigation Measures BIO-1: Nesting Bird Protection Measures**; **NOI-1a: Construction Noise Control Measures and Noise Control Plan**; **NOI-1b: Pile Driving Noise-Reducing Techniques and Muffling Devices**; **BIO-2: Special-Status Bats Protection**; and updated **BIO-3: Building Design and Lighting Strategies to Address Biological Resources Impacts** (see below).

No aspect of the construction of the Modified Project would result either in new construction-related environmental impacts to biological resources not already identified and analyzed in the 2016 EIR or in increases to the level of construction-related impacts to biological resources that have been identified and analyzed in the 2016 EIR for the Original Project. The Modified Project would develop the Waterfront Park and the Residential Neighborhood within the same 13+ acre

Project development area and would require the same or a reduced level of construction-related activity. In particular, the Modified Project, as compared to the Original Project, would not involve either:

- The construction of the two pile-supported podium garages with a combined gross floor area of approximately 180,000 square feet – podium structures that would require Type IA reinforced concrete construction and the installation of over 1,400 piles at depths ranging from 20 to 60 feet below grade; or

- The construction of the 5 four- and five-story multi-family buildings that would be built over the single-story podium garages, that would include 295 condominium flats, with a total gross floor area of approximately 526,000 square feet, and would be built using Type IIIA wood/steel-frame construction.

Instead, the Modified Project would involve construction of 154 single-family, two- and three-story homes (and 30 JADUs). These homes would each have a two-car garage, would have a total combined gross floor area of approximately 405,700 square feet, and would be built on slab foundations using Type VA wood-frame construction. As a result, although the work involved in preparing the site for construction of the Modified Project (including building demolition; removal of hardscape elements, vegetation, and trees; soil remediation; ground disturbance and grading; and installation of utilities and roadway infrastructure) will be roughly comparable to the site work of the Original Project, the actual construction of the residential component of the Modified Project will be much simpler and involve a substantially reduced level of construction activity. Accordingly, the Modified Project would result in the same or a reduced level of construction-related impacts to biological resources, including waters of the U.S. and state, special status species, and nesting birds.

Project Operation

The 2016 EIR concluded that compliance with existing regulations and implementation of Mitigation Measure BIO-3: Building Design and Lighting Strategies to Address Biological Resources Impacts, would ensure that new sources of nighttime light or increases in light and glare associated with operation of the Original Project would not substantially alter the behavior of fish, mammals, and birds or 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.

The Modified Project would be developed within the same 13+ acre Project development area as the Original Project although with a substantially lower intensity of residential land use and with single-family homes up to 37-feet tall rather than with multi-family buildings up to 62-feet tall under the Original Project. Buildings under 45-feet are exempt from the City of Richmond's *Bird-Safe Buildings* requirements. However, the most recent (2019 or 2022) California Green Building Standards Code of Regulation, Title 24, Part 11 (CALGreen) and Richmond's Municipal Code section 15.04.604, *Lighting and Illumination*, would apply to the Modified Project and, in combination with the requirements of updated Mitigation Measure BIO-3 referenced above and shown below, would help eliminate Project-related lighting impacts to areas

beyond the project footprint. Given that the Modified Project would not introduce new sources of nighttime light taller than 37 feet, the Modified Project would result in reduced impacts to birds associated with nighttime lighting.

Cumulative

As discussed above in this section, the Modified Project would not result in new or substantially more severe impacts compared to those identified in the 2016 EIR, and its contribution to cumulative effects on biological resources would be the same or less than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of the 2016 EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts related to biological resources (of which none were identified in the 2016 EIR), nor would it result in new significant impacts related to biological resources that were not identified in the 2016 EIR. Mitigation Measures BIO-1: Nesting Bird Protection Measures; NOI-1a: Construction Noise Control Measures and Noise Control Plan; NOI-1b: Pile Driving Noise-Reducing Techniques and Muffling Devices; BIO-2: Special-Status Bats Protection; and updated BIO-3: Building Design and Lighting Strategies to Address Biological Resources Impacts would be applicable to and would be implemented by the Modified Project and would ensure that impacts on biological resources would be less than significant. Nor are any revisions required to the 2016 EIR analysis of the Original Project to address potential biological resource impacts of the Modified Project.

Mitigation Measures

The following mitigation measures from the 2016 EIR will continue to apply to the Modified Project to address biological resources impacts and ensure any such impacts are less than significant.

Mitigation Measure BIO-1: Nesting Bird Protection Measures. If initial ground disturbance and site grading, building demolition, vegetation removal, tree removal, and other construction activities which may compromise breeding birds or the success of their nests cannot be fully avoided during nesting season (January 15 – August 31), nesting birds and their nests shall be protected during construction through the implementation of the following measures:

1. The applicant shall ensure that a qualified wildlife biologist conduct preconstruction nesting surveys within 7 days of the start of construction or after any construction breaks of 14 days or more. Surveys will be performed for the project site and suitable habitat within 250 feet of the project site in order to locate any active passerine (perching bird) nests and within 500 feet of the project site and off-site staging areas, or line of sight, to locate any active raptor (birds of prey) or double□crested cormorant nests. Distances may also be modified if obstacles such as topography, buildings, or trees obscure the construction area from active bird nests, or existing disturbances create an ambient background disturbance similar to the proposed disturbance.

2. If active nests are located during the preconstruction bird nesting survey, a no disturbance buffer shall be established. Typically, these buffer distances are 250 feet for passerines and 500 feet for raptors; however, they may be adjusted (for example, if an obstruction, such as a building or hill, is within line-of-sight between the nest and construction). Modifying nest buffers, prohibiting construction within the buffer, modifying construction, and removing or relocating active nests shall be coordinated with the CDFW as appropriate given the nests that are found on the site.

3. Any birds that begin nesting within the project site and survey buffers amid construction activities are assumed to be habituated to construction-related or similar noise and disturbance levels and no work exclusion zones shall be

established around active nests in these cases.

Mitigation Measure NOI-1a: Construction Noise Control Measures.

Mitigation Measure NOI-1b: Pile Driving Noise-Reducing Techniques and Muffling Devices.

Mitigation Measure BIO-2: Special-Status Bats Protection. A preconstruction survey for special-status bats shall be conducted by a qualified biologist in advance of tree and structure removal within the project site to characterize potential bat habitat and identify active roost sites. Should the preconstruction survey find no bat habitat or bat roosting sites, no further action is required. Should potential roosting habitat or active bat roosts be found in trees and/or structures to be removed under the project, the following measures shall be implemented:

1. If removal of trees and structures is to occur during the periods when bats are active (approximately between the periods of March 1 to April 15 and August 15 to October 15 [outside of bat maternity roosting season (approximately April 15 – August 31) and the months of winter torpor (approximately October 15 – February 28)] and if active bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where tree and/or structure removal is planned, a no disturbance buffer of 100 feet shall be established around these roost sites until they are determined to be no longer active by the qualified biologist. A 100-foot no disturbance buffer is a typical protective buffer distance; however, this buffer may be modified by the qualified biologist depending on existing screening around the roost site (such as dense vegetation or a building) as well as the type of construction activity which would occur around the roost site.
2. The qualified biologist shall be present during tree and structure removal if potential bat roosting habitat or active bat roosts are present. Trees and structures with active roosts shall be removed only when no rain is occurring or is forecast to occur for 3 days and when daytime temperatures are at least 50°F.
3. Removal of trees with potential bat roosting habitat or active bat roost sites shall follow a two-step removal process:
    a) On the first day of tree removal and under supervision of the qualified biologist, branches and limbs not containing cavities or fissures in which bats could roost, shall be cut only using chainsaws.
    b) On the following day and under the supervision of the qualified biologist, the remainder of the tree may be removed, either using chainsaws or other equipment (e.g. excavator or backhoe).

Removal of structures containing or suspected to contain potential bat roosting habitat or active bat roosts shall be dismantled under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost.

Mitigation Measure HYD-1: Water Quality Best Management Practices for All Construction Activities Over the Bay

Mitigation Measure BIO-3: Building Design and Lighting Strategies to Address Biological Resources Impacts. Prior to the issuance of the first building permit for each new building, the City of Richmond (City) shall require that the project applicant retain a qualified biologist experienced with bird strike issues to review and approve the design of the building to ensure that it sufficiently minimizes the potential for bird strikes. The City may also consult with resource agencies such as CDFW, USFWS, or others, as it determines to be appropriate during this review.

Building Design. The project applicant shall provide to the City a written description of the measures and features of the building design that are intended to address potential impacts on birds. The building design may include, but are not limited to, some of the following measures:

1. Employ design techniques that create “visual noise” via cladding or other design features that make it easy for birds to identify buildings as such and not mistake buildings for open sky or trees;
2. Decrease continuity of reflective surfaces using “visual marker” design techniques, which may include:
    - Patterned or fritted glass, with patterns at most 28 centimeters apart,
    - One-way films installed on glass, with any picture or pattern or arrangement that can be seen from the outside by birds but appear transparent from the inside,
    - Geometric fenestration patterns that effectively divide a window into smaller panes of at most 28 centimeters, and/or
    - Decals with patterned or abstract designs, with the maximum clear spaces at most 28 centimeters square.
3. ~~Up to 60 feet high on building facades facing the shoreline,~~ dDecrease reflectivity of glass, using design techniques such as plastic or metal screens, light-colored blinds or curtains, frosting of glass, angling glass towards the ground, UV-A glass, or awnings and overhangs;
4. ~~Eliminate~~ Minimize the use of clear glass on opposing or immediately adjacent faces of the building without intervening interior obstacles such that a bird could perceive its flight path through the glass to be unobstructed; and
5. Mute reflections in glass using strategies such as angled glass, shades, internal screens, and overhangs.~~; and~~
6. ~~Place new vegetation sufficiently away from glazed building facades so that no reflection occurs. Alternatively, if planting~~

~~of landscapes near a glazed building façade is desirable, situate trees and shrubs immediately adjacent to the exterior glass walls, at a distance of less than 3 feet from the glass. Such close proximity will obscure habitat reflections and will minimize fatal collisions by reducing birds' flight momentum.~~

Lighting. The project applicant shall ensure that the design and specifications for buildings implement design elements to reduce lighting usage, change light direction, and contain light. These may include, but are not limited to, the following general considerations that should be applied wherever feasible throughout the proposed project to reduce night lighting impacts on fish, marine mammals, and avian species:

1. Avoid installation of lighting in areas where not required for public safety
2. In the non-residential buildings, e~~E~~xamine and adopt alternatives to bright, all-night, floor-wide lighting when interior lights would be visible from the exterior or exterior lights must be left on at night, including:
    - Installing motion-sensitive lighting
    - Installing task lighting
    - Installing programmable timers
    - Installing fixtures that use lower-wattage, sodium, and yellow-red spectrum lighting.
3. Where exterior lights are to be left on at night, install fully shielded lights to contain and direct light away from the sky.

~~***Educating Residents and Occupants.*** The City shall ensure, as a condition of approval for every building permit, that the project applicant agrees to provide educational materials to building tenants, occupants, and residents encouraging them to minimize light transmission from windows, especially during peak spring and fall migratory periods, by turning off unnecessary lighting and/or closing window coverings at night. The City shall review and approve the educational materials prior to building occupancy.~~

~~***Documentation.*** The project applicant and/or City shall document undertaking the activities described in this mitigation measure and maintain records that include, among others, the written descriptions provided by the building developer of the measures and features of the design for each building that are intended to address potential impacts on birds, and the recommendations and memoranda prepared by the qualified biologist experienced with bird strikes who reviews and approves the design of any proposed projects to ensure that they sufficiently minimize the potential for bird strikes.~~

4.4 Cultural and Paleontological Resources

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2013 TERMINAL ONE PROJECT EIR

Impact CUL-1: Project implementation would not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5. (Criterion a.) (*Less than Significant, No Mitigation Required*)
Impact CUL-2: Project construction could cause a substantial adverse change in the significance of an archaeological resource, including those determined to be a historical resource defined in Section 15064.5 or a unique archaeological resource defined in PRC 21083.2. (Criterion b.) (*Less than Significant with Mitigation*)
Impact CUL-3: Project construction could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Criterion c.) *(Less than Significant with Mitigation)*
Impact CUL-4: Project construction could disturb any human remains, including those interred outside of formal cemeteries. (Criterion d.) *(Less than Significant with Mitigation)*
CULTURAL AND PALEONTOLOGICAL RESOURCES: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to cultural and paleontological resources. *(Less than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.4-1 through 4.4-14 of the Draft EIR.

The 2016 EIR determined that the paleontological potential of the site is low, and buildings or structures of potential historical significance are not present on the site. The 2016 EIR did not identify archaeological resources or other evidence of past human use or occupation and additional study was not recommended.

The 2016 EIR concluded that construction of the Original Project on the Project development area would have less than significant impacts on historical resources. The 2016 EIR also found that potentially significant impacts related to archaeological resources, paleontological resources, and/or human remains would be reduced to less-than-significant levels with implementation of **Mitigation Measures CUL-1: Accidental Discovery of Archaeological Resources; CUL-2: Accidental Discovery of Paleontological Resources;** and **CUL-3: Accidental Discovery of Human Remains** (see below).

No aspect of the Modified Project would change the conditions or environmental impacts regarding cultural or paleontological resources identified for the Original Project in the 2016 EIR. The Modified Project would be developed within the same Project development area where no pre-historic or historic-era architectural or built environment resources of potential historic significance are located. The type of development and ground disturbance area would be the same as considered in the 2016 EIR. Further, the scale/height of development and associated depth of construction and overall construction activities would be the same or reduced relative to the Original Project analyzed in the 2016 EIR. The Modified Project would implement **Mitigation Measures CUL-1: Accidental Discovery of Archaeological Resources; CUL-2: Accidental Discovery of Paleontological Resources;** and **CUL-3: Accidental Discovery of Human Remains** to reduce potential impacts to cultural resources to a less-than-significant level.

Cumulative

As discussed above in this section, the Modified Project would not result in new or substantially more severe impacts compared to those identified in the 2016 EIR, and its contribution to cumulative effects on cultural resources would be the same or less than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of 2016 EIR, implementation of the Modified Project would not substantially increase the severity of the potentially significant impacts to cultural or paleontological resources identified in the 2016 EIR, nor would it result in new significant impacts related to cultural or paleontological resources that were not identified in the 2016 EIR. **Mitigation Measures CUL-1: Accidental Discovery of Archaeological Resources; CUL-2: Accidental Discovery of Paleontological Resources;** and **CUL-3: Accidental Discovery of Human Remains** would be applicable to and would be implemented by the Modified Project and would ensure that impacts on cultural and paleontological resources would be less than significant. No revisions are required to the 2016 EIR analysis of the Original Project to address potential impacts to cultural or paleontological impacts of the Modified Project.

Mitigation Measures

The following mitigation measures from the 2016 EIR will apply to the Modified Project to address significant cultural and paleontological resources impacts.

Mitigation Measure CUL-1: Accidental Discovery of Archaeological Resources. During project construction, if prehistoric or historic-era cultural materials are encountered, all construction activities within 100 feet of the find shall halt and the City shall be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. A Secretary of the Interior-qualified archaeologist shall inspect the find within 24 hours of discovery. If the find is determined to be potentially significant, the archaeologist, in consultation with the City and the appropriate Native American representative shall determine whether preservation in place is feasible. Consistent with CEQA Guidelines Section 15126.4(b)(3), this may be accomplished through: planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist, in consultation with the lead agency and the appropriate Native American representative, shall prepare and implement a detailed Archaeological Research Design and Treatment Plan (ARDTP). Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The ARDTP shall include provisions for analysis of data in a regional context, reporting of results within a timely manner and subject to review and comments by the appropriate Native American representative before being finalized, curation of artifacts and data at a local facility acceptable to the appropriate Native American representative, and dissemination of final confidential reports to the appropriate Native American representative, the Northwest Information Center of the California Historical Resources Information System, the City, and interested professionals.
Mitigation Measure CUL-2: Accidental Discovery of Paleontological Resources. If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist can assess the nature and importance of the find and, if necessary, develop appropriate treatment measures in conformance with Society of Vertebrate Paleontology standards, and in consultation with the City of Richmond.
Mitigation Measure CUL-3: Accidental Discovery of Human Remains. Pursuant to Section 7050.5 of the Health and Safety Code, and Section 5097.94 of the Public Resources Code of the State of California, in the event of the discovery of

human remains during construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The Contra Costa County Coroner shall be notified and shall make a determination as to whether the remains are Native American. If the Coroner determines that the remains are not subject to his authority, he shall notify the Native American Heritage Commission who shall attempt to identify descendants of the deceased Native American. If no satisfactory agreement can be reached as to the disposition of the remains pursuant to this State law, then the land owner shall re-inter the human remains and items associated with Native American burials on the property in a location not subject to further subsurface disturbance.

4.5 Geology, Soils and Mineral Resources

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact GEO-1: Project development could be damaged by seismically induced ground shaking and thereby expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death. (Criterion a.2) *(Less than Significant, No Mitigation Required)*
Impact GEO-2: Project development could be damaged by seismically related ground failure including liquefaction and thereby expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death. (Criterion a.3) *(Less than Significant, No Mitigation Required)*
Impact GEO-3: Project development could be damaged by seismically related landslides and thereby expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death. (Criterion a.4) *(Less than Significant, No Mitigation Required)*
Impact GEO-4: The project could result in soil erosion during excavation, grading, and construction activities. (Criterion b) *(Less than Significant, No Mitigation Required)*
Impact GEO-5: The project could result in on- or off-site lateral spreading, subsidence, liquefaction, or collapse from placement of improvements on unstable geologic units or soils. (Criterion c) *(Less than Significant, No Mitigation Required)*
Impact GEO-6: Project implementation could occur on expansive soils, creating risks to life and property. (Criterion d) *(Less than Significant, No Mitigation Required)*
Impact C-GEO-1: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to geology, soils or seismicity. *(Less than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.5-15 through 4.5-21 of the Draft EIR.

The 2016 EIR determined that construction and operation of the Original Project would result in less-than-significant impacts regarding geology, soils and mineral resources. The Original Project would be subject to final project-specific design-level geotechnical recommendations in accordance with the current seismic design criteria required under the California Building Code (CBC). Adherence to standard industry practices and geotechnical recommendations contained in the final approved report would reduce the potential impacts associated with ground shaking during a major seismic event; seismically-related ground failure, including liquefaction; slope instability and slope failure; unstable geologic units; and expansive soils to a less than significant level. Implementation of the Original Project's Erosion Control Plan and required BMPs as part of the NPDES Construction General Permit would reduce impacts associated with erosion to a less than significant level. Finally, the 2016 EIR determined the Original Project would have a less-than-significant impact on mineral resources.

While the Modified Project would involve a notably greater amount of infill soil, the volume of excavation would be relatively less, and the overall grading approach to the site would maintain the generally flat nature of the site. The Modified Project involves approximately 43,500 cubic yards of on-haul while removing only 1,500 cubic yards; the Original Project involved a relatively balanced volume of cut and fill, resulting in an on-site balance. The increased fill is due to the elimination of partially sub-grade parking structures previously proposed with the Original Project, in addition to increasing the Project site elevation for flooding and sea level rise adaptability. Other than this change, the Modified Project would be developed within the same Project development area, with the same geologic characteristics and seismic hazards analyzed in the 2016 EIR. The ground disturbance area would be the same as considered in the 2016 EIR.

Further, the scale/height of overall development would be the reduced relative to the Original Project analyzed in the 2016 EIR. The revised design would still be subject to the current industry standard geotechnical practices and seismic structural design according to the requirements found in the most recent version of the CBC, which would mitigate all seismic hazards discussed in the 2016 EIR. Implementation of the final geotechnical recommendations and conformance with the current seismic design provisions of the CBC would reduce potential impacts related to exposure to ground shaking, ground failure including liquefaction, slope failure, and unstable geologic units or materials to a less-than-significant level. Further, implementation of the Erosion Control Plan and required BMPs as part of the NPDES Construction General Permit would minimize erosion impacts during construction and reduce potential impacts to less–than-significant levels.

Cumulative

As discussed above in this section, the Modified Project would not result in new or substantially more severe impacts compared to those identified in the 2016 EIR, and its contribution to cumulative effects related to geology, soils, and mineral resources would be the same or less than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of 2016 EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2016 EIR, nor would it result in new significant impacts related to geology, soils and mineral resources that were not identified in the 2016 EIR. No revisions are required to the 2016 EIR analysis of the Original Project to address potential geology, soils and mineral resources impacts of the Modified Project.

Mitigation Measures

No mitigation measures were identified in the 2016 EIR to address geology, soils, and mineral resources impacts.

4.6 Climate Change, Greenhouse Gases and Energy

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact GHG-1: The project would result in an increase in GHG emissions. (Criteria a.) *(Less than Significant, No Mitigation Required)*
Impact GHG-2: The project could conflict with the AB 32 Scoping Plan or City of Richmond's Energy and Climate Change Element Goals and Policies for reducing GHG emissions. (Criteria b.) *(Less than Significant, No Mitigation Required)*
Impact ENE-1: The project would not result in wasteful, inefficient and unnecessary use of energy, and the project would not require substantial additional energy capacity. (Criteria c, d) *(Less than Significant, No Mitigation Required)*
CLIMATE CHANGE, GREENHOUSE GASES, AND ENERGY: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to climate change, greenhouse gases, and energy. *(Less than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.7-25 through 4.7-35 of the Draft EIR. Cumulative GHG impacts are discussed on page 6-14 of the Draft EIR.

Evaluation of Construction and Operational GHG Emissions of the Modified Project

The analysis in the 2016 EIR (Impact GHG-1) quantified GHG emissions from both construction and operation of the Original Project. Construction emissions were found to be less than significant as the BAAQMD has not adopted a quantitative threshold related to construction GHG emissions and considers emissions to be less than significant with the implementation of best management practices during construction, as feasible.

Construction-related impacts would be less than significant, similar to the Original Project because the BAAQMD has not adopted quantitative significance threshold for the evaluation of GHG emissions from construction activities. The BAAQMD considers a project's construction emissions to have a less-than-significant impact because they represent a very small portion of the project's lifetime GHG emissions. GHG emissions from off-road construction equipment represent a very small portion of overall statewide emissions (0.6 percent), and CARB has identified only limited strategies to control emissions from such equipment. In other words, the state can achieve its 2030 target with very limited emissions reductions in the construction sector. This is a holistic approach in which CARB looks at all emissions sources in California and focuses on reducing the largest emissions sources that the state can influence and control. The 2017 Scoping Plan Update calls for reducing emissions from certain sources substantially (like vehicular emissions and building energy use) while not targeting emissions from other sources (like construction equipment). Under this strategy, the state can still achieve its 2030 GHG emissions reduction target. Because BAAQMD's thresholds are based on consistency with statewide targets, BAAQMD's conclusion that construction-related emissions are less than significant is warranted. For these reasons, the Project's construction-related GHG emissions would be less than significant, similar to the Project analyzed in the 2016 EIR.

The Original Project included Project Design Features GHG-1 and GHG-2 benefit construction period emission of GHG emissions, and GHG-1 (listed below) is no longer applicable since the Modified Project involves substantially more fill than cut volume compared to the Original Project (see 4.5, *Geology, Soils and Mineral Resources,* above).

Total operational emissions associated with the Original Project were found to be below the applicable BAAQMD significance threshold of 4.6 metric tons of carbon dioxide equivalents per service population ($MTCO_2e/SP$) and hence less than significant. The Modified Project would only construct 154 single-family residences and 30 JADUs instead of the 334 multifamily units analyzed in the 2016 EIR (both scenarios assume approximately 2,000 square feet of neighborhood retail), and a smaller recreation facility (3,500 square feet compared to 7,000 square feet), and would therefore result in lower emissions associated with vehicle trip generation and other area sources when compared to the Original Project. Daily vehicle trip generation for the Modified Project would be reduced by 20 percent when compared to the Original Project. GHG emissions from the operation of the Modified Project were estimated using CalEEMod model (version 2020.4.0), and are presented in **Table GHG-1**. As shown in the table, operational GHG emissions under the Modified Project would be 47 percent less than the Original Project analyzed in the 2016 EIR. When considered with a service population of 516, the Modified Project would result in approximately 2.9 $MTCO_2e/SP$, less than the 4.6 $MTCO_2e/SP$ threshold used in the 2016 EIR. Therefore, the Modified Project would also have a less than significant impact with respect to GHG emissions.

While the BAAQMD GHG threshold of 4.6 $MTCO_2e/SP$ was developed to address the year 2020 reduction targets of the original State of California Scoping Plan, more aggressive targets for year 2030 have been adopted by the 2017 Update to the Scoping Plan. The 2017 Scoping Plan Update outlines the proposed framework of action for achieving the 2030 GHG target of 40 percent reduction in GHG emissions relative to 1990 levels (CARB, 2017), which is a further 40 percent reduction beyond the year 2020 targets. As indicated in the 2016 EIR, the Original Project would be consistent with BAAQMD thresholds developed for year 2020 reduction targets. As the Modified Project's GHG emissions would be 47 percent less than the Original Project, the Modified Project would be considered consistent with the year 2030 as well as the year 2020 reduction targets. Therefore, the impact of the Modified Project with respect to GHG emissions that could have a significant impact on the environment would be less than significant.

Evaluation of the Modified Project's Consistency with Plans to Reduce GHG Emissions

The analysis in the 2016 EIR (Impact GHG-2) found that under the Original Project, construction and operation of 334 multi-family units would be subject to applicable policies in the City's Climate Action Plan (CAP) adopted by the City on October 25, 2016 and that the Original Project met the City's 2020 GHG reduction target as presented in the CAP. Additionally, an assessment was made to determine that the Original Project was consistent with each applicable policy and action of the Energy and Climate Change Element of the City's General Plan and the CAP.

TABLE GHG-1
ESTIMATED GHG EMISSIONS GENERATED BY THE MODIFIED PROJECT

Emission Source	GHG Emissions $MTCO_2e$/year
Area Sources	11.2
Energy Sources	65.8
Mobile Sources	1,264.9
Solid Waste	115.6
Water and Wastewater	22.5
Total Modified Project Total Original Project	1,480 2,803
Modified Project Service Population Original Project Service Population	516[a] 648
Total Modified Project GHG Emissions per Service Population Total Original Project GHG Emissions per Service Population	2.9 4.3
Project-level Service Population Threshold	4.6
Modified Project Exceeds Significance Threshold?	No

NOTE: Columns may not total precisely due to rounding.

[a] Conservatively assumes an average of 2.9 persons per household for single family units (154 units) and 1.9 persons per household for JADUs (30 units) (same as DEIR Table 4.11-4, multifamily condominium flat ratio); 250 sf/employee ratio for neighborhood retail (2,000 sf)

SOURCE: Table compiles by ESA based on Appendix B.

As the Modified Project would also be subject to applicable policies in the CAP and the General Plan, it likewise would be consistent with local planning efforts to reduce GHGs. The Modified Project would also adhere to the City's Natural Gas Ban that became effective January 1, 2022 (Richmond Municipal Code new Chapter 9.64), adopted since certification of the 2016 EIR will reduce GHG emissions associated with natural gas. Further, as discussed above, in consideration with the emissions of the Original Project and the findings of the 2016 EIR, the Modified Project's quantitative GHG emissions would be consistent with the comparative GHG reduction targets of the State's Climate Change Scoping Plan Update and would, therefore, be consistent with Statewide efforts to reduce GHGs. Consequently, the impact of the Modified Project with respect to conflict with an applicable plan, policy or regulation of an appropriate regulatory agency adopted for the purpose of reducing GHG emissions is less than significant.

Mitigation Measures

No mitigation measures were identified in the 2016 EIR to address climate change and GHG emissions.

The 2016 EIR does include the following Project Design Features and Recommended Measure to address GHG emissions. However, Project Design Feature GHG-1 is no longer applicable, and the components of Recommended Measure GHG-1 no longer apply because of the change in residential type and site layout and, moreover, the recommendation are now largely regulatory requirements of the Project that did not apply in the 2016 EIR (see 4.2, *Air Quality,* above).

~~**PROJECT DESIGN FEATURE GHG-1: Balanced Cut and Fill Grading.** The project applicant will ensure that the grading plan provides a near balance of cut and fill on-site, thereby minimizing the need to import or export soil; substantially reducing the truck trips to and from the site; and, in the process, substantially reducing the GHG emissions those truck trips would generate.~~

PROJECT DESIGN FEATURE GHG-2: Recycling and Reuse of Demolition Materials. The project applicant will ensure that demolition activities that take place on the project site will include the recycling, reprocessing, and reuse on-site of the bulk of the materials generated by demolition of the warehouse and remaining hardscape elements, thereby minimizing the need to export the demolition waste-materials off-site as well as the need to import materials to the project site in order to satisfy the project's requirements for road base, aggregate base for the foundations, engineered fill, and other on-site uses that will be addressed by reuse of the reprocessed demolition by-products.

~~**RECOMMENDED MEASURE GHG-1:** The City and applicant shall consider including the following design features in the proposed project, as part of the Planned Area Plan and Design Review processes:~~

- ~~Provide an electric car charging station on the project site.~~
- ~~Include centralized recycling collection areas within the common space in the condominium flats.~~
- ~~Include water recycling and rainwater catchment in the condominium buildings to recycle water.~~

4.7 Hazards and Hazardous Materials

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact HAZ-1: The project would include the routine transport, use and disposal of hazardous materials during construction and operation but would not create a significant hazard to the public or the environment. (Criterion a.) *(Less than Significant with Mitigation)*
Impact HAZ-2: The project would not create a significant hazard to the public or environment through an upset or accident involving the release of hazardous materials. (Criterion b.) *(Less than Significant, No Mitigation Required)*
Impact HAZ-3: Development of the project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and could result in a safety hazard to the public or environment through exposure to previous contamination of soil or groundwater. (Criterion d.) *(Less than Significant with Mitigation)*
Impact HAZ -4: The project would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Criterion g.) *(Less than Significant, No Mitigation Required)*
Impact HAZ -5: The project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. (Criterion h.) *(Less than Significant, No Mitigation Required)*
HAZARDS AND HAZARDOUS MATERIALS: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to hazards and hazardous materials. *(Less than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.7-16 through 4.7-23 of the Draft EIR.

The 2016 EIR concluded that construction of Original Project would result in less than significant impacts with respect to the potential upset or accidental release of hazardous materials, nor due to the physically interference of adopted emergency response plan or emergency evacuation plan, or exposure of people or structures significant risk due to wildfire. The 2016 EIR also concluded that potential hazards impacts resulting from the Original Project's routine transport and disposal of hazardous materials during construction would be reduced to less than significant with implementation of the following mitigation measures: **Mitigation Measures HAZ-1a through HAZ-1f** (listed below). The 2016 EIR also required implementation of the following mitigation measure required to reduce to less than significant the potential impact of the Original Project due to its location on a hazardous materials site: **Mitigation Measure HAZ-2.**

Project Construction

As previously described, the Modified Project would be developed within the same Project development area and subject to the same soil and groundwater characteristics disclosed and analyzed in the 2016 EIR. Also, the ground disturbance area and proposed land use would be the same as considered in the 2016 EIR. The Modified Project would not result in substantial changes to construction approach analyzed in the 2016 EIR. Compliance with existing regulations (i.e., the NPDES permit program), which is a necessary condition of construction, would address potential upsets and accidents related to transport, use and disposal of hazardous materials. The remedial action for the Modified Project is anticipated to involve excavation of soils that will be managed on site to reduce concentrations of petroleum hydrocarbons, and tested to assess acceptability for replacement in the excavations and/or or other on-site reuse.

No aspect of the Modified Project would change the conditions or environmental impacts regarding hazards and hazardous materials identified for the Original Project in the 2016 EIR. Since certification of the 2016 EIR, by letter dated March 21, 2019, the San Francisco Bay Regional Water Quality Control Board (RWQCB or Water Board), following an additional site investigation to better understand current environmental conditions and inform revisions to the 2004 Updated Proposed Remedial Action Plan, approved the 2018 Remedial Action Plan Addendum upon the condition that the City would submit a Remedial Design Report with sufficient detail to assure successful mitigation of contamination. Following conditional approval of the 2018 RAP Addendum, a remedial design investigation was conducted involving additional soil sampling and a Draft Remedial Design Report was submitted for Water Board review (the "2019 Draft Remedial Design Report" [Wood, 2019][3]) which included detailed designs of the remedial actions for which provision was made in the 2018 RAP Addendum. In a March 3, 2020 letter, the Water Board requested revisions to the 2019 Draft Remedial Design Report.[4] Shortly thereafter, the applicant determined the Original Project could not be built as approved and a formal response to the Water Board's March 3, 2020 letter with the requested revisions was deferred while the applicant undertook the redesign of the Original Project which resulted in the pending single-family residential proposal currently under review as the Modified Project. The City, the applicant, and the Water Board are currently in discussions regarding any revisions that will need to be made to the 2018 RAP Addendum to accommodate the Modified Project. Specifically, a supplement to the 2018 RAP Addendum will be provided that outlines the necessary updates. There are no significant changes proposed to the 2018 RAP Addendum, with the exception of the vapor mitigation approach, which is proposed to include mitigation systems at individual homes, as addressed in Mitigation Measure HAZ-1e in the 2016 EIR and that will continue to apply to the Modified Project.

The updated activities conducted since certification of the 2016 EIR do not change or worsen the severity of the impact identified for the Original Project nor the mitigation measures or other specified regulatory requirements to which the Modified Project would still have to adhere associated with construction.

Project Operation

The Modified Project would introduce fewer residences and associated transport, handling, and use of small quantities of hazardous materials, during operations. Adherence to existing regulatory requirements in addition to mitigation measures identified in the 2016 EIR, particularly those to ensure that remediation activities have successfully reduced the threat to human health and the environment to less than significant.

[3] Wood Environmental, 2019. *Remedial Design Report, Terminal One 1500 Dornan Dr., Richmond, CA*. Project No. 8617190170.07. October 2019.

[4] SFBRWQCB, 2020. *Memo Re: Terminal One, 1500 Dornan Dr., Richmond, Contra Costa County – Requirement for Revision of October 2019 Draft Remedial Design Report*. Case No. 070S0125. March 3, 2020.

Also, like the Original Project, the Modified Project would not close or reroute any existing roadways or interfere with roads, access, and egress of future occupants. Therefore, the potential effect to an existing emergency response plan or emergency evacuation plan would remain less than significant. City of Richmond Department of Public Works, Police Department, and Fire Department, would preserve emergency vehicle access during construction, and would not interfere with an adopted emergency response or evacuation plan. (Also see 4.13, *Transportation and Traffic*).

Cumulative

As discussed above in this section, the Modified Project would not result in new or substantially more severe impacts regarding hazardous materials and hazards compared to those identified in the 2016 EIR, and its contribution to cumulative effects related to hazards and hazardous materials would be the same or less than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of 2016 EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2016 EIR, nor would it result in new significant impacts related to hazards and hazardous materials that were not identified in the 2016 EIR. No revisions are required to the 2016 EIR analysis of the Original Project to address potential hazards and hazardous materials impacts of the Modified Project.

Mitigation Measures

The following mitigation measures from the 2016 EIR will continue to apply to the Modified Project to address hazards and hazardous materials impacts and ensure any such impacts are less than significant.

Mitigation Measure HAZ-1a: Prior to issuance of any demolition permit, the project applicant shall submit to the Contra Costa Health Services Department a hazardous building material assessment prepared by qualified licensed contractors for any structure intended for demolition indicating whether LBP or lead-based coatings, and/or PCB-containing equipment, are present.

Mitigation Measure HAZ-1b: If the assessment required by Mitigation Measure HAZ-1a indicates the presence of LBP, and/or PCBs, the project applicant shall create and implement a health and safety plan in accordance with local, state, and federal requirements to protect demolition and construction workers and the public from risks associated with such hazardous materials during demolition or renovation of affected structures.

Mitigation Measure HAZ-1c: If the assessment required by Mitigation Measure HAZ-1a finds presence of LBP, the project applicant shall develop and implement a LBP removal plan. The plan shall specify, but not be limited to, the following elements for implementation:

1. Develop a removal specification approved by a Certified Lead Project Designer.
2. Ensure that all removal workers are properly trained.
3. Contain all work areas to prohibit off-site migration of paint chip debris.
4. Remove all peeling and stratified LBP on building and non-building surfaces to the degree necessary to safely and properly complete demolition activities according to recommendations of the survey. The demolition contractor shall be responsible for the proper containment and disposal of intact LBP on all equipment to be cut and/or removed

during the demolition.

5. Provide on-site personnel and area air monitoring during all removal activities to ensure that workers and the environment are adequately protected by the control measures used.
6. Clean up and/or vacuum paint chips with a high efficiency particulate air (HEPA) filter.
7. Collect, segregate, and profile waste for disposal determination.
8. Properly dispose of all waste.

Mitigation Measure HAZ-1d: If the assessment required by Mitigation Measure HAZ-1a finds presence of PCBs, the project applicant shall ensure that PCB abatement is conducted prior to building demolition or renovation. PCBs shall be removed by a qualified contractor and transported in accordance with Caltrans requirements.

Mitigation Measure HAZ-1e: Prior to issuance of any building permit, the project applicant shall submit to the City a soil vapor assessment prepared by a qualified licensed environmental consultant for any structure intended for human occupancy (i.e., occupied by a human for a minimum of 2,000 hours annually). The assessment shall consist of laboratory analysis of soil gas samples collected as part of remediation confirmation to document that soil gas concentrations will not adversely affect future occupants or visitors to proposed structures.

Mitigation Measure HAZ-1f: Prior to issuance of any building permit, the project applicant shall submit to the City confirmation that the site remedial action plan and cleanup order have been revised as necessary, and approved by the San Francisco Regional Water Quality Control Board (RWQCB), to address the construction of housing and other infrastructure (i.e., water utilities) in areas of the site not otherwise contemplated for housing or infrastructure in the 2005 Updated Proposed Remedial Action Plan or Order No. R2-2004-0045, and that all remedial actions required to be completed per the revised remedial action plan prior to project construction have been approved as complete, and documented as such, by the RWQCB. In addition, the final occupancy permit for the project shall not be granted by the City prior to the review and approval by the RWQCB of a report documenting the completion of all required remedial and mitigation measures and confirming the correct installation and functioning of any and all required mitigation systems.

Mitigation Measure HAZ-2: During construction, the applicant's construction contractor lead/foreperson shall ensure that all earthwork activities cease upon discovery of any suspect soils (e.g., petroleum odor and/or discoloration) during construction in accordance with an updated Soil Risk Management Plan prepared by a qualified environmental consultant and approved by the San Francisco Bay Regional Water Quality Control Board (RWQCB). Upon any such discovery, the applicant or their construction contractor shall notify the RWQCB and retain a qualified environmental firm to collect soil samples to confirm the level of contamination that may be present. If contamination is found to be present, any further proposed groundbreaking activities within areas of identified or suspected contamination shall be conducted according to a site specific health and safety plan, prepared by a licensed professional. The contractor shall follow all procedural direction given by the RWQCB and in accordance with the updated Soil Risk Management Plan prepared for the site to ensure that suspect soils are isolated, protected from runoff, and disposed of in accordance with transportation laws and the requirements of the licensed receiving facility.

4.8 Hydrology and Water Quality

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact HYD-1: The project could result an increase of stormwater pollutants due to construction activities and/or the introduction of new impervious surfaces with development but would not violate any water quality standards or waste discharge requirements. (Criterion a) (Less than Significant with Mitigation)
Impact HYD-2: The project would increase impervious surfaces which would reduce the amount of stormwater runoff available for recharge but not to the extent that it would substantially deplete groundwater supplies or interfere substantially with groundwater recharge. (Criterion b) (Less than Significant, No Mitigation Required)
Impact HYD-3: The project would not alter the drainage pattern of the site such that it would result in substantial erosion or siltation on or off the site. (Criterion c) (Less than Significant, No Mitigation Required)
Impact HYD-4: The project would not alter the drainage pattern of the site such that it would result in a 100-year flood event on- or off- the site. (Criterion d) (Less than Significant, No Mitigation Required)
Impact HYD-5: The project would not create or contribute runoff water which would exceed the capacity of existing drainage systems or provide additional sources of polluted runoff. (Criterion e) (Less than Significant, No Mitigation Required)
Impact HYD-6: The project could place housing or structures within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map; or place within a 100-year flood hazard area structured which would impede or redirect flood flows. (Criteria g, h) (Less than Significant, No Mitigation Required)
Impact HYD-7: The project could expose people or structures to a significant risk of loss, injury or death involving flooding related to sea level rise. (Criterion i) (Less than Significant With Mitigation)
Impact HYD-8: The project would not would not result in or cause inundation by seiche, tsunami, or mudflow. (Criterion j) (Less than Significant, No Mitigation Required)
HYDROLOGY AND WATER QUALITY: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to hydrology and water quality. (Less than Significant, No Mitigation Required)

These impacts are addressed in detail on pages 4.8-15 through 4.8-31 of the Draft EIR and pages 2-19 and 2-20 of the Responses to Comments/Final EIR document.

The 2016 EIR concluded that the Original Project could result in a potentially significant impact regarding stormwater quality during construction, in particular, the potential for release of chemical contaminants into the Bay, which could be toxic to sensitive wildlife or the benthic community in and within proximity to nearby residential uses. and that impact would be reduced to less than significant with implementation of the following mitigation measure: **Mitigation Measure HYD-1: Water Quality Best Management Practices for All Construction Activities Over the Bay** (listed below). Like the Original Project, the Modified Project would also adhere to all existing regulations, the site construction SWPPP (including BMPs for fuel and equipment storage), the required erosion and sediment control plan, and adherence to other NPDES General Construction Permit requirements. The Modified Project would result in a less pervious surface area on the site compared to the Original Project (approximately 3.2 acres compared to 7.0 acres). Also the Modified Project proposes a greater area of bioretention area on the site to manage and treat runoff upon Project completion (18,928 square feet compared to 16,250 square feet). However, neither of these differences from the Original Project would change the potential impacts, regulations or mitigation measure necessary to reduce the potential impact.

The same conditions regarding potential dewatering exist due to the high groundwater table, even with less depth of excavation than the with the Original Project. Runoff at the site would continue

to flow into stormwater retention features and/or storm drains near Wharf Park (previously Shoreline Drive), not resulting in major changes to drainage patterns planned for the Original Project.

The 2016 EIR also identified several Project Design Features, some of which would continue to apply to the Modified Project, with slight modifications to apply to the Modified Project. These include **Project Design Feature HYD-1: Pre-project Stormflow levels**, to address on-site stormwater treatment features that are adequate to address stormwater treatment requirements; **Project Design Feature HYD-2: Sea Level Rise Measures**, to address sea level rise of up to 3 feet; and **Project Design Feature HYD-3: Sea Level Rise Adaptation Strategies**, regarding HOA provisions to ensure preparation and implementation and monitoring of an Adaptive Flood Risk Management Plan (each shown below, as modified from the 2016 Responses to Comments/Final EIR document and this Addendum). As previously described, the Modified Project proposes to elevate the residential areas and Bay Trail to elevations to address increased level of flood protection and the hazard posed by a 100-year base flood event in combination with a rise in sea level of up to 4 feet; Project Design Feature HYD-2: Sea Level Rise Measures, is modified accordingly.

Therefore, adhering to the same mitigation measures identified for the Original Project, the Modified Project would result in the same less-than-significant impacts with respect to water quality standards, waste discharge requirements, drainage capacity, groundwater levels, erosion or siltation, and flooding. As previously discussed in 4.5, *Geology, Soils and Mineral Resources,* above), a final design-level geotechnical investigation would be performed for the Modified Project in accordance with current seismic design criteria required under the CBC, and impacts related to inundation by seiche, tsunami, or mudflow would remain less than significant. Also, the Project site is not located in a dam failure inundation area or low lying coastal area subject to inundation by sea level rise, however, like the Original Project and discussed above, the Modified Project proposes to raise site elevations to address increased level of flood protection and sea rise up.

Cumulative

As discussed above in this section, the Modified Project would not result in new or substantially more severe impacts compared to those identified in the 2016 EIR, and its contribution to cumulative effects related to hydrology and water quality would be the same or less than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of the 2016 EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2016 EIR, nor would it result in new significant impacts related to hydrology and water quality that were not identified in the 2016 EIR. No revisions are required to the 2016 EIR analysis of the Original Project to address potential hydrology and water quality impacts of the Modified Project.

Mitigation Measures

The following mitigation measure from the 2016 EIR will continue to apply to the Modified Project to address hydrology and water quality impacts and ensure any such impacts are less than significant.

Mitigation Measure HYD-1: Water Quality Best Management Practices for All Construction Activities Over the Bay. The project applicant shall ensure that the following best management practices are included in the SWPPP prepared in accordance with the Construction General Stormwater Permit:

1. The construction contractor shall minimize the production of debris when cutting or demolishing portions of the over-water pier components or constructing new over-water components, and shall utilize netting, containment vessels, work platforms, or the equivalent to catch any falling debris;
2. The construction contractor shall install a containment boom around the work area to contain floating debris, and shall provide a vessel to retrieve debris from the containment area at the end of each work day;
3. Straw bales, wattles, fiber rolls, gravel bags, or equivalent devices shall be installed around the perimeter of the pier and stockpiled materials that are exposed to the environment to prevent debris from being transported to the Bay via runoff;
4. The use of hazardous materials during construction shall be minimized to the extent practical, and the amount of hazardous materials stored on the piers or adjacent to the waterfront shall be limited to what is needed to immediately support construction activities. The quantities shall not exceed 55 gallons for a specific material. All hazardous materials shall be stored safely and securely in approved containers, under cover or in an approved storage shed or cabinet, and in adequate secondary containment. Fueling of generators and other equipment shall be conducted away from the pier edge and other locations where a spill could easily enter the Bay, and adequate spill cleanup materials shall be provided during all fueling operations;
5. Well-maintained equipment shall be used to perform the construction work, and, except in the case of a failure or breakdown, equipment maintenance shall be performed off site. Equipment shall be inspected daily by the operator for leaks or spills. If leaks or spills are encountered, the source of the leak shall be identified, leaked material will be cleaned up, and the cleaning materials shall be collected and will be properly disposed;
6. Inactive material stock piles must be covered at all times;
7. Construction material shall be covered every night and during any rainfall event;
8. Construction crews shall implement measures to prevent saw water and wash water from entering the Bay;
9. Active debris boxes shall be covered during rain events to prevent contact with rainwater;
10. No concrete shall be stored on-site. After trucks are finished placing concrete, they shall be washed out in a designated area, and the wash water shall be contained within plastic kid pools or similar containment. Once dried, the residual concrete shall be appropriately disposed of off-site;
11. At the end of each work day (at a minimum), the part of the Terminal One Pier deck upon which construction activities have taken place that day shall be cleaned of particulates, sediment, and debris, by manual or mechanical means such as vacuuming or sweeping. Power washing is not an acceptable method for cleaning;
12. Non-stormwater discharges to the Bay shall be prohibited unless specified in the SWPPP and approved by the City;
13. A Materials Management and Disposal Plan (MMDP) shall be prepared to prevent any debris from falling into the Bay during construction to the maximum extent practicable and also ensure the appropriate disposal of all construction-related materials. The measures identified in the MMDP shall be based on the Best Available Technology, and will include, but not be limited to, the following:
    a. During construction, any barges performing the work shall be moored in a position to capture and contain the debris generated during any sub-structure or in-water work. In the event that debris does reach the Bay, personnel in workboats within the work area shall immediately retrieve the debris for proper handling and disposal. All debris shall be disposed of at an authorized upland disposal site;
    b. Construction waste shall be collected and transported to an authorized upland disposal area, and per federal, state, and local laws and regulations;
    c. All construction material, wastes, debris, sediment, rubbish, trash, fencing, etc., shall be removed from the site once the proposed project is completed and transported to an authorized disposal area, in compliance with applicable federal, state, and local laws and regulations.

The MMDP shall be submitted to the San Francisco Bay RWQCB for review and approval.

The following Project Design Features would continue to apply to the Modified Project, shown updated as appropriate to apply to the Modified Project as currently proposed (and as modified in the Final EIR).

PROJECT DESIGN FEATURE HYD-1: Pre-project stormflow levels. Prior to the start of project construction, the applicant will demonstrate, to the satisfaction of the Wastewater/Stormwater Manager that, upon completion of such construction, there will be sufficient detention capacity on the project site to detain the incremental increase in stormflow volume that occurs during the 24-hour, 10-year design storm, which incremental increase is due to the increase in impervious surface above pre-project levels.

PROJECT DESIGN FEATURE HYD-2: Sea Level Rise Measures. The applicant will ensure that the project design includes the following measures to address sea level rise of up to ~~3~~four feet:

1. Placement of finished floor elevations of residential structures above ~~14.5~~ 16.0 feet NAVD88, an elevation greater than the current site BFE, or 11 feet NAVD88, plus ~~3~~four feet of sea level rise and a at least 1.0 feet of additional margin; and
2. The installation of appropriate stormwater inlet infrastructure, and/or the installation of back flow prevention devices on storm drain lines (and/or the design of the stormwater infrastructure to accommodate the future installation of back flow prevention devices on an as-needed basis).
3. Placement of the finished elevation of the Bay Trail Loop at or above ~~14.1~~ 15.5 feet NAVD88, an elevation greater than the current site BFE (11 feet NAVD88) plus ~~3~~four feet of sea level rise and at least 0.5 feet of additional margin;

If feasible, design of the Bay Trail Loop to function as a flood mitigation embankment either as initially constructed or as retrofitted on an as needed basis. Because the project site's shoreline is a VE zone, indicating it is currently susceptible to wave overtopping, the Bay Trail Loop embankment may be subject to wave runup and overtopping. These processes shall be considered when setting the Bay Trail Loop's final design and evaluating its flood mitigation performance.

PROJECT DESIGN FEATURE HYD-3: Sea Level Rise Adaptation Strategies: The applicant shall include provisions in the project's Covenants, Conditions, and Restrictions that require the Homeowner's Association to engage a degreed coastal geomorphologist, a licensed engineer, or a comparably qualified expert in the management of flood risks associated with sea level rise to prepare an Adaptive Flood Risk Management Plan. The initial adaptive management plan shall be completed and submitted to the City for review and comment by January 1, 2035. The plan shall be updated every ten years, with the first plan update to be completed and submitted to the City for review and comment by January 1, 2045 and with subsequent updates to be completed and submitted to the City on January 1 every ten years thereafter.

The Adaptive Flood Risk Management Plan shall include:

1. A Monitoring and Reporting Program – to include:
    a. A review of scientific literature including up-to-date estimates of local sea level rise and available data and studies from other shoreline sites in Richmond as well as neighboring/regional jurisdictions to estimate the actual increase in sea level at the site;
    b. A review of federal, State, local, and regional law, regulations, and guidance that address sea level rise;
    c. A report that addresses the following points:
        i. A discussion of any estimated difference in sea level at the site since the previous 10-year report;
        ii. A discussion of how the project complies with any new applicable statutory or regulatory requirements;
        iii. A discussion of the observed characteristics and impacts, if any, related to flooding on the site, based on site observations and photos as well as conversations with site residents and City Public Works staff;
        iv. A discussion of the monitoring triggers that will be used to determine the installation schedule for:
            - Any backflow prevention devices that are required to address flood impacts associated with a 2-foot increase in sea level;
            - Any protective features that will enable the Bay Trail Loop (and/or other protective features as needed) to serve as a flood protection measure to address flood impacts associated with a ~~3~~four-foot increase in sea level; and/or
            - Any additional adaptive flood risk management measures that will be required to address flood impacts associated with a rise in sea level of greater than ~~3~~four feet.
        v. A recommended schedule for implementing the adaptive flood risk management measures referenced in subsection iv. above and/or an update to a previously presented recommended schedule; and
        vi. A report on the adaptation measures financing mechanism (see subsection 3. below), and an estimated projection of funds that would be available 10 years into the future.
2. An Adaptive Flood Risk Management Strategy to address 100-year flood impacts associated with a rise in sea level of greater than ~~3~~four feet. If the monitoring program and the updated monitoring report prepared every ten years

results in a projection that the rise in sea level will exceed ~~3~~four feet during the subsequent 25-year period, the Adaptive Flood Risk Management Plan shall also include:

a. An analysis of adaptive measures which, if implemented, either on a stand-alone basis or in combination with other measures, would prevent or substantially reduce human health and safety impacts as well as property loss and damage related to 100-year flooding and an increase in sea level of greater than ~~3~~four feet;

b. The formulation of an adaptive measures strategy which reflects a best practices and cost-effective approach to addressing the 100-year flood risk associated with an increase in sea level greater than ~~3~~four feet; and

c. An estimate of the costs and timeframes involved in implementing the adaptive measures strategy formulated in accordance with subsection b. above.

The nature of the adaptation measure/s to be implemented will be reviewed and approved by the City Planning Division and Public Works Department and other regulatory agencies as necessary, and will be based on the results of monitoring and reporting.

3. A Financing Strategy which will be designed to:

a. Generate sufficient resources to cover the costs of:

vii. The backflow prevention devices as required to address flood impacts associated with a 2-foot increase in sea level (to the extent these devices were not already installed when the storm drain system was initially constructed);

viii. The protective features as required to enable the Bay Trail Loop to serve as an effective barrier to address flood impacts associated with a ~~3~~four foot increase in sea level (to the extent these protective features were not already incorporated in the Bay Trail Loop when it was originally constructed); and

ix. The adaptive measures strategy formulated to address flood impacts associated with an increase in sea level of greater than ~~3~~fourfeet;

b. Generate such funds and to make such funds available within a timeframe to cover the flood improvement costs as they are incurred in accordance with the implementation schedule.

The financing strategy may include funding from the following private and public financing mechanisms:

a. Homeowner Association fees;

b. Mello Roos Community Services District special taxes;

c. Assessment District Assessments; and

d. Other public or private financing mechanisms as determined by the Homeowner Association and the City to be appropriate and feasible.

4.9 Land Use and Planning

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact LUP-1: The proposed project would not divide an established community. *(Less than Significant, No Mitigation Required)*
Impact LUP-2: The project would be in general conformance with applicable regional or local plans and policies adopted for the purpose of avoiding or mitigating environmental effects. *(Less than Significant, No Mitigation Required)*
LAND USE AND PLANNING: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to land use and planning. *(Less than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.9-13 through 4.9-19 of the Draft EIR.

The Original Project would establish a new residential neighborhood and public Bay Trail connections from Miller/Knox park, connecting to nearby residential areas. Because the development would create and improve connections with established communities, the 2016 EIR concluded that the Original Project would not physically divide an established community. The Modified Project proposes the same land uses and land use configuration on the Project site, and the Bay Trail continues to loop the site, connecting to existing neighborhood, therefore no aspect of the Modified Project would physically divide an established community.

Table 4.9-1 in the 2016 EIR evaluated the Original Project's consistency with Richmond General Plan 2030 policies. The Modified Project would maintain the overall consistency with pertinent land use policies identified in the 2016 EIR, including but not limited to those pertaining to a dynamic mixed-use waterfront, the clean-up and reuse of contaminated sites, the protection and restoration of natural habitat, and integration of open space areas along the shoreline.

The Modified Project would develop single-family residential rather than multi-family condominium and townhomes, however, the change in unit type would not change the consistency of the development with housing related policies. For example, the Modified Project remains consistent with ABAG's goals for the provision of housing and ABAG and EBRPD's goals for the regional Bay Trail. With less residential development compared to the Original Project, resulting visual, noise, traffic effects would be less with the Modified Project compared to the Original Project.

The Modified Project does not require a zoning reclassification or General Plan designation, since those were approved with the Original Project to align with the development under a PA zoning. A PA Plan Amendment is needed to reflect the new site layout, decreased density, and modified unit types.

Cumulative

As discussed above in this section, the Modified Project would not result in new or substantially more severe impacts compared to those identified in the 2016 EIR, and its contribution to

cumulative effects related to land use and planning would be the same or less than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of 2016 EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2016 EIR, nor would it result in new significant impacts related to land use and planning that were not identified in the 2016 EIR. No revisions are required to the 2016 EIR analysis of the Original Project to address potential land use and planning impacts of the Modified Project.

Mitigation Measures

No mitigation measures were identified in the 2016 EIR to address land use and planning.

4.10 Noise

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact NOI-1: *Construction of the project would result in a temporary increase in ambient noise levels. (Criteria a., c.) (Less Than Significant with Mitigation)*
Impact NOI-2: *Occupants of the proposed new buildings could be exposed to high noise levels. (Criteria a., b.) (Less than Significant, No Mitigation Required)*
Impact NOI-3: Project operations could cause a long-term increase in ambient noise levels in the project vicinity. (Criteria b.) *(Less Than Significant, No Mitigation Required)*
Impact NOI-4: Project construction could generate ground-borne vibration. (Criterion f.) *(Less Than Significant, No Mitigation Required)*
Impact C-NOI-1: Construction activities of the proposed project combined with cumulative construction noise in the project area could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity during construction. *(Less than Significant, No Mitigation Required)*
Impact C-NOI-2: Operation of the proposed project when considered with other cumulative development would not cause a substantial permanent increase in ambient noise levels in the project vicinity. *(Less Than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.10-12 through 4.10-19 of the Draft EIR.

The 2016 EIR concluded that construction of the Original Project would result in less than significant noise impacts with implementation of **Mitigation Measure NOI-1a: Construction Noise Control Measures**, and **Mitigation Measure NOI-b: Pile Driving Noise-Reducing Techniques and Muffling Devices** (see below). Operation of the Original Project was also determined to result in less-than significant impacts related to exposure to high noise levels and long-term increases in ambient noise levels.

No aspect of the Modified Project would substantially change the conditions or environmental impacts regarding noise identified for the Original Project in the 2016 EIR. Vehicle trips generated from the Modified Project's 154 single-family residences and 30 JADUs would be less than those generated by the 316 units analyzed the 2016 EIR. The Modified Project would be developed on the same development area, also it would develop single-family residential rather than multi-family condominium and townhomes – a difference that would not affect noise effects. Other site preparation and construction activities would be slightly reduced relative to those associated with development of the Original Project, even though more trucks associated with the increased fill volume to be transported on-site; construction would have a shorter duration and structures would be smaller (as well as fewer). In addition, given the same type of land uses are proposed with the Modified Project, and the surrounding land uses have not changed from those considered in the 2016 EIR. Therefore, the effects related to noise compatibility would not be changed.

The Modified Project would be subject to the City of Richmond Noise Ordinance regulating construction noise times, days, and standards, same as the Original Project. Therefore, the Modified Project would result in the same but less severe less-than-significant impacts with regard to temporary increases in ambient noise levels and ground-borne vibration during construction. Overall, the Modified Project would result in the same or reduced less-than-significant noise impacts as identified in the 2016 EIR.

Cumulative

The 2016 EIR identified a less than significant noise impact when considered with other construction or operational projects. As discussed above, both construction and operational noise (roadway) with the Modified Project would be less than those estimated with the Original Project. Therefore, the contribution of construction or operational noise from the Modified Project to the cumulative noise setting would be less than previously analyzed, and therefore still less than significant and less severe than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of 2016 EIR, implementation of the Modified Project would not increase the severity of significant impacts identified in the 2016 EIR, nor would it result in new significant impacts related to noise that were not identified in the 2016 EIR. The same mitigation measures are conservatively assumed to still apply to and be implemented by the Modified Project and would maintain less than significant impacts. No revisions are required to the 2016 EIR analysis of the Original Project to address potential noise impacts of the Modified Project.

Mitigation Measures

The following mitigation measures from the 2016 EIR, will continue to apply to the Modified Project to address significant noise impacts.

Mitigation Measure NOI-1a: Construction Noise Control Measures. The applicant shall employ site-specific noise attenuation measures during project construction to reduce the generation of construction noise, including pile-driving noise. These measures shall be included in a Noise Control Plan that shall be submitted for review and approval by the City of Richmond Planning and Building Services Department to ensure that construction noise is consistent with the standards set forth in the City's Noise ordinance and other standards as appropriate. Measures specified in the Noise Control Plan and implemented during project construction shall include, at a minimum, the following noise control strategies:

- Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds);
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to approximately 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used;
- Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures; and
- Noise-reducing pile-driving techniques as specified in Mitigation Measure NOI-1b.

Mitigation Measure NOI-1b: Pile Driving Noise-Reducing Techniques and Muffling Devices. Noise-reducing pile-driving techniques shall be employed during project construction. These techniques shall include: Limiting pile driving or other impact-related noise-generating activity to 9:00 a.m. to 5:00 p.m., Monday through Friday. No pile driving or other extreme noise-generating activity is permitted on Saturdays, Sundays, and holidays;

- Installing intake and exhaust mufflers on pile-driving equipment;
- Vibrating piles into place when feasible, and installing shrouds around the pile-driving hammer where feasible;
- Implementing "quiet" pile-driving technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions;

- Using cushion blocks to dampen impact noise, if feasible based on soil conditions. Cushion blocks are blocks of material that are used with impact hammer pile drivers. They consist of blocks of material placed atop a piling during installation to minimize noise generated when driving the pile. Materials typically used for cushion blocks include wood, nylon and micarta (a composite material); and
- At least 48 hours prior to pile-driving activities, the applicant shall notify building owners and occupants within a minimum of 600 feet of the project site of the dates, hours, and expected duration of such activities.

The above measures would reduce the severity of noise generated by construction and pile driving activities and reduce the potential annoyance to nearby residents and recreational users and others who could be disturbed by pile driving.

4.11 Population, Housing, and Employment

PREVIOUSLY-IDENTIFIED IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact POP-1: The project would not directly or indirectly induce substantial population growth. *(Less than Significant, No Mitigation Required)*
POPULATION AND HOUSING: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to population and housing. *(Less than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.11-8 through 4.11-9 of the Draft EIR.

The 2016 EIR analysis determined that approximately 648 new residents and employees associated with the Original Project's 334 units and neighborhood retail would be consistent with citywide population (and housing) forecasts estimated by General Plan 2030, ABAG projections for Richmond, and housing goals of the Regional Housing Needs Allocation (RHNA).[5] Therefore, the 2016 EIR concluded that the Original Project would not induce indirect growth.

The Modified Project would generate approximately 515 residents and employees (see Table GHG-1, in 4.6, *Climate Change, Greenhouse Gases and Energy*, above), and therefore the contribution to local and regional population growth would be less than identified in the 2016 EIR. The reduced population would result in the same less-than-significant impacts related to direct population growth and indirect population growth due to increased demand for services and goods. Also, the Modified Project proposes the same infrastructure improvements considered in the 2016 EIR, including roads and utilities, and therefore would result in the same less-than-significant impacts with respect to the indirect inducement of population growth.

Cumulative

The Modified Project would not result in new or substantially more severe impacts compared to those identified in the 2016 EIR, and its contribution to cumulative effects related to population and housing would be the same or less than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of the 2016 EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2016 EIR, nor would it result in new significant impacts related to population and housing that were not identified in the 2016 EIR. No revisions are required to the 2016 EIR analysis of the Original Project to address potential population and housing impacts of the Modified Project.

[5] No employment is associated with the proposed recreation building for residents use.

Mitigation Measures

No mitigation measures were identified in the 2016 EIR to address population, housing, and employment impacts.

4.12 Public Services

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact PUB-1: The project would not 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. (Criteria a., b., c.) *(Less than Significant, No Mitigation Required)*
PUBLIC SERVICES AND RECREATION: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to public services and recreation. *(Less than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.12-7 through 4.12-10 of the Draft EIR.

The 2016 EIR concluded that the Original Project would not result in substantial adverse physical impacts associated with an increased demand for public services. The new population and land uses would increase demand for fire or emergency services, police services, and park facilities, and would generate new school-aged persons. However, based on and assessment of existing service provisions and new population estimated (see 4.11, *Population, Housing, and Employment,* above), the increased demands would not result in a substantial adverse effect warranting the need for new facilities to maintain acceptable service ratios.

As discussed previously, the new population, development and activities associated with the Modified Project would be less than analyzed for the Original project in the 2016 EIR. Therefore, the potential impact the public services would be reduced compared to those previously disclosed. The Modified Project would have developed the same new public open spaces and recreational areas as proposed with the Original Project, in addition to required impact fees. Therefore, the potential recreation facilities would be similar to those identified in the 2016 EIR. The impact would remain less than significant.

Cumulative

As discussed above in this section, the Modified Project would not result in new or substantially more severe impacts compared to those identified in the 2016 EIR, and its contribution to cumulative effects related to public services would be the same or less than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of the 2016 EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2016 EIR, nor would it result in new significant impacts related to public services that were not identified in the 2016 EIR. No revisions are required to the 2016 EIR analysis of the Original Project to address potential public services impacts of the Modified Project.

Mitigation Measures

No mitigation measures were identified in the 2016 EIR to address public services and recreation.

4.13 Transportation and Traffic

PREVIOUSLY-IDENTIFIED PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact TR-1: The project would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways. (Criterion a.) (Less than Significant)
Impact TR-2: The project would not conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways. (Criterion b.) (Less than Significant)
Impact TR-3: The project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (Criterion c.) (Less than Significant)
Impact TR-4: The project would not result in inadequate emergency access. (Criterion d.) (Less than Significant)
Impact TR-5: The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. (Criterion e.) (Less than Significant)
Impact TR-6: Project construction would result in a substantial, though temporary, adverse effect on the circulation system during the project construction period. (Criterion f.) (Less than Significant, No Mitigation Required)
TRANSPORTATION AND TRAFFIC: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to transportation and traffic. *(Less than Significant, No Mitigation Required)*

These impacts are addressed in detail on pages 4.13-27 through 4.13-41 of the Draft EIR, and page 2-15 of the Responses to Comments/Final EIR.

Modified Terminal One Project Analysis

The Modified Project would have similar residential uses at the same location and similar modifications to the surrounding transportation network as the Original Project evaluated in the 2016 EIR, but with fewer units. Thus, as described below, the Modified Project would result in similar less-than-significant impacts on transportation and traffic as the Original Project.

Although CEQA requirements for identifying transportation and traffic impacts have changed since the certification of the 2016 EIR to rely on vehicle miles traveled (VMT) instead of level of service (LOS) or similar measures of automobile delay and congestion, this Addendum does not directly address the impacts of the Modified Project on VMT because VMT was accounted for in the air quality and GHG impact evaluation of the 2016 EIR, and therefore, is not considered a new impact topic that would need to be disclosed. Specifically, VMT is not considered new information that was not known and could not have been known when the 2016 EIR was certified (Public Resource Code Section 21166) as described in more detail below.

Trip Generation

Table TRA-1 summarizes the trip generation for the Modified Project and compares it with the trip generation for the Original Project evaluated in the 2016 EIR. The trip generation estimate for the Modified Project conservatively includes the 30 JADUs as single-family residential units. As shown in Table TRA-1, the Modified Project would generate approximately 43 fewer trips during the AM peak hour, approximately 33 fewer trips during the PM peak hour, and approximately

490 fewer trips on a typical weekday than the Original Project evaluated in the 2016 EIR. Since JADUs generally have fewer residents and generate fewer vehicle trips than single-family units, the peak hour and total daily trips would likely be less than those shown in Table TRA-1.

TABLE TRA-1
AUTOMOBILE TRIP GENERATION ESTIMATES

Land Use	ITE Code	Units[a]	AM Peak Hour			PM Peak Hour			Daily Total
			In	Out	Total	In	Out	Total	
Residential Units	210[b]	184 DU [c]	34	96	130	111	65	176	1,770
Restaurant	932[d]	2.0 KSF	10	9	19	11	7	18	210
Total Automobile Trips (Modified Project)			**44**	**105**	**149**	**122**	**72**	**194**	**1,980**
Total Automobile Trips (Original Project)[e]			*46*	*146*	*192*	*147*	*80*	*227*	*2,470*
Net Difference			*-2 (-4%)*	*-41 (-28%)*	*-43 (-22%)*	*-25 (-17%)*	*-8 (-10%)*	*-33 (-14%)*	*-490 (-20%)*

NOTES:

[a] DU = dwelling unit; KSF = 1,000 square feet

[b] ITE *Trip Generation (11th Edition)* land use category 210 (Single-Family Detached Housing):
AM Peak Hour: Ln(T) = 0.91 Ln(X) + 0.12, (26% in, 74% out)
PM Peak Hour: Ln(T) = 0.94 Ln(X) + 0.27, (63% in, 37% out)
Daily: Ln(T) = 0.92 Ln(X) + 2.68
Where T= Trips Generated, X = Number of Units

[c] Consists of 154 single-family units and 30 junior accessory dwelling units. The accessory dwelling units are conservatively assumed as single-family units. No trips are associated with the proposed recreation building for use by residents.

[b] ITE *Trip Generation (11th Edition)* land use category 932 (High-Turnover [Sit Down] Restaurant:):
AM Peak Hour: T = 9.57(X); Enter = 55%; Exit = 45%
PM Peak Hour: T = 9.05(X); Enter = 61%; Exit = 59%
Daily: T = 107.2(X)
Where T = trips generated, X = 1,000 square feet leasable area

[e] Source: Terminal One Draft EIR, Table 4.13-5

Source: Trip Generation (11th Edition), ITE, 2021; Fehr & Peers

Intersection Operations

The 2016 EIR evaluated the impacts of the Original Project on 11 intersections under Existing Plus Project and Cumulative (2040) Plus Project conditions based on LOS and did not identify any significant impacts on intersection operations. Since the Modified Project would have a lower trip generation than the Original Project, it would add fewer trips to the 11 study intersections. Therefore, the Modified Project would have a smaller impact at the study intersections and not cause new significant impacts at the study intersections under Existing Plus Project or Cumulative (2040) Plus Project conditions.

Freeway Operations

The 2016 EIR evaluated the impacts of the Original Project on two freeway segments under Cumulative (2040) Plus Project conditions using Delay Index and did not identify any significant impacts on freeway operations. Since the Modified Project would have a lower trip generation than the Original Project, it would add fewer trips to the two freeway segments. Therefore, the Modified Project would have a smaller impact on the freeway segments and not cause any new significant impacts on the freeway segments under Cumulative (2040) Plus Project conditions.

Hazards and Safety, Emergency Access, Plan Consistency, and Construction

The Project area for the Modified Project is largely the same as the Original Project; however, as detailed in Section 3, Project Description, of this Addendum, the Modified Project would make the following major changes to access and circulation:

- Eliminate Shoreline Drive (which the Original Project proposed as a public ring road around the project site)
- Reduce in the number of project access points on Brickyard Cove Road from three to two
- Introduce an internal circulation system of streets and alleys to provide access to all project residential units
- Extend Dornan Drive south of Brickyard Cove Road to serve the Wharf Park.

These changes would not increase hazards due to a design feature and the Modified Project would have the same less-than-significant impacts as identified in the 2016 EIR.

The Modified Project would also allow for adequate emergency access to the site, same as identified for the Original Project because it would not change access on the roadways outside of the project site and the internal project streets would accommodate emergency access vehicles throughout the project site.

Since the Modified Project would continue to provide similar land uses and have similar modifications to the surrounding transportation network as the Original Project, including the completion of the Bay Trail segments along the shoreline and on the north side of Brickyard Cove Road, it would continue to have the same less-than-significant impact on consistency with adopted policies, plans and programs supporting alternative transportation. In addition, construction activity anticipated for the Modified Project also would be similar to that analyzed in the 2016 EIR, and therefore would remain less than significant.

Transportation Demand Management (TDM)

Article 15.04.612 of the City's Zoning Code requires residential developments with more than ten units to implement transportation demand management (TDM) measures that reduce to the extent feasible single-occupant vehicle trip generation rates 15 percent below the standard rates as established in the most recent edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. However, considering the location of the Modified Project in a somewhat isolated area with limited non-automobile connections, over one-mile from the nearest transit service, and not within walking distance of any major commercial or employment centers, there are no feasible infrastructure improvements or operational strategies that could reduce the single-occupant vehicle trips generated by the Modified Project to 15 percent below the trip generation estimated by the ITE Trip Generation Manual and presented in Table TRA-1.

Vehicle Miles Traveled

On September 17, 2013, California Governor Jerry Brown signed Senate Bill (SB) 743 into law. SB 743 required changes to the CEQA Guidelines regarding the analysis of transportation impacts. Historically, most lead agencies treated automobile delay and congestion as environmental impacts, and those impacts were measured using LOS analysis. SB 743 instead required the Governor's Office of Planning and Research (OPR) to revise the CEQA Guidelines to prescribe an alternative analysis metric to LOS that would promote the reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses. Once the CEQA Guidelines were updated to reflect the directives of SB 743, automobile delay or other measures of traffic congestion were not to be used to measure a significant environmental impact.

In December 2018, the California Natural Resources Agency certified and adopted an update to the CEQA Guidelines that incorporated the direction of SB 743, specifically including modifications to the Appendix G Checklist questions for transportation impacts. CEQA Guidelines Section 15064.3 requires transportation impacts to be analyzed using VMT; this section began applying to new CEQA documents as of July 1, 2020. The City of Richmond adopted CEQA thresholds of significance for VMT analysis in February 2021, consistent with the ones recommended by the Contra Costa Transportation Authority.

VMT has long been used as a metric for measuring air quality and GHG impacts in California. The 2016 EIR evaluated the air quality and GHG impacts associated with potential VMT changes resulting from the Original Project. The adoption of VMT as a new metric for the measurement of transportation impacts under CEQA does not constitute new significant information, because VMT associated with the Project was already disclosed and evaluated in the 2016 EIR.

Furthermore, an addendum is not required to consider new impact areas added to CEQA after the underlying EIR was certified. See *Concerned Dublin Citizens v. City of Dublin* (2013) 214 Cal.App.4th 1301, 1320 (adoption of new guidelines for GHG evaluation was not significant new information requiring further CEQA review because GHG emissions were known information and could have been addressed in the original EIR); *Fort Mojave Indian Tribe v. Dept. of Health Servs.* (1995) 38 Cal.App.4th 1574, 1605 (new critical habitat regulation was not significant new information because impacts to the species had already been addressed in original EIR.).

The 2016 EIR's discussion of VMT makes clear that VMT was a clearly understood metric for measuring air quality and GHG impacts at the time the EIR was certified. Thus, no new analysis of VMT to address the Project's impacts on transportation and traffic is required.

Cumulative

As discussed above in this section, the Modified Project would not result in new or substantially more severe impacts compared to those identified in the 2016 EIR, and its contribution to cumulative effects related to transportation and traffic would be the same or less than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of 2016 EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2016 EIR, nor would it result in new significant impacts related to transportation and traffic that were not identified in the 2016 EIR. Nor is there new information of substantial importance that would change that analysis. The adoption of VMT as a new metric for the measurement of transportation impacts under CEQA does not constitute new significant information, because VMT associated with the Project was calculated and disclosed at the time of the 2016 EIR for use in the air quality and GHG impact analyses. Thus, impacts related to VMT were known or could have been known at the time the 2016 EIR was certified. See *Concerned Dublin Citizens v. City of Dublin* (2013) 214 Cal.App.4th 1301, 1320 and *Fort Mojave Indian Tribe v. Dept. of Health Servs.* (1995) 38 Cal.App.4th 1574, 1605. For these reasons, no revisions are required to the 2016 EIR analysis of the Original Project to address potential transportation and traffic impacts of the Modified Project and no subsequent or supplemental EIR is required.

Mitigation Measures

No mitigation measures were identified in the 2016 EIR to address transportation and traffic impacts.

4.14 Utilities and Service Systems

PREVIOUSLY-IDENTIFIED ORIGINAL PROJECT IMPACTS IN THE 2016 TERMINAL ONE PROJECT EIR

Impact UTL-1: The project would not generate an increase in demand for water supply over existing entitlements or resources, or require or result in the construction of new water treatment facilities or expansion of existing facilities. (Criteria b. and d.) *(Less than Significant, No Mitigation Required)*
Impact UTL-2: The proposed project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, exceed wastewater treatment requirements of the San Francisco Regional Water Quality Control Board, or result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. (Criteria a., b., and e.) *(Less than Significant, No Mitigation Required)*
Impact UTL-3: The project would result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which would not cause significant environmental effects. *(Less than Significant, No Mitigation Required)*
Impact UTL-4: The project would be served by a landfill with sufficient permitted capacity to accommodate the project's waste disposal needs and would comply with federal, state and local statues and regulations related to solid waste. *(Less than Significant, No Mitigation Required)*
CUMULATIVE IMPACT (as summarized in Chapter 6): **UTILITIES AND SERVICE SYSTEMS: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to utilities and service systems. *(Less than Significant, No Mitigation Required)***

These impacts are addressed in detail on pages 4.14-10 through 4.14-15 of the Draft EIR.

The 2016 EIR concluded that the Original Project would result in less-than-significant impacts to utilities and service systems. EBMUD issued a will-serve letter for the Original Project, indicating that water service to the Project would be available based on the Original Project's estimated average and peak water demand and the implementation of improvements to off-site water mains and other infrastructure that may be necessary to meet the water demands, including fire flow requirements, with the Original Project. The reduction in development with the Modified Project would result in less water demand that previously analyzed, therefore the impact would be less than previously assessed. Less residential development with the Modified Project would also generate less solid waste from the on-site uses, therefore the impact would not be more severe than assessed in the 2016 EIR.

As discussed in 4.8, *Hydrology and Water Quality*, compared to the Original Project analyzed in the 2016 EIR, the Modified Project would result in a less pervious surface area on the site (approximately 3.2 acres compared to 7.0 acres). However, the Modified Project also proposes a greater area of bioretention area on the site to manage and treat runoff upon Project completion (18,928 square feet compared to 16,250 square feet). However, neither of these differences from the Original Project would change the potential impacts, regulations or mitigation measure necessary to reduce the potential impact to stormwater facilities. Like the Original Project, the Modified Project would adequately collect and treat stormwater run-off on-site, using bioretention features incorporated in the Project landscape, and would discharge the treated stormwater off-site using the existing 54-inch storm drain line in the Dornan Drive corridor.

Overall, the reduced residential development with the Modified Project compared to the 2016 EIR analysis would result in reduced demand for all utilities and service systems. Therefore, the

Modified Project would result in the same less-than-significant impacts but with reduced effects to service systems and infrastructure.

Cumulative

As discussed above in this section, the Modified Project would not result in new or substantially more severe impacts compared to those identified in the 2016 EIR, and its contribution to cumulative effects related to utilities and service systems would be the same or less than identified in the 2016 EIR.

Summary

Based on an examination of the analysis, findings, and conclusions of 2016 EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2016 EIR, nor would it result in new significant impacts related to utilities and service systems that were not identified in the 2016 EIR. No revisions are required to the 2016 EIR analysis of the Original Project to address potential utilities and service systems impacts of the Modified Project.

Mitigation Measures

No mitigation measures were identified in the 2016 EIR to address utilities and service systems.

5. Conclusions

An evaluation of the Terminal One Project is presented Section 4, CEQA Analysis, of this Addendum. The evaluation supports a determination that the Modified Project qualifies for an Addendum to the certified 2016 EIR.

5.1 Proposed Changes to the Original Project

Summarizing from Section 3, Project Description, the Modified Project proposes specific modifications to the Original Project, but would retain most of the principal features of the Site development. The Waterfront Park (now wholly referred to as "Wharf Park") would continue to occur, although the Shoreline Drive ring road is eliminated. The other principal change is to the residential program: the Modified Project proposes the development of a 154 home single-family residential neighborhood, and approximately 30 of those residences will include ground floor JADUs, while the Original Project consisted of 316 multi-family condominium and townhome units.

These changes result in approximately 132 fewer total dwelling units (including JADUs) and nearly 133 fewer residents and employees on these Project site compared to what was previously analyzed in the 2016 EIR.

An additional principal difference from the Original Project is the Modified Project's estimate of approximately 43,500 cubic yards of fill and 1,500 cubic yards of off haul resulting in an increase in the number of haul truck trips during the site preparation and grading phases of construction. The Original Project anticipated a near balance of cut and fill.

Also key to the proposed modification to the Original Project analyzed in the 2016 EIR is that the Modified Project will adhere to the City of Richmond's Natural Gas Ban that became effective January 1, 2022 (Richmond Municipal Code new Chapter 9.64), adopted since certification of the 2016 EIR for the Original Project. Also, during construction, the Modified Project will use construction equipment, diesel trucks, and generators with Best Available Control Technology. In addition, the Modified Project will use off-road equipment that has engines that meet or exceed CARB Tier 4 off-road emission standards and that use CARB's most current certification standards for off-road heavy duty diesel engines.

(See Section 3 for detailed description of all modifications proposed with the Modified Project.)

5.2 Implications of Proposed Project Changes to the Original Project

The evaluation in this Addendum concludes that the Modified Project qualifies for an Addendum pursuant to the Findings below. All potential environmental impacts associated with development of the Modified Project were adequately analyzed and covered by the analysis in the 2016 EIR. The Modified Project would be required to comply with the mitigation measures identified in the

2016 EIR and presented in the Section 4 of this document; no mitigation measures are eliminated, added or modified. Each is stated in the MMRP in Attachment A to this document. With implementation of the mitigation measures, the Modified Project would not result in an increase in the severity of previously identified significant impacts in the 2016 EIR or result in any new significant impacts that were not previously identified in the 2016 EIRs. Therefore, no further review or analysis under CEQA is required.

5.3 Findings

As introduced in Section 2, Purpose and Determination, in accordance with California Public Resources Code Section 21166, CEQA Guidelines Sections 15162 and 15164, and as set forth in the CEQA Analysis in Section 4 of this document, the Modified Terminal One Project qualifies for an Addendum because the following findings can be made:

Addendum Findings

Based upon the evidence submitted and as demonstrated by the analysis included in the Addendum, none of the conditions described in Sections 15162 and 15163 of the State CEQA Guidelines calling for the preparation of a subsequent or supplemental EIR or negative declaration have occurred; specifically:

1) There have not been any substantial changes in the project that require major revisions of the EIR because of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

2) There have not been any substantial changes with respect to the circumstances under which the project is undertaken that require major revisions of the EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; and

3) There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the EIR was certified that shows any of the following:

    a. the project will have one or more significant effects not discussed in the EIR;

    b. significant effects previously examined will be substantially more severe than shown in the EIR;

    c. mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

    d. mitigation measures or alternatives which are considerably different from those analyzed in the EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative (CEQA Guidelines, Section 15162, subd. (a); see also Pub. Resources Code, Section 21166).

These Findings satisfy CEQA compliance for the Modified Terminal One Project (Modified Project).

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ATTACHMENT A

Revised Mitigation Monitoring and Reporting Program (MMRP) for the Modified Project

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MODIFIED TERMINAL ONE PROJECT ADDENDUM
MITIGATION MONITORING AND REPORTING PROGRAM

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
4.1 Aesthetics					
PROJECT DESIGN FEATURE AES-1: Site Lighting Strategy. The Site Lighting Strategy specifies lighting criteria for the Waterfront Park, podium gardens, and streetscapes, which the project would be required to implement. Per the Site Lighting Strategy, the applicant will ensure the following is included in project design: • **Waterfront Park Lighting Criteria:** Illuminate paths of travel along the base of walls, decks, and trusses with integrated site lighting fixtures that provide low-level safety lighting without blocking nighttime views. • **Podium Gardens Lighting Criteria:** Illuminate garden paths with low-level bollards. Light standards to be incorporated as needed for emergency egress lighting. Standards will have cut-off shields to control light trespass into units. Amenity pavilions will include accent and task lighting as needed. Up-lighting will be avoided in order to reduce light pollution. • **Streetscape Lighting:** A combination of vehicle and pedestrian lighting standards will illuminate the streetscapes and Terminal One Mews to provide the required light levels on both roadways and pedestrian paths. Cutoff shields will be incorporated to control light trespass into residential units. All fixtures will be selected to minimize energy consumption and increase public safety.	Project Applicant	City of Richmond Building Division	City shall review and approve final design plans for consistency with this measure.	Prior to issuance of building permit.	*Verified by:* *Date:*
4.2 Air Quality					
Mitigation Measure AIR-1: Best Management Practices for Controlling Particulate Emissions. The following BAAQMD Best Management Practices for particulate control will be implemented for all project construction activities. These measures will reduce particulate emissions primarily during soil movement, grading and demolition activities but also during vehicle and equipment movement on unpaved project sites 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, except when not required for dust control 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.	Project Applicant / Project Contractor	City of Richmond Building Division and Engineering Services Department	Engineering Services Department to verify inclusion of BAAQMD BMPs in applicable construction plans and specifications. City of Richmond Building Division to inspect site during construction to ensure compliance with project construction plans.	Prior to issuance of building permit. Field inspections during construction.	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
4.2 Air Quality (cont.)					
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, § 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. 8. Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.					
PROJECT DESIGN FEATURE AIR-1: Ferry Point Pump Station. As part of more detailed engineering and project planning, the applicant will evaluate the condition and capacity of the Ferry Point Pump Station, to ensure this facility has sufficient capacity to convey sanitary sewage from the project site to the RMSD Plant. The pump station may be required to be retrofitted or replaced in order to adequately convey project wastewater. If the pump station is not replaced, the applicant will confirm with the City that the recommended chemical treatment has been applied and the odor impact appropriately mitigated, prior to construction.	Project Applicant / Applicant Engineer	City of Richmond Building Division and Engineering Services Department	City Engineering Department to verify project engineering conclusion (including confirmation of pump capacity), and in the event of sufficient capacity, will provide confirmation of chemical treatment prior to construction.	Prior to issuance of building permit.	*Verified by:* *Date:*
4.3 Biological Resources					
Mitigation Measure BIO-1: Nesting Bird Protection Measures. If initial ground disturbance and site grading, building demolition, vegetation removal, tree removal, and other construction activities which may compromise breeding birds or the success of their nests cannot be fully avoided during nesting season (January 15 – August 31), nesting birds and their nests shall be protected during construction through the implementation of the following measures: 1. The applicant shall ensure that a qualified wildlife biologist conduct preconstruction nesting surveys within 7 days of the start of construction or after any construction breaks of 14 days or more. Surveys will be performed for the project site and suitable habitat within 250 feet of the project site in order to locate any active passerine (perching bird) nests and within 500 feet of the project site and off-site staging areas, or line of sight, to locate any active raptor (birds of prey) or double crested cormorant nests. Distances may also be modified if obstacles such as topography, buildings, or trees obscure the construction area from active bird nests, or existing disturbances create an ambient background disturbance similar to the proposed	Project Applicant	City of Richmond Building Division	Review and approve a qualified biologist. Review pre-construction survey reports. If active nests are found, inspect construction site to confirm buffer zones.	Reviews prior to issuance of building permit. Field inspections 7 days prior to construction and after breaks of 14 days or longer if construction falls within nesting season (January 15 – August)	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
disturbance. 2. If active nests are located during the preconstruction bird nesting survey, a no disturbance buffer shall be established. Typically, these buffer distances are 250 feet for passerines and 500 feet for raptors; however, they may be					
4.3 Biological Resources (cont.)					
adjusted (for example, if an obstruction, such as a building or hill, is within line-of-sight between the nest and construction). Modifying nest buffers, prohibiting construction within the buffer, modifying construction, and removing or relocating active nests shall be coordinated with the CDFW as appropriate given the nests that are found on the site. 3. Any birds that begin nesting within the project site and survey buffers amid construction activities are assumed to be habituated to construction-related or similar noise and disturbance levels and no work exclusion zones shall be established around active nests in these cases.					
Mitigation Measure BIO-2: Special-Status Bats Protection. A preconstruction survey for special-status bats shall be conducted by a qualified biologist in advance of tree and structure removal within the project site to characterize potential bat habitat and identify active roost sites. Should the preconstruction survey find no bat habitat or bat roosting sites, no further action is required. Should potential roosting habitat or active bat roosts be found in trees and/or structures to be removed under the project, the following measures shall be implemented: 1. If removal of trees and structures is to occur during the periods when bats are active (approximately between the periods of March 1 to April 15 and August 15 to October 15 [outside of bat maternity roosting season (approximately April 15 – August 31) and the months of winter torpor (approximately October 15 – February 28)] and if active bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where tree and/or structure removal is planned, a no disturbance buffer of 100 feet shall be established around these roost sites until they are determined to be no longer active by the qualified biologist. A 100-foot no disturbance buffer is a typical protective buffer distance; however, this buffer may be modified by the qualified biologist depending on existing screening around the roost site (such as dense vegetation or a building) as well as the type of construction activity which would occur around the roost site. 2. The qualified biologist shall be present during tree and structure removal if potential bat roosting habitat or active bat roosts are present. Trees and structures with active roosts shall be removed only when no rain is occurring or is forecast to occur for 3 days and when daytime temperatures are at least 50°F. 3. Removal of trees with potential bat roosting habitat or active bat roost sites	Project Applicant	City of Richmond Building Division	Verify inclusion of condition on construction plans. If large trees are to be removed or if vacant buildings are to be demolished, review and approve qualified biologist, pre-construction survey reports, and a construction plan that includes bat avoidance. Inspect construction site to confirm buffer zones, if required.	Prior to issuance of building permit. Inspect site during construction to ensure compliance with project construction plans.	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
shall follow a two-step removal process:					
4.3 Biological Resources (cont.)					
a) On the first day of tree removal and under supervision of the qualified biologist, branches and limbs not containing cavities or fissures in which bats could roost, shall be cut only using chainsaws. b) On the following day and under the supervision of the qualified biologist, the remainder of the tree may be removed, either using chainsaws or other equipment (e.g. excavator or backhoe). 4. Removal of structures containing or suspected to contain potential bat roosting habitat or active bat roosts shall be dismantled under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost.					
Mitigation Measure BIO-3: Building Design and Lighting Strategies to Address Biological Resources Impacts. Prior to the issuance of the first building permit for each new building, the City of Richmond (City) shall require that the project applicant retain a qualified biologist experienced with bird strike issues to review and approve the design of the building to ensure that it sufficiently minimizes the potential for bird strikes. The City may also consult with resource agencies such as CDFW, USFWS, or others, as it determines to be appropriate during this review. ***Building Design.*** The project applicant shall provide to the City a written description of the measures and features of the building design that are intended to address potential impacts on birds. The building design may include, but are not limited to, some of the following measures: 1. Employ design techniques that create "visual noise" via cladding or other design features that make it easy for birds to identify buildings as such and not mistake buildings for open sky or trees; 2. Decrease continuity of reflective surfaces using "visual marker" design techniques, which may include: - Patterned or fritted glass, with patterns at most 28 centimeters apart, - One-way films installed on glass, with any picture or pattern or arrangement that can be seen from the outside by birds but appear transparent from the inside, - Geometric fenestration patterns that effectively divide a window into smaller panes of at most 28 centimeters, and/or - Decals with patterned or abstract designs, with the maximum	Project Applicant	City of Richmond Building Division	Review and approve final design plans for consistency with all features of this mitigation. Review and approve educational material consistent with all features of this mitigation. Review and approve documentation process with all features of this mitigation.	Design and documentation approval prior to issuance of building permit for each building. Materials approval prior certification of occupancy.	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
clear spaces at most 28 centimeters square. 3. ~~Up to 60 feet high on building facades facing the shoreline, d~~Decrease reflectivity of glass, using design techniques such as plastic or metal screens, light-colored blinds or curtains, frosting of glass, angling glass towards the ground, UV-A glass, or awnings and overhangs; 4. ~~E~~liminate Minimize the use of clear glass on opposing or immediately adjacent faces of the building without intervening interior obstacles such that a bird could perceive its flight path through the glass to be unobstructed; and 5. Mute reflections in glass using strategies such as angled glass, shades, internal screens, and overhangs.~~; and~~ ~~6. Place new vegetation sufficiently away from glazed building facades so that no reflection occurs. Alternatively, if planting of landscapes near a glazed building façade is desirable, situate trees and shrubs immediately adjacent to the exterior glass walls, at a distance of less than 3 feet from the glass. Such close proximity will obscure habitat reflections and will minimize fatal collisions by reducing birds' flight momentum.~~ ***Lighting.*** The project applicant shall ensure that the design and specifications for buildings implement design elements to reduce lighting usage, change light direction, and contain light. These may include, but are not limited to, the following general considerations that should be applied wherever feasible throughout the proposed project to reduce night lighting impacts on fish, marine mammals, and avian species: 1. Avoid installation of lighting in areas where not required for public safety 2. In the non-residential buildings, e~~E~~xamine and adopt alternatives to bright, all-night, floor-wide lighting when interior lights would be visible from the exterior or exterior lights must be left on at night, including: - Installing motion-sensitive lighting - Installing task lighting - Installing programmable timers - Installing fixtures that use lower-wattage, sodium, and yellow-red spectrum lighting. 3. Where exterior lights are to be left on at night, install fully shielded lights to contain and direct light away from the sky. ~~***Educating Residents and Occupants.*** The City shall ensure, as a condition of approval for every building permit, that the project applicant agrees to provide educational materials to building tenants, occupants, and residents~~					

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
~~encouraging them to minimize light transmission from windows, especially during peak spring and fall migratory periods, by turning off unnecessary lighting and/or closing window coverings at night. The City shall review and approve the educational materials prior to building occupancy.~~ ~~***Documentation.*** The project applicant and/or City shall document undertaking the activities described in this mitigation measure and maintain records that include, among others, the written descriptions provided by the building developer of the measures and features of the design for each building that are intended to address potential impacts on birds, and the recommendations and memoranda prepared by the qualified biologist experienced with bird strikes who reviews and approves the design of any proposed projects to ensure that they sufficiently minimize the potential for bird strikes.~~					
4.3 Biological Resources (cont.)					
lighting and/or closing window coverings at night. The City shall review and approve the educational materials prior to building occupancy. ***Documentation.*** The project applicant and/or City shall document undertaking the activities described in this mitigation measure and maintain records that include, among others, the written descriptions provided by the building developer of the measures and features of the design for each building that are intended to address potential impacts on birds, and the recommendations and memoranda prepared by the qualified biologist experienced with bird strikes who reviews and approves the design of any proposed projects to ensure that they sufficiently minimize the potential for bird strikes.					
4.4 Cultural and Paleontological Resources					
Mitigation Measure CUL-1: Accidental Discovery of Archaeological Resources. During project construction, if prehistoric or historic-era cultural materials are encountered, all construction activities within 100 feet of the find shall halt and the City shall be notified. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. A Secretary of the Interior-qualified archaeologist shall inspect the find within 24 hours of discovery. If the find is determined to be potentially significant, the archaeologist, in consultation with the City and the appropriate Native American representative shall determine whether preservation in place is feasible. Consistent with CEQA Guidelines Section 15126.4(b)(3), this may be	Project Applicant / Contractor	City of Richmond Building Division	Review and approval of archaeologist. Review and approval of the construction plan that includes archaeological mitigation. Inspect site during construction.	Prior to issuance of building permit. Field inspections during construction.	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
accomplished through: planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist, in consultation with the lead agency and the appropriate Native American representative, shall prepare and implement a detailed Archaeological Research Design and Treatment Plan (ARDTP). Treatment of unique archaeological resources shall follow the applicable requirements of Public Resources Code Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by					
4.4 Cultural and Paleontological Resources (cont.)					
the project. The ARDTP shall include provisions for analysis of data in a regional context, reporting of results within a timely manner and subject to review and comments by the appropriate Native American representative before being finalized, curation of artifacts and data at a local facility acceptable to the appropriate Native American representative, and dissemination of final confidential reports to the appropriate Native American representative, the Northwest Information Center of the California Historical Resources Information System, the City, and interested professionals.					
Mitigation Measure CUL-2: Accidental Discovery of Paleontological Resources. If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work shall stop in that area and within 100 feet of the find until a qualified paleontologist can assess the nature and importance of the find and, if necessary, develop appropriate treatment measures in conformance with Society of Vertebrate Paleontology standards, and in consultation with the City of Richmond.	Project Applicant / Contractor	Project Applicant / Contractor City of Richmond Building Division	If resources are encountered, Contractor to verify work is suspended as required, review and approve paleontologist and paleontologist's recommendations. City to inspect site during construction to ensure compliance with project construction plans.	During construction.	*Verified by:* *Date:*
Mitigation Measure CUL-3: Accidental Discovery of Human Remains. Pursuant to Section 7050.5 of the Health and Safety Code, and Section 5097.94 of the Public Resources Code of the State of California, in the event of the discovery of human remains during construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains. The Contra Costa County Coroner shall be notified and shall make a determination as to whether the remains are Native American. If the Coroner determines that the remains are not subject to his authority, he shall notify the Native American Heritage Commission who shall attempt to identify descendants of the deceased Native American. If no satisfactory agreement can be reached as to the disposition of the remains pursuant to this State law, then the land owner shall re-inter the human remains and items associated with Native American burials on the property in a location not subject to further subsurface disturbance.	Project Applicant / Contractor	City of Richmond Building Division	Verify mitigation measure on construction plans. Inspect site during construction to ensure compliance with project construction plans.	Prior to issuance of a building permit. Field inspections during construction	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
4.5 Geology, Soils, and Minerals					
None required.					
4.6 Climate Change, Greenhouse Gases, and Energy					
~~**PROJECT DESIGN FEATURE GHG-1: Balanced Cut and Fill Grading.** The project applicant will ensure that the grading plan provides a near balance of cut and fill on-site, thereby minimizing the need to import or export soil; substantially reducing the truck trips to and from the site; and, in the process, substantially reducing the GHG emissions those truck trips would generate.~~	~~Project Applicant~~	~~City of Richmond Engineering Services Department~~	~~Verify mitigation measure on construction plans.~~	~~Prior to issuance of a building permit.~~	~~*Verified by:*~~ ~~*Date:*~~
4.6 Climate Change, Greenhouse Gases, and Energy (cont.)					
PROJECT DESIGN FEATURE GHG-2: Recycling and Reuse of Demolition Materials. The project applicant will ensure that demolition activities that take place on the project site will include the recycling, reprocessing, and reuse on-site of the bulk of the materials generated by demolition of the warehouse and remaining hardscape elements, thereby minimizing the need to export the demolition waste-materials off-site as well as the need to import materials to the project site in order to satisfy the project's requirements for road base, aggregate base for the foundations, engineered fill, and other on-site uses that will be addressed by reuse of the reprocessed demolition by-products.	Project Applicant	City of Richmond Building Division and Engineering Services Department	Engineering Services Department to verify mitigation measure on construction plans. Building Division to inspect site during construction to ensure compliance with project construction plans.	Prior to issuance of a building permit. Field inspections during construction	*Verified by:* *Date:*
~~**RECOMMENDED MEASURE GHG-1:** The City and applicant shall consider including the following design features in the proposed project, as part of the Planned Area Plan and Design Review processes:~~ ~~• Provide an electric car charging station on the project site.~~ ~~• Include centralized recycling collection areas within the common space in the condominium flats.~~ ~~• Include water recycling and rainwater catchment in the condominium buildings to recycle water.~~	~~Project Applicant~~ ~~City of Richmond Building Division~~	~~City of Richmond Building Division~~	~~Verify mitigation measure on construction plans.~~ ~~Inspect site during construction to ensure compliance with project construction plans.~~	~~Prior to issuance of a building permit.~~	~~*Verified by:*~~ ~~*Date:*~~
4.7 Hazards and Hazardous Materials					
Mitigation Measure HAZ-1a: Prior to issuance of any demolition permit, the project applicant shall submit to the Contra Costa Health Services Department a hazardous building material assessment prepared by qualified licensed contractors for any structure intended for demolition indicating whether LBP or lead-based coatings, and/or PCB-containing equipment, are present. **Mitigation Measure HAZ-1b:** If the assessment required by Mitigation Measure HAZ-1a indicates the presence of LBP, and/or PCBs, the project applicant shall create and implement a health and safety plan in accordance with local, state, and federal requirements to protect demolition and construction workers and the public from risks associated with such hazardous materials during demolition or	Project Applicant	Contra Costa Health Services RWQCB City of Richmond Building Division and Engineering Services Department	Contra Costa Health Services to confirm receipt of hazardous material assessment. RWQCB to verify approved measures on construction plans. Engineering Division to receive and review soil vapor assessment as well as confirmation that the site remedial action plan has been revised as necessary, and	Prior to issuance of building permit. Field inspections during construction.	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
renovation of affected structures. **Mitigation Measure HAZ-1c:** If the assessment required by Mitigation Measure HAZ-1a finds presence of LBP, the project applicant shall develop and implement a LBP removal plan. The plan shall specify, but not be limited to, the following elements for implementation: 1. Develop a removal specification approved by a Certified Lead Project Designer. 2. Ensure that all removal workers are properly trained.			approved by the RWQCB, to address the construction of housing and other infrastructure (i.e., water utilities) in areas of the site not otherwise contemplated for housing or infrastructure in the 2005 Updated Proposed Remedial Action Plan, and that all remedial actions required to be completed per the		
4.7 Hazards and Hazardous Materials (cont.)					
3. Contain all work areas to prohibit off-site migration of paint chip debris. 4. Remove all peeling and stratified LBP on building and non-building surfaces to the degree necessary to safely and properly complete demolition activities according to recommendations of the survey. The demolition contractor shall be responsible for the proper containment and disposal of intact LBP on all equipment to be cut and/or removed during the demolition. 5. Provide on-site personnel and area air monitoring during all removal activities to ensure that workers and the environment are adequately protected by the control measures used. 6. Clean up and/or vacuum paint chips with a high efficiency particulate air (HEPA) filter. 7. Collect, segregate, and profile waste for disposal determination. 8. Properly dispose of all waste. **Mitigation Measure HAZ-1d:** If the assessment required by Mitigation Measure HAZ-1a finds presence of PCBs, the project applicant shall ensure that PCB abatement is conducted prior to building demolition or renovation. PCBs shall be removed by a qualified contractor and transported in accordance with Caltrans requirements. **Mitigation Measure HAZ-1e:** Prior to issuance of any building permit, the project applicant shall submit to the City a soil vapor assessment prepared by a qualified licensed environmental consultant for any structure intended for human occupancy (i.e., occupied by a human for a minimum of 2,000 hours annually). The assessment shall consist of laboratory analysis of soil gas samples collected as part of remediation confirmation to document that soil gas concentrations will not adversely affect future occupants or visitors to proposed structures. **Mitigation Measure HAZ-1f:** Prior to issuance of any building permit, the project applicant shall submit to the City confirmation that the site remedial action plan and cleanup order have~~has~~ been revised as necessary, and approved by the San Francisco Regional Water Quality Control Board (RWQCB), to address the construction of housing and other infrastructure (i.e., water utilities) in areas of the site not otherwise contemplated for housing or infrastructure in the 2005 Updated Proposed Remedial Action Plan or			revised remedial action plan prior to project construction have been approved as complete, and documented as such, by the RWQCB. Building Division to inspect site during construction to ensure compliance with project construction plans.		

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
Order No/ R2-2004-0045, and that all remedial actions required to be completed per the revised remedial action plan prior to project construction have been approved as complete, and documented as such, by the RWQCB. In addition, the final occupancy permit for the project shall not be granted by the City prior to the review and approval by the RWQCB of a report documenting the completion of all required remedial and mitigation measures and confirming the correct installation and functioning of any and all required mitigation systems.					
4.7 Hazards and Hazardous Materials (cont.)					
Mitigation Measure HAZ-2: During construction, the applicant's construction contractor lead/foreperson shall ensure that all earthwork activities cease upon discovery of any suspect soils (e.g., petroleum odor and/or discoloration) during construction in accordance with an updated Soil Risk Management Plan prepared by a qualified environmental consultant and approved by the San Francisco Bay Regional Water Quality Control Board (RWQCB). Upon any such discovery, the applicant or their construction contractor shall notify the RWQCB and retain a qualified environmental firm to collect soil samples to confirm the level of contamination that may be present. If contamination is found to be present, any further proposed groundbreaking activities within areas of identified or suspected contamination shall be conducted according to a site specific health and safety plan, prepared by a licensed professional. The contractor shall follow all procedural direction given by the RWQCB and in accordance with the updated Soil Risk Management Plan prepared for the site to ensure that suspect soils are isolated, protected from runoff, and disposed of in accordance with transportation laws and the requirements of the licensed receiving facility.	Project Applicant / Contractor	City of Richmond Building Division	Verify approved measures on construction plans.	Prior to issuance of building permit.	*Verified by:* *Date:*
4.8 Hydrology and Water Quality					
PROJECT DESIGN FEATURE HYD-1: Pre-project stormflow levels. Prior to the start of project construction, the applicant will demonstrate, to the satisfaction of the Wastewater/Stormwater Manager~~Director of the Public Works Department~~, that, upon completion of such construction, there will be sufficient detention capacity on the project site to detain the incremental increase in stormflow volume that occurs during the 24-hour, 10-year design storm, which incremental increase is due to the increase in impervious surface above pre-project levels.	Project Applicant	Wastewater/ Stormwater Manager	Director of the City of Richmond Public Work Department to review and approve project stormwater plans.	Prior to issuance of building permit.	*Verified by:* *Date:*
Mitigation Measure HYD-1: Water Quality Best Management Practices for All Construction Activities Over the Bay. The project applicant shall ensure that the following best management practices are included in the SWPPP prepared in accordance with the Construction General Stormwater Permit: 1. The construction contractor shall minimize the production of debris when cutting or demolishing portions of the over-water pier components or constructing new over-water components, and shall utilize netting, containment vessels, work platforms, or the equivalent to catch any falling debris;	Project Applicant / Contractor	San Francisco Bay RWQCB City of Richmond Water Resource Recovery Department	The San Francisco Bay RWQCB to review and approve the project applicant prepared MMDP. City of Richmond Public Works Department to monitor implementation of project BMPs.	Review and approval of the MMDP prior to issuance of building permit. Field inspections during construction.	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
2. The construction contractor shall install a containment boom around the work area to contain floating debris, and shall provide a vessel to retrieve debris from the containment area at the end of each work day;					
3. Straw bales, wattles, fiber rolls, gravel bags, or equivalent devices shall be installed around the perimeter of the pier and stockpiled materials that are exposed to the environment to prevent debris from being transported to the Bay via runoff;					
4.8 Hydrology and Water Quality (cont.)					
4. The use of hazardous materials during construction shall be minimized to the extent practical, and the amount of hazardous materials stored on the piers or adjacent to the waterfront shall be limited to what is needed to immediately support construction activities. The quantities shall not exceed 55 gallons for a specific material. All hazardous materials shall be stored safely and securely in approved containers, under cover or in an approved storage shed or cabinet, and in adequate secondary containment. Fueling of generators and other equipment shall be conducted away from the pier edge and other locations where a spill could easily enter the Bay, and adequate spill cleanup materials shall be provided during all fueling operations;					
5. Well-maintained equipment shall be used to perform the construction work, and, except in the case of a failure or breakdown, equipment maintenance shall be performed off site. Equipment shall be inspected daily by the operator for leaks or spills. If leaks or spills are encountered, the source of the leak shall be identified, leaked material will be cleaned up, and the cleaning materials shall be collected and will be properly disposed;					
6. Inactive material stock piles must be covered at all times;					
7. Construction material shall be covered every night and during any rainfall event;					
8. Construction crews shall implement measures to prevent saw water and wash water from entering the Bay;					
9. Active debris boxes shall be covered during rain events to prevent contact with rainwater;					
10. No concrete shall be stored on-site. After trucks are finished placing concrete, they shall be washed out in a designated area, and the wash water shall be contained within plastic kid pools or similar containment. Once dried, the residual concrete shall be appropriately disposed of off-site;					
11. At the end of each work day (at a minimum), the part of the Terminal One Pier deck upon which construction activities have taken place that day shall be cleaned of particulates, sediment, and debris, by manual or mechanical means such as vacuuming or sweeping. Power washing is not an acceptable method for cleaning;					

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
12. Non-stormwater discharges to the Bay shall be prohibited unless specified in the SWPPP and approved by the City; 13. A Materials Management and Disposal Plan (MMDP) shall be prepared to prevent any debris from falling into the Bay during construction to the maximum extent practicable and also ensure the appropriate disposal of all					
4.8 Hydrology and Water Quality (cont.)					
construction-related materials. The measures identified in the MMDP shall be based on the Best Available Technology, and will include, but not be limited to, the following: a. During construction, any barges performing the work shall be moored in a position to capture and contain the debris generated during any sub-structure or in-water work. In the event that debris does reach the Bay, personnel in workboats within the work area shall immediately retrieve the debris for proper handling and disposal. All debris shall be disposed of at an authorized upland disposal site; b. Construction waste shall be collected and transported to an authorized upland disposal area, and per federal, state, and local laws and regulations; c. All construction material, wastes, debris, sediment, rubbish, trash, fencing, etc., shall be removed from the site once the proposed project is completed and transported to an authorized disposal area, in compliance with applicable federal, state, and local laws and regulations. The MMDP shall be submitted to the San Francisco Bay RWQCB for review and approval.					
PROJECT DESIGN FEATURE HYD-2: Sea Level Rise Measures. The applicant will ensure that the project design includes the following measures to address sea level rise of up to ~~3~~four feet: 1. Placement of finished floor elevations of residential structures above ~~14.5~~ 16.0 feet NAVD88, an elevation greater than the current site BFE, or 11 feet NAVD88, plus ~~3~~four feet of sea level rise and a at least 1.0 feet of additional margin; and 2. The installation of appropriate stormwater inlet infrastructure, and/or the installation of back flow prevention devices on storm drain lines (and/or the design of the stormwater infrastructure to accommodate the future installation of back flow prevention devices on an as-needed basis). 3. Placement of the finished elevation of the Bay Trail Loop at or above ~~14.1~~ 15.5 feet NAVD88, an elevation greater than the current site BFE (11 feet NAVD88) plus ~~3~~four feet of sea level rise and at least 0.5 feet of additional margin; If feasible, design of the Bay Trail Loop to function as a flood mitigation	Project Applicant	City of Richmond Building Division and Engineering Services Department	The City shall review and approve Project Design and Bay Trail Loop to ensure this mitigation is incorporated in the final design.	Prior to issuance of building permit.	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
embankment either as initially constructed or as retrofitted on an as needed basis. Because the project site's shoreline is a VE zone, indicating it is currently susceptible to wave overtopping, the Bay Trail Loop embankment may be subject to wave runup and overtopping. These processes shall be considered when setting the Bay Trail Loop's final design and evaluating its flood mitigation performance.					
4.8 Hydrology and Water Quality (cont.)					
PROJECT DESIGN FEATURE HYD-3: Sea Level Rise Adaptation Strategies: The applicant shall include provisions in the project's Covenants, Conditions, and Restrictions that require the Homeowner's Association to engage a degreed coastal geomorphologist, a licensed engineer, or a comparably qualified expert in the management of flood risks associated with sea level rise to prepare an Adaptive Flood Risk Management Plan. The initial adaptive management plan shall be completed and submitted to the City for review and comment by January 1, 2035. The plan shall be updated every ten years, with the first plan update to be completed and submitted to the City for review and comment by January 1, 2045 and with subsequent updates to be completed and submitted to the City on January 1 every ten years thereafter. The Adaptive Flood Risk Management Plan shall include: 1. A Monitoring and Reporting Program – to include: a. A review of scientific literature including up-to-date estimates of local sea level rise and available data and studies from other shoreline sites in Richmond as well as neighboring/regional jurisdictions to estimate the actual increase in sea level at the site; b. A review of federal, State, local, and regional law, regulations, and guidance that address sea level rise; c. A report that addresses the following points: i. A discussion of any estimated difference in sea level at the site since the previous 10-year report; ii. A discussion of how the project complies with any new applicable statutory or regulatory requirements; iii. A discussion of the observed characteristics and impacts, if any, related to flooding on the site, based on site observations and photos as well as conversations with site residents and City Public Works staff; iv. A discussion of the monitoring triggers that will be used to determine the installation schedule for: • Any backflow prevention devices that are required to address flood impacts associated with a 2 foot increase in sea level; • Any protective features that will enable the Bay Trail Loop (and/or	Project Applicant	City of Richmond Building Division and Engineering Services Department	Building Division to ensure mitigation language is provided in the projects Covenants, Conditions, and Restrictions. Engineering Services Department to receive and review Plan.	Prior to certification of occupancy. Receipt for review January 1, 2035, with subsequent updates every 10 years thereafter.	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
other protective features as needed) to serve as a flood protection measure to address flood impacts associated with a 3-foot increase in sea level; and/or					
4.8 Hydrology and Water Quality (cont.)					
• Any additional adaptive flood risk management measures that will be required to address flood impacts associated with a rise in sea level of greater than 3 feet. v. A recommended schedule for implementing the adaptive flood risk management measures referenced in subsection iv. above and/or an update to a previously presented recommended schedule; and vi. A report on the adaptation measures financing mechanism (see subsection 3. below), and an estimated projection of funds that would be available 10 years into the future. 2. An Adaptive Flood Risk Management Strategy to address 100-year flood impacts associated with a rise in sea level of greater than 3 feet. If the monitoring program and the updated monitoring report prepared every ten years results in a projection that the rise in sea level will exceed 3 feet during the subsequent 25-year period, the Adaptive Flood Risk Management Plan shall also include: a. An analysis of adaptive measures which, if implemented, either on a stand-alone basis or in combination with other measures, would prevent or substantially reduce human health and safety impacts as well as property loss and damage related to 100-year flooding and an increase in sea level of greater than 3 feet; b. The formulation of an adaptive measures strategy which reflects a best practices and cost-effective approach to addressing the 100-year flood risk associated with an increase in sea level greater than 3 feet; and c. An estimate of the costs and timeframes involved in implementing the adaptive measures strategy formulated in accordance with subsection b. above. The nature of the adaptation measure/s to be implemented will be reviewed and approved by the City Planning Division and Public Works Department and other regulatory agencies as necessary, and will be based on the results of monitoring and reporting. 3. A Financing Strategy which will be designed to: a. Generate sufficient resources to cover the costs of: i. The backflow prevention devices as required to address flood impacts associated with a 2 foot increase in sea level (to the extent these devices were not already installed when the storm drain system was initially constructed);					

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
4.8 Hydrology and Water Quality (cont.)					
ii. The protective features as required to enable the Bay Trail Loop to serve as an effective barrier to address flood impacts associated with a 3-foot increase in sea level (to the extent these protective features were not already incorporated in the Bay Trail Loop when it was originally constructed); and iii. The adaptive measures strategy formulated to address flood impacts associated with an increase in sea level of greater than 3 feet; b. Generate such funds and to make such funds available within a timeframe to cover the flood improvement costs as they are incurred in accordance with the implementation schedule. The financing strategy may include funding from the following private and public financing mechanisms: a. Homeowner Association fees; b. Mello Roos Community Services District special taxes; c. Assessment District Assessments; and d. Other public or private financing mechanisms as determined by the Homeowner Association and the City to be appropriate and feasible.					
4.9 Land Use and Planning					
None required.					
4.10 Noise					
Mitigation Measure NOI-1a: Construction Noise Control Measures. The applicant shall employ site-specific noise attenuation measures during project construction to reduce the generation of construction noise, including pile-driving noise. These measures shall be included in a Noise Control Plan that shall be submitted for review and approval by the City of Richmond Planning and Building Services Department to ensure that construction noise is consistent with the standards set forth in the City's Noise ordinance and other standards as appropriate. Measures specified in the Noise Control Plan and implemented during project construction shall include, at a minimum, the following noise control strategies: • Equipment and trucks used for construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds);	Project Applicant / Contractor	City of Richmond Building Division and Engineering Services Department	Engineering Department to review and approve project specifications and grading and construction plans for inclusion of this measure into specifications. Building Division to inspect site during construction to ensure compliance with project construction plans.	Prior to issuance of building permit. Field inspections during construction	*Verified by:* *Date:*

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
4.10 Noise (cont.)					
• Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to approximately 10 dBA. External jackets on the tools themselves shall be used where feasible; this could achieve a reduction of 5 dBA. Quieter procedures, such as use of drills rather than impact tools, shall be used; • Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or include other measures; and • Noise-reducing pile-driving techniques as specified in Mitigation Measure NOI-1b. **Mitigation Measure NOI-1b: Pile Driving Noise-Reducing Techniques and Muffling Devices.** Noise-reducing pile-driving techniques shall be employed during project construction. These techniques shall include: Limiting pile driving or other impact-related noise-generating activity to 9:00 a.m. to 5:00 p.m., Monday through Friday. No pile driving or other extreme noise-generating activity is permitted on Saturdays, Sundays, and holidays; • Installing intake and exhaust mufflers on pile-driving equipment; • Vibrating piles into place when feasible, and installing shrouds around the pile-driving hammer where feasible; • Implementing “quiet” pile-driving technology (such as pre-drilling of piles and the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions; • Using cushion blocks to dampen impact noise, if feasible based on soil conditions. Cushion blocks are blocks of material that are used with impact hammer pile drivers. They consist of blocks of material placed atop a piling during installation to minimize noise generated when driving the pile. Materials typically used for cushion blocks include wood, nylon and micarta (a composite material); and • At least 48 hours prior to pile-driving activities, the applicant shall notify building owners and occupants within a minimum of 600 feet of the project site of the dates, hours, and expected duration of such activities.					
4.10 Noise (cont.)					
The above measures would reduce the severity of noise generated by construction and pile driving activities and reduce the potential annoyance to					

Project Design Features and Mitigation Measures	Implemented By	Monitored By	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
nearby residents and recreational users and others who could be disturbed by pile driving.					
4.11 Population and Housing					
None required.					
4.12 Public Services and Recreation					
None required.					
4.13 Transportation and Traffic					
None required.					
4.14 Utilities and Service Systems					
None required.					

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ATTACHMENT B

Emissions Detail

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Criteria Air Pollutants
Inputs, Calculations and CalEEMod Output

Terminal One Project - Emissions Summaries

CONSTRUCTION EMISSIONS - Criteria Air Pollutants - Uncontrolled

Year	No. of Construction Wokdays	Tons per Year						Average Pounds per day			
		ROG	NOx	Exhaust PM-10	Exhaust PM-2.5	Total PM-2.5	Fug. PM-2.5	ROG	NOx	Exhaust PM-10	Exhaust PM-2.5
2023	65	0.08	0.72	0.03	0.03	0.04	0.01	2.3	22.2	1.0	0.9
2024	262	0.35	3.93	0.15	0.14	0.63	0.49	2.7	30.0	1.1	1.0
2025	261	0.16	1.37	0.05	0.05	0.07	0.02	1.2	10.5	0.4	0.4
2026	261	0.16	1.37	0.05	0.05	0.07	0.02	1.2	10.5	0.4	0.4
2027	196	2.97	0.78	0.03	0.03	0.04	0.01	30.3	7.9	0.3	0.3
PROJECT TOTAL	1045	3.72	8.18	0.32	0.30	0.85	0.55	**7.1**	**15.6**	**0.6**	**0.6**

CONSTRUCTION EMISSIONS - Criteria Air Pollutants - Tier 4 Final for all equipment

Construction Year	No. of Construction Wokdays	Tons per Year						Average Pounds per day			
		ROG	NOx	Exhaust PM-10	Exhaust PM-2.5	Total PM-2.5	Fug. PM-2.5	ROG	NOx	Exhaust PM-10	Exhaust PM-2.5
2023	65	0.02	0.09	0.002	0.002	0.009	0.01	0.5	2.7	0.1	0.1
2024	262	0.09	0.99	0.015	0.015	0.508	0.49	0.7	7.6	0.1	0.1
2025	261	0.05	0.37	0.005	0.005	0.025	0.02	0.4	2.8	0.0	0.0
2026	261	0.05	0.36	0.005	0.005	0.025	0.02	0.4	2.8	0.0	0.0
2027	196	2.91	0.18	0.003	0.003	0.012	0.01	29.7	1.8	0.0	0.0
PROJECT TOTAL	1045	3.13	1.99	0.031	0.030	0.580	0.55	**6.0**	**3.8**	**0.1**	**0.1**

OPERATIONAL EMISSIONS - Criteria Air Pollutants

Source	Tons per year				Average Pounds per day			
	ROG	NOx	Total PM-10	Total PM-2.5	ROG	NOx	Total PM-10	Total PM-2.5
Modified Project								
Area	1.684	0.022	0.067	0.067	9.23	0.12	0.37	0.37
Energy	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00
Mobile	0.718	0.749	1.600	0.434	3.93	4.11	8.76	2.38
TOTAL	2.40	0.77	1.67	0.50	13.2	4.2	9.1	2.7
					18.0	**18.0**	**12.9**	**4.1**
					27%	**77%**	**29%**	**32%**

CONSTRUCTION EMISSIONS - GHG as MT CO_2e

Construction Year	CO_2	CH_4	N_2O	CO_2e
2023	123.1	0.031	0.002	124.4
2024	829.7	0.173	0.045	847.3
2025	331.5	0.054	0.007	335.1
2026	329.5	0.054	0.007	333.0
2027	186.8	0.037	0.003	188.6
Total	1800.7	0.350	0.064	1828.4

OPERATIONAL EMISSIONS - GHG (MT CO_2e/year)

Operational Source	CO_2	CH_4	N_2O	CO_2e
Area	10.2	0.039	0.000	11.2
Energy	542.1	0.031	0.010	65.8
Mobile	1245.0	0.081	0.060	1264.9
Solid waste	46.6	2.757	0.000	115.6
Water & Wastewater	11.0	0.357	0.009	22.5
Total Project Operational Emissions	1797	0.151	0.070	1479.9
Service Population				508
				2.9

Natural Gas to Increase in Electricity Use Conversion

Title 24 (2019 - CalEEMod Default)

Project Non-Residential Land Uses		Title-24 Electricity	Nontitle-24 Electricity	Lighting	Title-24 Nat Gas	Nontitle-24 Nat Gas	Total Nat Gas	Total Nat Gas
		KWhr/size/yr	KWhr/size/yr	KWhr/size/yr	KBTU/size/yr	KBTU/size/yr	KBTU/size/yr	therms/size/yr
	High Turnover (Sit Down Restaurant)	2.38	20.97	5.34	39.50	128.02	167.52	1.7
	Neighborhood Clubhouse	1.08	3.36	2.99	17.67	6.90	24.57	0.2
Project Residential Land Uses								
	Single Family Housing	**45.71**	**6,155.97**	**1,608.84**	**35,976.14**	**2,615.00**	38,591.14	385.9

Title 24 (2019) - to account for increase in electricity use due to no natural gas

Project Non-Residential Land Uses						
	High Turnover (Sit Down Restaurant)	13.96	58.49	5.34	-	-
	Neighborhood Clubhouse	6.26	5.38	2.99	-	-
Project Residential Land Uses						
	Single Family Housing	10,589.27	6,922.35	1,608.84	-	-

1kBTu = 0.293071 kWhr

GHG Reduction Formula (Measure E-15: Require All-Electric Development in 2021 CAPCOA GHG Handbook)

A = (-E * C * G * I * J) + (F * C * H * K * J)

A = Reduction in GHG emissions from building energy (residential)	-466.5	MT CO_2e per year		
B = Housing or building type =	Housing			
C = Number of du or size of commercial building =	184	DU		
D = Electricity demand forecast zone =	1		Figure E-1.1, Table E-1.1	
E = Existing fuel consumption for natural gas end uses without measure =	521	therm per year per DU	Table E-15. 1	0.74
E = Existing fuel consumption for natural gas end uses without measure (adjusted for CalEEMod estimate	386	therm per year per DU	=0.73*532	
F = Additional electricity use for equivalent electrified end uses with measure =	2,778.41	kWh per year per DU	Tables E-15.1	
G = Carbon intensity of natural gas (residential) =	117	lb CO_2e per MMBtu		
H = Carbon intensity of local electricity provider (MCE) =	184	lb CO_2e per MWh	Table E-4.3	
I = Conversion from therm to MMBtu =	0.1	MMBtu per therm		
J = Conversion from lb to MT =	0.000454	MT per lb		
K = Conversion from kWh to MWh =	0.001	MWh per kWh		

A = (-E * C * G * I * J) + (F * C * H * K * J)

A = Reduction in GHG emissions from building energy (restaurant)	-13.6	MT CO_2e per year		
B = Housing or building type =	commercial			
C = Number of du or size of commercial building =	2	KSF		
D = Electricity demand forecast zone =	1		Figure E-1.1, Table E-1.1	
E = Existing fuel consumption for natural gas end uses without measure =	1258	therm per year per KSF	Table E-15.2	0.001
E = Existing fuel consumption for natural gas end uses without measure (adjusted for CalEEMod estimate	2	therm per year per KSF	=0.001*1258	
F = Additional electricity use for equivalent electrified end uses with measure =	1.19	kWh per year per KSF	Table E-15.2	
G = Carbon intensity of natural gas (commercial) =	119	lb CO_2e per MMBtu		
H = Carbon intensity of local electricity provider (MCE) =	184	lb CO_2e per MWh	Table E-4.3	
I = Conversion from therm to MMBtu =	0.1	MMBtu per therm		
J = Conversion from lb to MT =	0.000454	MT per lb		
K = Conversion from kWh to MWh =	0.001	MWh per kWh		

Terminal One - 2022 Modified Project - Responses transferred from hand marked copy

Data provided in response to RFI	CalEEMod defaults available if project specific data is not available. Any data shown in these cells is from the 2016 project	Data available from project materials	Estimated by ESA

CalEEMod Inputs

Construction

Proposed Land Uses	Size	Units	Area (sqft)
Single Family Housing	155	DU	405,000.00
High Turnover (Sit Down Restaurant)	2	1000sqft	2,000.00
Neighborhood Clubhouse	3.5	1000sqft	3,500.00

Site Area	13.12	acres	
Area to be demolished	95,040	square feet	area of existing warehouse
Total Proposed building area	407,000	square feet	
Volume of infill to be brought in	43,500	cubic yards	
Volume of material to be exported	1,500	cubic yards	

Total Onsite Parking Spaces	365	spaces		
Interior garage spaces in homes	310	spaces		
Driveway	18	spaces		
Parking Stalls	16	spaces	162	sqft
On-street	21	spaces	160	sqft
Total Offsite Parking spaces	53	spaces		

10/1/2023	12/31/2023	65	
1/1/2024	12/31/2024	262	
1/1/2025	12/31/2025	261	
1/1/2026	12/31/2026	261	
1/1/2027	10/1/2027	196	

Construction schedule

Start date of construction	10/1/2023
First year of operation	2027

Construction Phase	From	To	# of days
Site work - demo, remediation, site prep and grading	10/1/2023	10/1/2024	262
- Demolition	10/1/2023	1/30/2024	87
- Site Preparation	1/31/2024	4/1/2024	44
- Grading	4/2/2024	10/1/2024	131
Building Construction	10/2/2024	5/27/2027	692
Paving	5/28/2027	7/30/2027	46
Architectural Coating	7/31/2027	10/1/2027	45
			783

			60	262	10/1/2023	10/1/2024	Demo, remediation, site prep and grading
Demolition	10/1/2023	10/27/2023	20	87			
Site Preparation	10/28/2023	11/10/2023	10	44			
Grading	11/11/2023	12/22/2023	30	131			
Building Construction	12/23/2023	2/14/2025	300	692			
Paving	2/15/2025	3/14/2025	20	46			
Architectural Coating	3/15/2025	4/11/2025	20	46			
			340	784	10/1/2024	10/1/2027	Building construction

Construction Equipment - CalEEMod defaults used

Equipment	Number	No. of Days used	Hrs/day used	Horsepower
Site work - demo, remediation, site prep and grading				
- Demolition				
Concrete/Industrial Saws	1	87	8.00	81
Graders	3	87	8.00	162
Rubber Tired Dozers	2	87	8.00	255
- Site Preparation				
Rubber Tired Dozers	3	44	8.00	255
Tractors/Loaders/Backhoes	4	44	8.00	97
- Grading				
Excavators	2	131	8.00	162
Graders	1	131	8.00	174
Rubber Tired Dozers	1	131	8.00	255
Scrapers	2	131	8.00	361
Tractors/Loaders/Backhoes	2	131	8.00	97
Building Construction				
~~Cranes~~	~~1~~	~~692~~	~~7.00~~	~~226~~
Forklifts	3	692	8.00	89
Generator Sets	1	692	8.00	84
Tractors/Loaders/Backhoes	3	692	7.00	97
Welders	1	692	8.00	46
Paving				
Pavers	2	46	8.00	125
Paving Equipment	2	46	8.00	130
Rollers	2	46	8.00	80
Architectural Coating				

combined default equipment for demo, site prep and grading

Air Compressors	1	45	6.00	78

Vehicle Trips - CalEEMod defaults

Construction Phase	Worker Commute trips/day	Vendor Trips/day	Hauling trips/day
- Demolition	15	0	432
- Site Preparation	18	0	0
- Grading	20	0	4449
Building Construction	58	17	0
Paving	15	0	0
Architectural Coating	12	0	0

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

Terminal One - Modified Project

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	184.00	Dwelling Unit	59.74	331,200.00	526
High Turnover (Sit Down Restaurant)	2.00	1000sqft	0.00	2,000.00	0
Racquet Club	3.50	1000sqft	0.00	3,500.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	5			**Operational Year**	2027
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - From Applicant

Construction Phase - See AQ data sheets for schedule

Off-road Equipment - Based on applicant input

Off-road Equipment -

Off-road Equipment -

Grading -

Demolition -

Vehicle Trips - Adjustments based on project transportation study

Construction Off-road Equipment Mitigation - Tier 4F for BACT

Trips and VMT - 43,000 CY of fill + 1500 CY of offhaul, 10 CY trucks

Woodstoves - No woodburning or gas fireplaces

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	45.00
tblConstructionPhase	NumDays	300.00	692.00
tblConstructionPhase	NumDays	20.00	87.00
tblConstructionPhase	NumDays	30.00	131.00
tblConstructionPhase	NumDays	20.00	46.00
tblConstructionPhase	NumDays	10.00	44.00

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

tblConstructionPhase	PhaseEndDate	4/11/2025	10/1/2027
tblConstructionPhase	PhaseEndDate	2/14/2025	5/27/2027
tblConstructionPhase	PhaseEndDate	10/27/2023	1/30/2024
tblConstructionPhase	PhaseEndDate	12/22/2023	10/1/2024
tblConstructionPhase	PhaseEndDate	3/14/2025	7/30/2027
tblConstructionPhase	PhaseEndDate	11/10/2023	4/1/2024
tblConstructionPhase	PhaseStartDate	3/15/2025	7/31/2027
tblConstructionPhase	PhaseStartDate	12/23/2023	10/2/2024
tblConstructionPhase	PhaseStartDate	11/11/2023	4/2/2024
tblConstructionPhase	PhaseStartDate	2/15/2025	5/28/2027
tblConstructionPhase	PhaseStartDate	10/28/2023	1/31/2024
tblFireplaces	NumberGas	38.75	0.00
tblFireplaces	NumberWood	66.65	0.00
tblGrading	MaterialExported	0.00	1,500.00
tblGrading	MaterialImported	0.00	43,500.00
tblLandUse	LotAcreage	0.05	0.00
tblLandUse	LotAcreage	0.08	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblTripsAndVMT	HaulingTripNumber	4,449.00	9,000.00
tblVehicleTrips	ST_TR	122.40	114.57
tblVehicleTrips	ST_TR	21.35	0.00
tblVehicleTrips	ST_TR	9.54	9.72
tblVehicleTrips	SU_TR	142.64	133.51
tblVehicleTrips	SU_TR	17.40	0.00
tblVehicleTrips	SU_TR	8.55	8.71
tblVehicleTrips	WD_TR	112.18	105.00
tblVehicleTrips	WD_TR	14.03	0.00
tblVehicleTrips	WD_TR	9.44	9.62

2.0 Emissions Summary

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

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0754	0.7208	0.6544	1.39E-03	0.0416	0.0326	0.0742	7.07E-03	0.0304	0.0374	0	123.1033	123.1033	0.0313	1.61E-03	124.3668
2024	0.3516	3.9304	3.1418	9.10E-03	1.1578	0.1462	1.304	0.4936	0.1352	0.6288	0	829.7175	829.7175	0.1725	0.0446	847.3126
2025	0.1625	1.3749	2.0796	3.78E-03	0.0746	0.0543	0.129	0.0202	0.0514	0.0716	0	331.5482	331.5482	0.0544	7.36E-03	335.1018
2026	0.1614	1.3732	2.0705	3.76E-03	0.0746	0.0543	0.129	0.0202	0.0514	0.0716	0	329.4571	329.4571	0.0543	7.17E-03	332.9518
2027	2.9703	0.7757	1.2166	2.13E-03	0.0349	0.0327	0.0676	9.42E-03	0.0307	0.0401	0	186.8407	186.8407	0.0371	2.89E-03	188.6305
Maximum	**2.9703**	**3.9304**	**3.1418**	**9.10E-03**	**1.1578**	**0.1462**	**1.304**	**0.4936**	**0.1352**	**0.6288**	**0**	**829.7175**	**829.7175**	**0.1725**	**0.0446**	**847.3126**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0166	0.0877	0.7726	1.39E-03	0.0416	2.20E-03	0.0438	7.07E-03	2.19E-03	9.26E-03	0	123.1032	123.1032	0.0313	1.61E-03	124.3666
2024	0.093	0.9914	3.601	9.10E-03	1.1578	0.0151	1.1729	0.4936	0.0149	0.5084	0	829.7169	829.7169	0.1725	0.0446	847.3119
2025	0.0544	0.3659	2.1606	3.78E-03	0.0746	5.11E-03	0.0797	0.0202	5.06E-03	0.0252	0	331.5479	331.5479	0.0544	7.36E-03	335.1015
2026	0.0533	0.3642	2.1515	3.76E-03	0.0746	5.09E-03	0.0797	0.0202	5.04E-03	0.0252	0	329.4568	329.4568	0.0543	7.17E-03	332.9515
2027	2.9091	0.1774	1.3122	2.13E-03	0.0349	3.01E-03	0.0379	9.42E-03	2.99E-03	0.0124	0	186.8405	186.8405	0.0371	2.89E-03	188.6303
Maximum	**2.9091**	**0.9914**	**3.601**	**9.10E-03**	**1.1578**	**0.0151**	**1.1729**	**0.4936**	**0.0149**	**0.5084**	**0**	**829.7169**	**829.7169**	**0.1725**	**0.0446**	**847.3119**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**15.98**	**75.70**	**-9.11**	**0.00**	**0.00**	**90.47**	**17.00**	**0.00**	**89.93**	**31.66**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-1-2023	12-31-2023	0.8055	0.1061
2	1-1-2024	3-31-2024	0.9076	0.0904
3	4-1-2024	6-30-2024	1.4494	0.4260
4	7-1-2024	9-30-2024	1.4707	0.4346
5	10-1-2024	12-31-2024	0.4258	0.1115
6	1-1-2025	3-31-2025	0.3797	0.1046
7	4-1-2025	6-30-2025	0.3822	0.1040
8	7-1-2025	9-30-2025	0.3864	0.1051
9	10-1-2025	12-31-2025	0.3882	0.1069
10	1-1-2026	3-31-2026	0.3790	0.1039
11	4-1-2026	6-30-2026	0.3815	0.1033
12	7-1-2026	9-30-2026	0.3857	0.1044
13	10-1-2026	12-31-2026	0.3874	0.1062
14	1-1-2027	3-31-2027	0.3783	0.1032
15	4-1-2027	6-30-2027	0.3545	0.0830
16	7-1-2027	9-30-2027	2.9662	2.8549
		Highest	2.9662	2.8549

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.684	0.0217	1.7286	1.26E-03		0.0669	0.0669		0.0669	0.0669	7.9432	2.2318	10.175	0.0393	0	11.1567
Energy	0.0406	0.3478	0.1566	2.21E-03		0.028	0.028		0.028	0.028	0	542.0765	542.0765	0.0305	0.0101	545.8529
Mobile	0.7177	0.7492	6.4991	0.0135	1.5898	9.83E-03	1.5996	0.4248	9.16E-03	0.4339	0	1,244.96	1,244.96	0.0811	0.06	1,264.87
Waste						0	0		0	0	46.6494	0	46.6494	2.7569	0	115.5718
Water						0	0		0	0	3.4622	7.5789	11.0411	0.3568	8.55E-03	22.5081
Total	**2.4422**	**1.1186**	**8.3843**	**0.017**	**1.5898**	**0.1048**	**1.6945**	**0.4248**	**0.1041**	**0.5288**	**58.0547**	**1,796.85**	**1,854.90**	**3.2645**	**0.0787**	**1,959.96**

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

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.6840	0.0217	1.7286	1.26E-03		0.0669	0.0669		0.0669	0.0669	7.9432	2.2318	10.175	0.0393	0	11.1567
Energy	0.0406	0.3478	0.1566	2.21E-03		0.028	0.028		0.028	0.028	0	542.0765	542.0765	0.0305	0.0101	545.8529
Mobile	0.7177	0.7492	6.4991	0.0135	1.5898	9.83E-03	1.5996	0.4248	9.16E-03	0.4339	0	1,244.96	1,244.96	0.0811	0.06	1,264.87
Waste						0	0		0	0	46.6494	0	46.6494	2.7569	0	115.5718
Water						0	0		0	0	3.4622	7.5789	11.0411	0.3568	8.55E-03	22.5081
Total	**2.4422**	**1.1186**	**8.3843**	**0.017**	**1.5898**	**0.1048**	**1.6945**	**0.4248**	**0.1041**	**0.5288**	**58.0547**	**1,796.85**	**1,854.90**	**3.2645**	**0.0787**	**1,959.96**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/31/2024	4/1/2024	5	44	
2	Paving	Paving	5/28/2027	7/30/2027	5	46	
3	Grading	Grading	4/2/2024	10/1/2024	5	131	
4	Demolition	Demolition	10/1/2023	1/30/2024	5	87	
5	Building Construction	Building Construction	10/2/2024	5/27/2027	5	692	
6	Architectural Coating	Architectural Coating	7/31/2027	10/1/2027	5	45	

Acres of Grading (Site Preparation Phase): 66

Acres of Grading (Grading Phase): 393

Acres of Paving: 0

Residential Indoor: 820,125; Residential Outdoor: 273,375; Non-Residential Indoor: 8,250; Non-Residential Outdoor: 2,750; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48

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Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	0	0.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	432.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	9,000.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	58.00	17.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

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

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4325	0	0.4325	0.2223	0	0.2223	0	0	0	0	0	0
Off-Road	0.0585	0.5979	0.4034	8.40E-04		0.0271	0.0271		0.0249	0.0249	0	73.6055	73.6055	0.0238	0	74.2007
Total	**0.0585**	**0.5979**	**0.4034**	**8.40E-04**	**0.4325**	**0.0271**	**0.4595**	**0.2223**	**0.0249**	**0.2471**	**0**	**73.6055**	**73.6055**	**0.0238**	**0**	**74.2007**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	9.70E-04	6.30E-04	8.27E-03	3.00E-05	3.14E-03	2.00E-05	3.16E-03	8.40E-04	1.00E-05	8.50E-04	0	2.3631	2.3631	7.00E-05	6.00E-05	2.384
Total	**9.70E-04**	**6.30E-04**	**8.27E-03**	**3.00E-05**	**3.14E-03**	**2.00E-05**	**3.16E-03**	**8.40E-04**	**1.00E-05**	**8.50E-04**	**0**	**2.3631**	**2.3631**	**7.00E-05**	**6.00E-05**	**2.384**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4325	0	0.4325	0.2223	0	0.2223	0	0	0	0	0	0
Off-Road	0.0102	0.0444	0.4591	8.40E-04		1.37E-03	1.37E-03		1.37E-03	1.37E-03	0	73.6055	73.6055	0.0238	0	74.2006
Total	**0.0102**	**0.0444**	**0.4591**	**8.40E-04**	**0.4325**	**1.37E-03**	**0.4338**	**0.2223**	**1.37E-03**	**0.2236**	**0**	**73.6055**	**73.6055**	**0.0238**	**0**	**74.2006**

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	9.70E-04	6.30E-04	8.27E-03	3.00E-05	3.14E-03	2.00E-05	3.16E-03	8.40E-04	1.00E-05	8.50E-04	0	2.3631	2.3631	7.00E-05	6.00E-05	2.384
Total	**9.70E-04**	**6.30E-04**	**8.27E-03**	**3.00E-05**	**3.14E-03**	**2.00E-05**	**3.16E-03**	**8.40E-04**	**1.00E-05**	**8.50E-04**	**0**	**2.3631**	**2.3631**	**7.00E-05**	**6.00E-05**	**2.384**

3.3 Paving - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0211	0.1974	0.3353	5.20E-04		9.63E-03	9.63E-03		8.86E-03	8.86E-03	0	46.0443	46.0443	0.0149	0	46.4166
Paving	0					0	0		0	0	0	0	0	0	0	0
Total	**0.0211**	**0.1974**	**0.3353**	**5.20E-04**		**9.63E-03**	**9.63E-03**		**8.86E-03**	**8.86E-03**	**0**	**46.0443**	**46.0443**	**0.0149**	**0**	**46.4166**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	7.00E-04	4.10E-04	6.02E-03	2.00E-05	2.74E-03	1.00E-05	2.75E-03	7.30E-04	1.00E-05	7.40E-04	0	1.8699	1.8699	4.00E-05	5.00E-05	1.885
Total	**7.00E-04**	**4.10E-04**	**6.02E-03**	**2.00E-05**	**2.74E-03**	**1.00E-05**	**2.75E-03**	**7.30E-04**	**1.00E-05**	**7.40E-04**	**0**	**1.8699**	**1.8699**	**4.00E-05**	**5.00E-05**	**1.885**

Terminal One - Modified Project - Contra Costa County, Annual

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.45E-03	0.028	0.3978	5.20E-04		8.60E-04	8.60E-04		8.60E-04	8.60E-04	0	46.0442	46.0442	0.0149	0	46.4165
Paving	0					0	0		0	0	0	0	0	0	0	0
Total	**6.45E-03**	**0.028**	**0.3978**	**5.20E-04**		**8.60E-04**	**8.60E-04**		**8.60E-04**	**8.60E-04**	**0**	**46.0442**	**46.0442**	**0.0149**	**0**	**46.4165**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	7.00E-04	4.10E-04	6.02E-03	2.00E-05	2.74E-03	1.00E-05	2.75E-03	7.30E-04	1.00E-05	7.40E-04	0	1.8699	1.8699	4.00E-05	5.00E-05	1.885
Total	**7.00E-04**	**4.10E-04**	**6.02E-03**	**2.00E-05**	**2.74E-03**	**1.00E-05**	**2.75E-03**	**7.30E-04**	**1.00E-05**	**7.40E-04**	**0**	**1.8699**	**1.8699**	**4.00E-05**	**5.00E-05**	**1.885**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.6028	0	0.6028	0.2393	0	0.2393	0	0	0	0	0	0
Off-Road	0.2108	2.1207	1.8158	4.07E-03		0.0875	0.0875		0.0805	0.0805	0	357.1029	357.1029	0.1155	0	359.9902
Total	**0.2108**	**2.1207**	**1.8158**	**4.07E-03**	**0.6028**	**0.0875**	**0.6903**	**0.2393**	**0.0805**	**0.3198**	**0**	**357.1029**	**357.1029**	**0.1155**	**0**	**359.9902**

Unmitigated Construction Off-Site

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.28E-03	0.6069	0.1428	2.67E-03	0.0763	4.98E-03	0.0813	0.021	4.77E-03	0.0258	0	264.1398	264.1398	8.64E-03	0.0419	276.8352
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	3.20E-03	2.09E-03	0.0274	9.00E-05	0.0104	5.00E-05	0.0104	2.76E-03	5.00E-05	2.81E-03	0	7.8175	7.8175	2.20E-04	2.10E-04	7.8864
Total	**0.0125**	**0.609**	**0.1701**	**2.76E-03**	**0.0867**	**5.03E-03**	**0.0918**	**0.0238**	**4.82E-03**	**0.0286**	**0**	**271.9572**	**271.9572**	**8.86E-03**	**0.0421**	**284.7215**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.6028	0	0.6028	0.2393	0	0.2393	0	0	0	0	0	0
Off-Road	0.0499	0.2162	2.1614	4.07E-03		6.65E-03	6.65E-03		6.65E-03	6.65E-03	0	357.1025	357.1025	0.1155	0	359.9898
Total	**0.0499**	**0.2162**	**2.1614**	**4.07E-03**	**0.6028**	**6.65E-03**	**0.6095**	**0.2393**	**6.65E-03**	**0.246**	**0**	**357.1025**	**357.1025**	**0.1155**	**0**	**359.9898**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.28E-03	0.6069	0.1428	2.67E-03	0.0763	4.98E-03	0.0813	0.021	4.77E-03	0.0258	0	264.1398	264.1398	8.64E-03	0.0419	276.8352
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	3.20E-03	2.09E-03	0.0274	9.00E-05	0.0104	5.00E-05	0.0104	2.76E-03	5.00E-05	2.81E-03	0	7.8175	7.8175	2.20E-04	2.10E-04	7.8864
Total	**0.0125**	**0.609**	**0.1701**	**2.76E-03**	**0.0867**	**5.03E-03**	**0.0918**	**0.0238**	**4.82E-03**	**0.0286**	**0**	**271.9572**	**271.9572**	**8.86E-03**	**0.0421**	**284.7215**

3.5 Demolition - 2023

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

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.035	0	0.035	5.29E-03	0	5.29E-03	0	0	0	0	0	0
Off-Road	0.0738	0.6982	0.6384	1.26E-03		0.0324	0.0324		0.0302	0.0302	0	110.4742	110.4742	0.0309	0	111.2477
Total	**0.0738**	**0.6982**	**0.6384**	**1.26E-03**	**0.035**	**0.0324**	**0.0674**	**5.29E-03**	**0.0302**	**0.0355**	**0**	**110.4742**	**110.4742**	**0.0309**	**0**	**111.2477**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.30E-04	0.0217	5.10E-03	1.00E-04	2.74E-03	1.80E-04	2.91E-03	7.50E-04	1.70E-04	9.20E-04	0	9.6219	9.6219	3.10E-04	1.53E-03	10.0843
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	1.28E-03	8.70E-04	0.0109	3.00E-05	3.87E-03	2.00E-05	3.89E-03	1.03E-03	2.00E-05	1.05E-03	0	3.0072	3.0072	9.00E-05	9.00E-05	3.0348
Total	**1.61E-03**	**0.0226**	**0.016**	**1.30E-04**	**6.61E-03**	**2.00E-04**	**6.80E-03**	**1.78E-03**	**1.90E-04**	**1.97E-03**	**0**	**12.6291**	**12.6291**	**4.00E-04**	**1.62E-03**	**13.1191**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.035	0	0.035	5.29E-03	0	5.29E-03	0	0	0	0	0	0
Off-Road	0.015	0.0651	0.7566	1.26E-03		2.00E-03	2.00E-03		2.00E-03	2.00E-03	0	110.4741	110.4741	0.0309	0	111.2476
Total	**0.015**	**0.0651**	**0.7566**	**1.26E-03**	**0.035**	**2.00E-03**	**0.037**	**5.29E-03**	**2.00E-03**	**7.29E-03**	**0**	**110.4741**	**110.4741**	**0.0309**	**0**	**111.2476**

Mitigated Construction Off-Site

Terminal One - Modified Project - Contra Costa County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.30E-04	0.0217	5.10E-03	1.00E-04	2.74E-03	1.80E-04	2.91E-03	7.50E-04	1.70E-04	9.20E-04	0	9.6219	9.6219	3.10E-04	1.53E-03	10.0843
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	1.28E-03	8.70E-04	0.0109	3.00E-05	3.87E-03	2.00E-05	3.89E-03	1.03E-03	2.00E-05	1.05E-03	0	3.0072	3.0072	9.00E-05	9.00E-05	3.0348
Total	**1.61E-03**	**0.0226**	**0.016**	**1.30E-04**	**6.61E-03**	**2.00E-04**	**6.80E-03**	**1.78E-03**	**1.90E-04**	**1.97E-03**	**0**	**12.6291**	**12.6291**	**4.00E-04**	**1.62E-03**	**13.1191**

3.5 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0118	0	0.0118	1.79E-03	0	1.79E-03	0	0	0	0	0	0
Off-Road	0.0247	0.2297	0.2168	4.30E-04		0.0106	0.0106		9.81E-03	9.81E-03	0	37.3957	37.3957	0.0105	0	37.6572
Total	**0.0247**	**0.2297**	**0.2168**	**4.30E-04**	**0.0118**	**0.0106**	**0.0224**	**1.79E-03**	**9.81E-03**	**0.0116**	**0**	**37.3957**	**37.3957**	**0.0105**	**0**	**37.6572**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.10E-04	7.37E-03	1.73E-03	3.00E-05	9.30E-04	6.00E-05	9.90E-04	2.50E-04	6.00E-05	3.10E-04	0	3.2061	3.2061	1.00E-04	5.10E-04	3.3602
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	4.00E-04	2.60E-04	3.45E-03	1.00E-05	1.31E-03	1.00E-05	1.31E-03	3.50E-04	1.00E-05	3.50E-04	0	0.9846	0.9846	3.00E-05	3.00E-05	0.9933
Total	**5.10E-04**	**7.63E-03**	**5.18E-03**	**4.00E-05**	**2.24E-03**	**7.00E-05**	**2.30E-03**	**6.00E-04**	**7.00E-05**	**6.60E-04**	**0**	**4.1908**	**4.1908**	**1.30E-04**	**5.40E-04**	**4.3535**

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0118	0	0.0118	1.79E-03	0	1.79E-03	0	0	0	0	0	0
Off-Road	5.09E-03	0.022	0.2561	4.30E-04		6.80E-04	6.80E-04		6.80E-04	6.80E-04	0	37.3956	37.3956	0.0105	0	37.6572
Total	**5.09E-03**	**0.022**	**0.2561**	**4.30E-04**	**0.0118**	**6.80E-04**	**0.0125**	**1.79E-03**	**6.80E-04**	**2.47E-03**	**0**	**37.3956**	**37.3956**	**0.0105**	**0**	**37.6572**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.10E-04	7.37E-03	1.73E-03	3.00E-05	9.30E-04	6.00E-05	9.90E-04	2.50E-04	6.00E-05	3.10E-04	0	3.2061	3.2061	1.00E-04	5.10E-04	3.3602
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	4.00E-04	2.60E-04	3.45E-03	1.00E-05	1.31E-03	1.00E-05	1.31E-03	3.50E-04	1.00E-05	3.50E-04	0	0.9846	0.9846	3.00E-05	3.00E-05	0.9933
Total	**5.10E-04**	**7.63E-03**	**5.18E-03**	**4.00E-05**	**2.24E-03**	**7.00E-05**	**2.30E-03**	**6.00E-04**	**7.00E-05**	**6.60E-04**	**0**	**4.1908**	**4.1908**	**1.30E-04**	**5.40E-04**	**4.3535**

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0384	0.3373	0.475	7.10E-04		0.0158	0.0158		0.0149	0.0149	0	60.9348	60.9348	0.0132	0	61.2637
Total	**0.0384**	**0.3373**	**0.475**	**7.10E-04**		**0.0158**	**0.0158**		**0.0149**	**0.0149**	**0**	**60.9348**	**60.9348**	**0.0132**	**0**	**61.2637**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

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

Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	6.10E-04	0.0246	7.86E-03	1.10E-04	3.64E-03	1.50E-04	3.78E-03	1.05E-03	1.40E-04	1.19E-03	0	10.9188	10.9188	2.20E-04	1.58E-03	11.3938
Worker	4.60E-03	3.01E-03	0.0394	1.20E-04	0.015	7.00E-05	0.015	3.98E-03	7.00E-05	4.04E-03	0	11.2488	11.2488	3.10E-04	3.10E-04	11.3479
Total	**5.21E-03**	**0.0277**	**0.0472**	**2.30E-04**	**0.0186**	**2.20E-04**	**0.0188**	**5.03E-03**	**2.10E-04**	**5.23E-03**	**0**	**22.1676**	**22.1676**	**5.30E-04**	**1.89E-03**	**22.7417**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.64E-03	0.0639	0.4935	7.10E-04		1.06E-03	1.06E-03		1.06E-03	1.06E-03	0	60.9347	60.9347	0.0132	0	61.2636
Total	**8.64E-03**	**0.0639**	**0.4935**	**7.10E-04**		**1.06E-03**	**1.06E-03**		**1.06E-03**	**1.06E-03**	**0**	**60.9347**	**60.9347**	**0.0132**	**0**	**61.2636**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	6.10E-04	0.0246	7.86E-03	1.10E-04	3.64E-03	1.50E-04	3.78E-03	1.05E-03	1.40E-04	1.19E-03	0	10.9188	10.9188	2.20E-04	1.58E-03	11.3938
Worker	4.60E-03	3.01E-03	0.0394	1.20E-04	0.015	7.00E-05	0.015	3.98E-03	7.00E-05	4.04E-03	0	11.2488	11.2488	3.10E-04	3.10E-04	11.3479
Total	**5.21E-03**	**0.0277**	**0.0472**	**2.30E-04**	**0.0186**	**2.20E-04**	**0.0188**	**5.03E-03**	**2.10E-04**	**5.23E-03**	**0**	**22.1676**	**22.1676**	**5.30E-04**	**1.89E-03**	**22.7417**

3.6 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

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

Category	tons/yr										MT/yr					
Off-Road	0.1427	1.2656	1.9008	2.86E-03		0.0535	0.0535		0.0506	0.0506	0	244.7666	244.7666	0.0524	0	246.0771
Total	**0.1427**	**1.2656**	**1.9008**	**2.86E-03**		**0.0535**	**0.0535**		**0.0506**	**0.0506**	**0**	**244.7666**	**244.7666**	**0.0524**	**0**	**246.0771**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	2.41E-03	0.0985	0.0309	4.40E-04	0.0146	5.90E-04	0.0152	4.22E-03	5.60E-04	4.78E-03	0	43.142	43.142	8.70E-04	6.21E-03	45.0128
Worker	0.0173	0.0109	0.1479	4.80E-04	0.06	2.70E-04	0.0603	0.016	2.50E-04	0.0162	0	43.6397	43.6397	1.15E-03	1.15E-03	44.0119
Total	**0.0197**	**0.1094**	**0.1788**	**9.20E-04**	**0.0746**	**8.60E-04**	**0.0755**	**0.0202**	**8.10E-04**	**0.021**	**0**	**86.7817**	**86.7817**	**2.02E-03**	**7.36E-03**	**89.0247**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0347	0.2566	1.9818	2.86E-03		4.24E-03	4.24E-03		4.24E-03	4.24E-03	0	244.7663	244.7663	0.0524	0	246.0768
Total	**0.0347**	**0.2566**	**1.9818**	**2.86E-03**		**4.24E-03**	**4.24E-03**		**4.24E-03**	**4.24E-03**	**0**	**244.7663**	**244.7663**	**0.0524**	**0**	**246.0768**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	2.41E-03	0.0985	0.0309	4.40E-04	0.0146	5.90E-04	0.0152	4.22E-03	5.60E-04	4.78E-03	0	43.142	43.142	8.70E-04	6.21E-03	45.0128

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

Worker	0.0173	0.0109	0.1479	4.80E-04	0.06	2.70E-04	0.0603	0.016	2.50E-04	0.0162	0	43.6397	43.6397	1.15E-03	1.15E-03	44.0119
Total	**0.0197**	**0.1094**	**0.1788**	**9.20E-04**	**0.0746**	**8.60E-04**	**0.0755**	**0.0202**	**8.10E-04**	**0.021**	**0**	**86.7817**	**86.7817**	**2.02E-03**	**7.36E-03**	**89.0247**

3.6 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1427	1.2656	1.9008	2.86E-03		0.0535	0.0535		0.0506	0.0506	0	244.7666	244.7666	0.0524	0	246.0771
Total	**0.1427**	**1.2656**	**1.9008**	**2.86E-03**		**0.0535**	**0.0535**		**0.0506**	**0.0506**	**0**	**244.7666**	**244.7666**	**0.0524**	**0**	**246.0771**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	2.35E-03	0.0978	0.0304	4.40E-04	0.0146	5.80E-04	0.0152	4.22E-03	5.60E-04	4.78E-03	0	42.4209	42.4209	8.50E-04	6.08E-03	44.2544
Worker	0.0163	9.88E-03	0.1394	4.60E-04	0.06	2.60E-04	0.0603	0.016	2.40E-04	0.0162	0	42.2697	42.2697	1.05E-03	1.09E-03	42.6202
Total	**0.0187**	**0.1077**	**0.1698**	**9.00E-04**	**0.0746**	**8.40E-04**	**0.0755**	**0.0202**	**8.00E-04**	**0.021**	**0**	**84.6905**	**84.6905**	**1.90E-03**	**7.17E-03**	**86.8747**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0347	0.2566	1.9818	2.86E-03		4.24E-03	4.24E-03		4.24E-03	4.24E-03	0	244.7663	244.7663	0.0524	0	246.0768
Total	**0.0347**	**0.2566**	**1.9818**	**2.86E-03**		**4.24E-03**	**4.24E-03**		**4.24E-03**	**4.24E-03**	**0**	**244.7663**	**244.7663**	**0.0524**	**0**	**246.0768**

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	2.35E-03	0.0978	0.0304	4.40E-04	0.0146	5.80E-04	0.0152	4.22E-03	5.60E-04	4.78E-03	0	42.4209	42.4209	8.50E-04	6.08E-03	44.2544
Worker	0.0163	9.88E-03	0.1394	4.60E-04	0.06	2.60E-04	0.0603	0.016	2.40E-04	0.0162	0	42.2697	42.2697	1.05E-03	1.09E-03	42.6202
Total	**0.0187**	**0.1077**	**0.1698**	**9.00E-04**	**0.0746**	**8.40E-04**	**0.0755**	**0.0202**	**8.00E-04**	**0.021**	**0**	**84.6905**	**84.6905**	**1.90E-03**	**7.17E-03**	**86.8747**

3.6 Building Construction - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0574	0.5091	0.7647	1.15E-03		0.0215	0.0215		0.0204	0.0204	0	98.4693	98.4693	0.0211	0	98.9965
Total	**0.0574**	**0.5091**	**0.7647**	**1.15E-03**		**0.0215**	**0.0215**		**0.0204**	**0.0204**	**0**	**98.4693**	**98.4693**	**0.0211**	**0**	**98.9965**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	9.20E-04	0.039	0.012	1.70E-04	5.87E-03	2.30E-04	6.11E-03	1.70E-03	2.20E-04	1.92E-03	0	16.7454	16.7454	3.40E-04	2.39E-03	17.4672
Worker	6.18E-03	3.64E-03	0.0532	1.80E-04	0.0242	1.00E-04	0.0243	6.42E-03	9.00E-05	6.51E-03	0	16.5036	16.5036	3.90E-04	4.20E-04	16.6373
Total	**7.10E-03**	**0.0426**	**0.0652**	**3.50E-04**	**0.03**	**3.30E-04**	**0.0304**	**8.12E-03**	**3.10E-04**	**8.43E-03**	**0**	**33.249**	**33.249**	**7.30E-04**	**2.81E-03**	**34.1045**

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.014	0.1032	0.7973	1.15E-03		1.71E-03	1.71E-03		1.71E-03	1.71E-03	0	98.4692	98.4692	0.0211	0	98.9964
Total	**0.014**	**0.1032**	**0.7973**	**1.15E-03**		**1.71E-03**	**1.71E-03**		**1.71E-03**	**1.71E-03**	**0**	**98.4692**	**98.4692**	**0.0211**	**0**	**98.9964**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	9.20E-04	0.039	0.012	1.70E-04	5.87E-03	2.30E-04	6.11E-03	1.70E-03	2.20E-04	1.92E-03	0	16.7454	16.7454	3.40E-04	2.39E-03	17.4672
Worker	6.18E-03	3.64E-03	0.0532	1.80E-04	0.0242	1.00E-04	0.0243	6.42E-03	9.00E-05	6.51E-03	0	16.5036	16.5036	3.90E-04	4.20E-04	16.6373
Total	**7.10E-03**	**0.0426**	**0.0652**	**3.50E-04**	**0.03**	**3.30E-04**	**0.0304**	**8.12E-03**	**3.10E-04**	**8.43E-03**	**0**	**33.249**	**33.249**	**7.30E-04**	**2.81E-03**	**34.1045**

3.7 Architectural Coating - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.8796					0	0		0	0	0	0	0	0	0	0
Off-Road	3.84E-03	0.0258	0.0407	7.00E-05		1.16E-03	1.16E-03		1.16E-03	1.16E-03	0	5.7448	5.7448	3.10E-04	0	5.7527
Total	**2.8835**	**0.0258**	**0.0407**	**7.00E-05**		**1.16E-03**	**1.16E-03**		**1.16E-03**	**1.16E-03**	**0**	**5.7448**	**5.7448**	**3.10E-04**	**0**	**5.7527**

Unmitigated Construction Off-Site

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	5.50E-04	3.20E-04	4.71E-03	2.00E-05	2.14E-03	1.00E-05	2.15E-03	5.70E-04	1.00E-05	5.80E-04	0	1.4634	1.4634	3.00E-05	4.00E-05	1.4752
Total	**5.50E-04**	**3.20E-04**	**4.71E-03**	**2.00E-05**	**2.14E-03**	**1.00E-05**	**2.15E-03**	**5.70E-04**	**1.00E-05**	**5.80E-04**	**0**	**1.4634**	**1.4634**	**3.00E-05**	**4.00E-05**	**1.4752**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.8796					0	0		0	0	0	0	0	0	0	0
Off-Road	6.70E-04	2.90E-03	0.0412	7.00E-05		9.00E-05	9.00E-05		9.00E-05	9.00E-05	0	5.7448	5.7448	3.10E-04	0	5.7527
Total	**2.8803**	**2.90E-03**	**0.0412**	**7.00E-05**		**9.00E-05**	**9.00E-05**		**9.00E-05**	**9.00E-05**	**0**	**5.7448**	**5.7448**	**3.10E-04**	**0**	**5.7527**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vendor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Worker	5.50E-04	3.20E-04	4.71E-03	2.00E-05	2.14E-03	1.00E-05	2.15E-03	5.70E-04	1.00E-05	5.80E-04	0	1.4634	1.4634	3.00E-05	4.00E-05	1.4752
Total	**5.50E-04**	**3.20E-04**	**4.71E-03**	**2.00E-05**	**2.14E-03**	**1.00E-05**	**2.15E-03**	**5.70E-04**	**1.00E-05**	**5.80E-04**	**0**	**1.4634**	**1.4634**	**3.00E-05**	**4.00E-05**	**1.4752**

4.0 Operational Detail - Mobile

Date: 11/2/2022 2:54 PM

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

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7177	0.7492	6.4991	0.0135	1.5898	9.8300e-003	1.5996	0.4248	9.1600e-003	0.4339	0.0000	1,244.9604	1,244.9604	0.0811	0.0600	1,264.8707
Unmitigated	0.7177	0.7492	6.4991	0.0135	1.5898	9.8300e-003	1.5996	0.4248	9.1600e-003	0.4339	0.0000	1,244.9604	1,244.9604	0.0811	0.0600	1,264.8707

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
High Turnover (Sit Down Restaurant)	210.00	229.14	267.02	256,279	256,279
Racquet Club	0.00	0.00	0.00		
Single Family Housing	1,770.08	1,788.48	1602.64	4,039,015	4,039,015
Total	1,980.08	2,017.62	1,869.66	4,295,294	4,295,294

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
High Turnover (Sit Down Restaurant)	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Racquet Club	9.50	7.30	7.30	11.50	69.50	19.00	52	39	9
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
High Turnover (Sit Down Restaurant)	0.570999	0.055864	0.177179	0.122392	0.022700	0.005539	0.007367	0.007099	0.000543	0.000320	0.025363	0.001550	0.003084
Racquet Club	0.570999	0.055864	0.177179	0.122392	0.022700	0.005539	0.007367	0.007099	0.000543	0.000320	0.025363	0.001550	0.003084
Single Family Housing	0.570999	0.055864	0.177179	0.122392	0.022700	0.005539	0.007367	0.007099	0.000543	0.000320	0.025363	0.001550	0.003084

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

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

Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	140.6843	140.6843	0.0228	2.7600e-003	142.0754
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	140.6843	140.6843	0.0228	2.7600e-003	142.0754
NaturalGas Mitigated	0.0406	0.3478	0.1566	2.2100e-003		0.0280	0.0280		0.0280	0.0280	0.0000	401.3922	401.3922	7.6900e-003	7.3600e-003	403.7774
NaturalGas Unmitigated	0.0406	0.3478	0.1566	2.2100e-003		0.0280	0.0280		0.0280	0.0280	0.0000	401.3922	401.3922	7.6900e-003	7.3600e-003	403.7774

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High Turnover (Sit Down Restaurant)	335040	1.8100e-003	0.0164	0.0138	1.0000e-004		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003	0.0000	17.8790	17.8790	3.4000e-004	3.3000e-004	17.9853
Racquet Club	85995	4.6000e-004	4.2200e-003	3.5400e-003	3.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	4.5890	4.5890	9.0000e-005	8.0000e-005	4.6163
Single Family Housing	7.10077e+006	0.0383	0.3272	0.1392	2.0900e-003		0.0265	0.0265		0.0265	0.0265	0.0000	378.9241	378.9241	7.2600e-003	6.9500e-003	381.1759
Total		**0.0406**	**0.3478**	**0.1566**	**2.2200e-003**		**0.0280**	**0.0280**		**0.0280**	**0.0280**	**0.0000**	**401.3922**	**401.3922**	**7.6900e-003**	**7.3600e-003**	**403.7774**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
High Turnover (Sit Down Restaurant)	335040	1.8100e-003	0.0164	0.0138	1.0000e-004		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003	0.0000	17.8790	17.8790	3.4000e-004	3.3000e-004	17.9853
Racquet Club	85995	4.6000e-004	4.2200e-003	3.5400e-003	3.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	4.5890	4.5890	9.0000e-005	8.0000e-005	4.6163
Single Family Housing	7.10077e+006	0.0383	0.3272	0.1392	2.0900e-003		0.0265	0.0265		0.0265	0.0265	0.0000	378.9241	378.9241	7.2600e-003	6.9500e-003	381.1759
Total		**0.0406**	**0.3478**	**0.1566**	**2.2200e-003**		**0.0280**	**0.0280**		**0.0280**	**0.0280**	**0.0000**	**401.3922**	**401.3922**	**7.6900e-003**	**7.3600e-003**	**403.7774**

5.3 Energy by Land Use - Electricity

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

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High Turnover (Sit Down Restaurant)	57380	5.3090	8.6000e-004	1.0000e-004	5.3615
Racquet Club	26005	2.4061	3.9000e-004	5.0000e-005	2.4299
Single Family Housing	1.43714e+006	132.9692	0.0215	2.6100e-003	134.2840
Total		**140.6843**	**0.0228**	**2.7600e-003**	**142.0754**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
High Turnover (Sit Down Restaurant)	57380	5.3090	8.6000e-004	1.0000e-004	5.3615
Racquet Club	26005	2.4061	3.9000e-004	5.0000e-005	2.4299
Single Family Housing	1.43714e+006	132.9692	0.0215	2.6100e-003	134.2840
Total		**140.6843**	**0.0228**	**2.7600e-003**	**142.0754**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.6840	0.0217	1.7286	1.2600e-003		0.0669	0.0669		0.0669	0.0669	7.9432	2.2318	10.1750	0.0393	0.0000	11.1567
Unmitigated	1.6840	0.0217	1.7286	1.2600e-003		0.0669	0.0669		0.0669	0.0669	7.9432	2.2318	10.1750	0.0393	0.0000	11.1567

6.2 Area by SubCategory

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

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2880					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3150					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0400	5.9300e-003	0.3636	1.1900e-003		0.0593	0.0593		0.0593	0.0593	7.9432	0.0000	7.9432	0.0371	0.0000	8.8715
Landscaping	0.0410	0.0157	1.3650	7.0000e-005		7.5700e-003	7.5700e-003		7.5700e-003	7.5700e-003	0.0000	2.2318	2.2318	2.1400e-003	0.0000	2.2852
Total	**1.6840**	**0.0217**	**1.7286**	**1.2600e-003**		**0.0669**	**0.0669**		**0.0669**	**0.0669**	**7.9432**	**2.2318**	**10.1750**	**0.0393**	**0.0000**	**11.1567**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2880					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3150					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0400	5.9300e-003	0.3636	1.1900e-003		0.0593	0.0593		0.0593	0.0593	7.9432	0.0000	7.9432	0.0371	0.0000	8.8715
Landscaping	0.0410	0.0157	1.3650	7.0000e-005		7.5700e-003	7.5700e-003		7.5700e-003	7.5700e-003	0.0000	2.2318	2.2318	2.1400e-003	0.0000	2.2852
Total	**1.6840**	**0.0217**	**1.7286**	**1.2600e-003**		**0.0669**	**0.0669**		**0.0669**	**0.0669**	**7.9432**	**2.2318**	**10.1750**	**0.0393**	**0.0000**	**11.1567**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	11.0411	0.3568	8.5500e-003	22.5081

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

Unmitigated	11.0411	0.3568	8.5500e-003	22.5081

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High Turnover (Sit Down Restaurant)	0.607067 / 0.038749	0.5091	0.0198	4.7000e-004	1.1459
Racquet Club	0.207001 / 0.126872	0.2104	6.7700e-003	1.6000e-004	0.4279
Single Family Housing	10.0989 / 6.36668	10.3216	0.3302	7.9100e-003	20.9343
Total		**11.0411**	**0.3568**	**8.5400e-003**	**22.5081**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
High Turnover (Sit Down Restaurant)	0.607067 / 0.038749	0.5091	0.0198	4.7000e-004	1.1459
Racquet Club	0.207001 / 0.126872	0.2104	6.7700e-003	1.6000e-004	0.4279
Single Family Housing	10.0989 / 6.36668	10.3216	0.3302	7.9100e-003	20.9343
Total		**11.0411**	**0.3568**	**8.5400e-003**	**22.5081**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

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

Mitigated	46.6494	2.7569	0.0000	115.5718
Unmitigated	46.6494	2.7569	0.0000	115.5718

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High Turnover (Sit Down Restaurant)	23.8	4.8312	0.2855	0.0000	11.9691
Racquet Club	19.95	4.0497	0.2393	0.0000	10.0329
Single Family Housing	186.06	37.7685	2.2321	0.0000	93.5699
Total		**46.6494**	**2.7569**	**0.0000**	**115.5718**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
High Turnover (Sit Down Restaurant)	23.8	4.8312	0.2855	0.0000	11.9691
Racquet Club	19.95	4.0497	0.2393	0.0000	10.0329
Single Family Housing	186.06	37.7685	2.2321	0.0000	93.5699
Total		**46.6494**	**2.7569**	**0.0000**	**115.5718**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Health Risk Assessment
Calculations and AERMOD Output

DPM and $PM_{2.5}$ Emissions Summary

Construction Year	Source	Uncontrolled		Tier 4 Final	
		PM_{10} Exhaust	$PM_{2.5}$ Exhaust	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
2023	Off-road	0.0324	0.0302	2.00E-03	2.00E-03
	On-road	1.66E-06	1.56E-06	1.66E-06	1.56E-06
2024	Off-road	0.141	1.30E-01	9.76E-03	9.76E-03
	On-road	5.01E-05	4.80E-05	5.01E-05	4.80E-05
2025	Off-road	0.0535	0.0506	4.24E-03	4.24E-03
	On-road	1.49E-05	1.41E-05	1.49E-05	1.06E-04
2026	Off-road	0.0535	0.0506	4.24E-03	4.24E-03
	On-road	1.46E-05	1.41E-05	1.46E-05	1.41E-05
2027	Off-road	3.23E-02	3.23E-02	2.66E-03	2.66E-03
	On-road	5.80E-06	5.55E-06	5.80E-06	5.55E-06
		0.31	0.29		

Haul trucks

20	miles
105600	feet
971.5	feet
0.009	modeled on-road fraction

Vendor Trucks

7.3	
38544	
971.5	
0.025	modeled on-road fraction

Terminal One Construction HRA

Cancer Risk, Hazard Index and $PM_{2.5}$ Concentration Calculations - Offsite Residential - Uncontrolled

						Exposure Duration (Days)				DPM		$PM_{2.5}$	
					Start Date	10/1/2023	12/31/2023	12/31/2025		Emisions (tons)	Emission Rate (g/s)	Emisions (tons)	Emission Rate (g/s)
					Stop Date	12/30/2023	12/30/2025						
Source		Year	Start Date	End Date	Calendar Days	3rd Trimester	0<2	2<9	Exposure Duration	Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled
Construction Equipment	PAREA	2023	10/1/2023	12/31/2023	91	90	0	1	91	0.03	0.013	0.03	0.012
Construction Equipment	PAREA	2024	1/1/2024	12/31/2024	365	0	365	0	365	0.14	0.014	0.13	0.013
Construction Equipment	PAREA	2025	1/1/2025	12/31/2025	364	0	363	1	364	0.05	0.005	0.05	0.005
Construction Equipment	PAREA	2026	1/1/2026	12/31/2026	364	0	0	364	364	0.05	0.005	0.05	0.005
Construction Equipment	PAREA	2027	1/1/2027	10/1/2027	273	0	0	273	273	0.03	0.004	0.03	0.004
Haul Trucks	ARLN	2023	10/1/2023	12/31/2023	91	90	0	1	91	0.00	0.000	0.00	0.000
Haul Trucks	ARLN	2024	1/1/2024	12/31/2024	365	0	365	0	365	0.00	0.000	0.00	0.000
Haul Trucks	ARLN	2025	1/1/2025	12/31/2025	364	0	363	1	364	0.00	0.000	0.00	0.000
Haul Trucks	ARLN	2026	1/1/2026	12/31/2026	364	0	0	364	364	0.00	0.000	0.00	0.000
Haul Trucks	ARLN	2027	1/1/2027	10/1/2027	273	0	0	273	273	0.00	0.000	0.00	0.000
										0.31		0.29	

Cancer Risk Factors

	Abbreviation	UOM	3rd Trimester	0<2	2<9	
Daily Breathing Rate	DBR	L/kg-day	361	1090	631	
Fraction Of Time At Home	FAH	unitless	1	1	1	Conservatively assume risk at nearby schools >1
Exposure Frequency	EF	days/year	0.96	0.96	0.96	
Age Sensitivity Factor	ASF	unitless	10	10	3	
Inhalation Absorption Factor	A	unitless	1	1	1	
Conversion Factor	CF_1	m^3/L	0.001	0.001	0.001	
Conversion Factor	CF_2	$\mu g/m^3$	0.001	0.001	0.001	
Cancer Potency Factor (diesel exhaust)	CPF	$mg/kg\text{-}day^{-1}$	1.1	1.1	1.1	
Averaging Time (for residential exposure)	AT	years	70.00	70.00	70.00	

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments* . February 2015

Daily breathing rate for residential receptor is based on the OEHHA 95th percentile moderate intensity breathing rates (OEHHA Table 5.7).

Fraction of time at home is set to values per OEHHA Table 8.4 for residential since the nearest school has an unmitigated cancer risk of <1 per million.

Inhalation cancer potency factor from OEHHA Table 7.1

Hazard Index

Chronic Inhalation	REL	$\mu g/m^3$	5

Intake Factor for Inhalation, IF ($m^3/kg\text{-}day$) = DBR*FAH*EF*ED*ASF*A*CF/AT

Source	3rd Trimester	0<2	2<9
PAREA	0.012	0.000	0.000
PAREA	0.000	0.149	0.000
PAREA	0.000	0.148	0.000
PAREA	0.000	0.000	0.026
PAREA	0.000	0.000	0.019
ARLN	0.012	0.000	0.000
ARLN	0.000	0.149	0.000
ARLN	0.000	0.148	0.000
ARLN	0.000	0.000	0.026
ARLN	0.000	0.000	0.019

Risk Calculation Part 1, R1 = IF*CPF*CF

3rd Trimester	0<2	2<9
1.34E-05	0.00E+00	7.81E-08
0.00E+00	1.64E-04	0.00E+00
0.00E+00	1.63E-04	7.81E-08
0.00E+00	0.00E+00	2.84E-05
0.00E+00	0.00E+00	2.13E-05
1.34E-05	0.00E+00	7.81E-08
0.00E+00	1.64E-04	0.00E+00
0.00E+00	1.63E-04	7.81E-08
0.00E+00	0.00E+00	2.84E-05
0.00E+00	0.00E+00	2.13E-05

	Cancer Risk	UTM X	UTM Y
MAX UNCONTROLLED	32.63	554278.0	4195929.01
1313 Sanderling Island			

HI	UTM X	UTM Y
0.03	554278.0	4195929.01

$PM_{2.5}$ Conc.	UTM X	UTM Y
0.027	554278.0	4195929.01

$PM_{2.5}$ concentration, $C_{PM2.5}$ ($\mu g/m^3$) - at max. HI receptor

X (UTM)	Y (UTM)	Project Construction										$PM_{2.5}$ Conc.
		PAREA	PAREA	PAREA	PAREA	PAREA	ARLN	ARLN	ARLN	ARLN	ARLN	$\mu g/m^3$
		2023	2024	2025	2026	2027	2023	2024	2025	2026	2027	Max. Annual
	Index Lookup HIDE	1	2	3	4	5	6	7	8	9	10	
554277.97	4195929.010	0.109	0.117	0.046	0.046	0.039	0.000	0.000	0.000	0.000	0.000	0.027

Diesel Particulate Matter concentration, C_{DPM} ($\mu g/m^3$)

X (UTM)	Y (UTM)	Project Construction									
		PAREA	PAREA	PAREA	PAREA	PAREA	ARLN	ARLN	ARLN	ARLN	ARLN
		2023	2024	2025	2026	2027	2023	2024	2025	2026	2027
	Index Lookup HIDE	1	2	3	4	5	6	7	8	9	10
554517.97	4195689.01	0.025	0.027	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000
554537.97	4195689.01	0.023	0.025	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000
554557.97	4195689.01	0.022	0.024	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000
554577.97	4195689.01	0.021	0.023	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000
554597.97	4195689.01	0.020	0.022	0.008	0.008	0.007	0.000	0.000	0.000	0.000	0.000
554617.97	4195689.01	0.019	0.021	0.008	0.008	0.006	0.000	0.000	0.000	0.000	0.000
554637.97	4195689.01	0.018	0.020	0.007	0.007	0.006	0.000	0.000	0.000	0.000	0.000

Risk Calculation Part 2

Cancer Risk = $\sum R1*C_{DPM}$				HI
3rd Trimester	0<2	2<9	Total	C_{DPM}/REL
				unitless
	Source: All			
3.32E-07	6.08E-06	4.69E-07	6.8841044	0.005
3.15E-07	5.77E-06	4.45E-07	6.5325323	0.005
2.99E-07	5.48E-06	4.22E-07	6.1964282	0.005
2.83E-07	5.19E-06	4.00E-07	5.8760365	0.005
2.69E-07	4.92E-06	3.80E-07	5.5725451	0.004
2.55E-07	4.67E-06	3.60E-07	5.2858491	0.004
2.42E-07	4.43E-06	3.42E-07	5.0154588	0.004

554477.97	4195709.01	0.029	0.031	0.012	0.012	0.010	0.000	0.000	0.000	0.000	0.000	3.86E-07	7.07E-06	5.45E-07	8.0014251	0.006
554497.97	4195709.01	0.027	0.030	0.011	0.011	0.009	0.000	0.000	0.000	0.000	0.000	3.65E-07	6.69E-06	5.16E-07	7.5669268	0.006
554517.97	4195709.01	0.026	0.028	0.011	0.011	0.009	0.000	0.000	0.000	0.000	0.000	3.46E-07	6.34E-06	4.89E-07	7.178674	0.006
554537.97	4195709.01	0.024	0.027	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000	3.28E-07	6.02E-06	4.64E-07	6.8084394	0.005
554557.97	4195709.01	0.023	0.025	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000	3.10E-07	5.68E-06	4.38E-07	6.4321108	0.005
554577.97	4195709.01	0.022	0.024	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000	2.93E-07	5.37E-06	4.14E-07	6.0748763	0.005
554597.97	4195709.01	0.021	0.022	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000	2.77E-07	5.07E-06	3.91E-07	5.7336286	0.004
554617.97	4195709.01	0.019	0.021	0.008	0.008	0.006	0.000	0.000	0.000	0.000	0.000	2.61E-07	4.78E-06	3.69E-07	5.4138534	0.004
554637.97	4195709.01	0.018	0.020	0.008	0.008	0.006	0.000	0.000	0.000	0.000	0.000	2.47E-07	4.52E-06	3.48E-07	5.1150971	0.004
554657.97	4195709.01	0.017	0.019	0.007	0.007	0.006	0.000	0.000	0.000	0.000	0.000	2.33E-07	4.27E-06	3.30E-07	4.8370114	0.004
554677.97	4195709.01	0.016	0.018	0.007	0.007	0.005	0.000	0.000	0.000	0.000	0.000	2.21E-07	4.05E-06	3.12E-07	4.5828838	0.004
554697.97	4195709.01	0.016	0.017	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	2.10E-07	3.84E-06	2.96E-07	4.3482407	0.003
554477.97	4195729.01	0.030	0.033	0.012	0.012	0.010	0.000	0.000	0.000	0.000	0.000	4.04E-07	7.40E-06	5.71E-07	8.3741887	0.007
554497.97	4195729.01	0.029	0.031	0.012	0.012	0.009	0.000	0.000	0.000	0.000	0.000	3.83E-07	7.01E-06	5.40E-07	7.9298102	0.006
554517.97	4195729.01	0.027	0.029	0.011	0.011	0.009	0.000	0.000	0.000	0.000	0.000	3.60E-07	6.59E-06	5.08E-07	7.4574881	0.006
554537.97	4195729.01	0.025	0.027	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000	3.38E-07	6.19E-06	4.77E-07	6.9997111	0.005
554557.97	4195729.01	0.024	0.026	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000	3.18E-07	5.82E-06	4.49E-07	6.5848944	0.005
554577.97	4195729.01	0.022	0.024	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000	2.99E-07	5.48E-06	4.23E-07	6.2052105	0.005
554597.97	4195729.01	0.021	0.023	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000	2.82E-07	5.17E-06	3.99E-07	5.8548256	0.005
554617.97	4195729.01	0.020	0.022	0.008	0.008	0.007	0.000	0.000	0.000	0.000	0.000	2.67E-07	4.89E-06	3.77E-07	5.5295821	0.004
554637.97	4195729.01	0.019	0.020	0.008	0.008	0.006	0.000	0.000	0.000	0.000	0.000	2.52E-07	4.61E-06	3.56E-07	5.2224244	0.004
554657.97	4195729.01	0.018	0.019	0.007	0.007	0.006	0.000	0.000	0.000	0.000	0.000	2.38E-07	4.36E-06	3.36E-07	4.934747	0.004
554677.97	4195729.01	0.017	0.018	0.007	0.007	0.006	0.000	0.000	0.000	0.000	0.000	2.25E-07	4.13E-06	3.18E-07	4.6699967	0.004
554697.97	4195729.01	0.016	0.017	0.007	0.007	0.005	0.000	0.000	0.000	0.000	0.000	2.13E-07	3.90E-06	3.00E-07	4.4080173	0.003
554437.97	4195749.01	0.036	0.039	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	4.83E-07	8.84E-06	6.82E-07	10.006124	0.008
554457.97	4195749.01	0.034	0.037	0.014	0.014	0.011	0.000	0.000	0.000	0.000	0.000	4.52E-07	8.28E-06	6.39E-07	9.3752957	0.007
554477.97	4195749.01	0.032	0.034	0.013	0.013	0.010	0.000	0.000	0.000	0.000	0.000	4.23E-07	7.74E-06	5.97E-07	8.7627552	0.007
554497.97	4195749.01	0.029	0.032	0.012	0.012	0.010	0.000	0.000	0.000	0.000	0.000	3.95E-07	7.23E-06	5.57E-07	8.182479	0.006
554557.97	4195749.01	0.024	0.026	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000	3.24E-07	5.93E-06	4.57E-07	6.7077177	0.005
554577.97	4195749.01	0.023	0.025	0.009	0.009	0.008	0.000	0.000	0.000	0.000	0.000	3.04E-07	5.57E-06	4.29E-07	6.3035857	0.005
554597.97	4195749.01	0.021	0.023	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000	2.86E-07	5.24E-06	4.04E-07	5.9311591	0.005
554617.97	4195749.01	0.020	0.022	0.008	0.008	0.007	0.000	0.000	0.000	0.000	0.000	2.70E-07	4.94E-06	3.81E-07	5.5881681	0.004
554637.97	4195749.01	0.019	0.021	0.008	0.008	0.006	0.000	0.000	0.000	0.000	0.000	2.54E-07	4.66E-06	3.59E-07	5.2736024	0.004
554657.97	4195749.01	0.018	0.019	0.007	0.007	0.006	0.000	0.000	0.000	0.000	0.000	2.41E-07	4.41E-06	3.40E-07	4.9911046	0.004
554677.97	4195749.01	0.017	0.018	0.007	0.007	0.006	0.000	0.000	0.000	0.000	0.000	2.28E-07	4.18E-06	3.23E-07	4.7357531	0.004
554697.97	4195749.01	0.016	0.017	0.007	0.007	0.005	0.000	0.000	0.000	0.000	0.000	2.16E-07	3.96E-06	3.05E-07	4.48412	0.004
554437.97	4195769.01	0.037	0.041	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	5.01E-07	9.18E-06	7.08E-07	10.394598	0.008
554457.97	4195769.01	0.035	0.038	0.014	0.014	0.012	0.000	0.000	0.000	0.000	0.000	4.71E-07	8.63E-06	6.65E-07	9.7632132	0.008
554477.97	4195769.01	0.033	0.035	0.013	0.013	0.011	0.000	0.000	0.000	0.000	0.000	4.38E-07	8.03E-06	6.19E-07	9.0822689	0.007
554657.97	4195769.01	0.018	0.020	0.008	0.008	0.006	0.000	0.000	0.000	0.000	0.000	2.44E-07	4.47E-06	3.44E-07	5.0560842	0.004
554677.97	4195769.01	0.017	0.019	0.007	0.007	0.006	0.000	0.000	0.000	0.000	0.000	2.31E-07	4.22E-06	3.26E-07	4.7803119	0.004
554697.97	4195769.01	0.016	0.018	0.007	0.007	0.005	0.000	0.000	0.000	0.000	0.000	2.19E-07	4.01E-06	3.09E-07	4.5374592	0.004
554437.97	4195789.01	0.039	0.042	0.016	0.016	0.013	0.000	0.000	0.000	0.000	0.000	5.22E-07	9.56E-06	7.37E-07	10.818663	0.008
554457.97	4195789.01	0.036	0.039	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	4.85E-07	8.89E-06	6.85E-07	10.057734	0.008
554477.97	4195789.01	0.034	0.037	0.014	0.014	0.011	0.000	0.000	0.000	0.000	0.000	4.52E-07	8.28E-06	6.38E-07	9.3677241	0.007
554697.97	4195789.01	0.017	0.018	0.007	0.007	0.005	0.000	0.000	0.000	0.000	0.000	2.22E-07	4.07E-06	3.13E-07	4.6006068	0.004
554337.97	4195809.01	0.062	0.067	0.026	0.026	0.021	0.000	0.000	0.000	0.000	0.000	8.33E-07	1.53E-05	1.18E-06	17.25968	0.013
554457.97	4195809.01	0.037	0.041	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	5.01E-07	9.18E-06	7.07E-07	10.384285	0.008
554317.97	4195829.01	0.073	0.079	0.030	0.030	0.024	0.000	0.000	0.000	0.000	0.000	9.83E-07	1.80E-05	1.39E-06	20.371738	0.016
554337.97	4195829.01	0.067	0.072	0.028	0.028	0.022	0.000	0.000	0.000	0.000	0.000	8.94E-07	1.64E-05	1.26E-06	18.538886	0.014
554357.97	4195829.01	0.060	0.066	0.025	0.025	0.020	0.000	0.000	0.000	0.000	0.000	8.10E-07	1.48E-05	1.14E-06	16.793603	0.013
554297.97	4195849.01	0.088	0.095	0.036	0.036	0.029	0.000	0.000	0.000	0.000	0.000	1.18E-06	2.15E-05	1.66E-06	24.365237	0.019
554317.97	4195849.01	0.079	0.085	0.032	0.032	0.026	0.000	0.000	0.000	0.000	0.000	1.05E-06	1.93E-05	1.49E-06	21.836659	0.017
554337.97	4195849.01	0.072	0.078	0.030	0.030	0.024	0.000	0.000	0.000	0.000	0.000	9.62E-07	1.76E-05	1.36E-06	19.93356	0.016
554357.97	4195849.01	0.065	0.070	0.027	0.027	0.021	0.000	0.000	0.000	0.000	0.000	8.66E-07	1.59E-05	1.22E-06	17.951332	0.014
554377.97	4195849.01	0.057	0.062	0.024	0.024	0.019	0.000	0.000	0.000	0.000	0.000	7.69E-07	1.41E-05	1.09E-06	15.939677	0.012
554297.97	4195869.01	0.094	0.102	0.039	0.039	0.031	0.000	0.000	0.000	0.000	0.000	1.26E-06	2.30E-05	1.77E-06	26.017613	0.020
554317.97	4195869.01	0.084	0.091	0.035	0.035	0.028	0.000	0.000	0.000	0.000	0.000	1.12E-06	2.06E-05	1.59E-06	23.309443	0.018
554337.97	4195869.01	0.075	0.082	0.031	0.031	0.025	0.000	0.000	0.000	0.000	0.000	1.01E-06	1.85E-05	1.43E-06	20.918441	0.016
554357.97	4195869.01	0.066	0.072	0.027	0.027	0.022	0.000	0.000	0.000	0.000	0.000	8.90E-07	1.63E-05	1.26E-06	18.457295	0.014
554377.97	4195869.01	0.059	0.064	0.025	0.025	0.020	0.000	0.000	0.000	0.000	0.000	7.97E-07	1.46E-05	1.13E-06	16.523454	0.013
554297.97	4195889.01	0.098	0.107	0.041	0.041	0.033	0.000	0.000	0.000	0.000	0.000	1.32E-06	2.41E-05	1.86E-06	27.302873	0.021
554317.97	4195889.01	0.088	0.096	0.036	0.036	0.029	0.000	0.000	0.000	0.000	0.000	1.19E-06	2.17E-05	1.67E-06	24.582186	0.019
554337.97	4195889.01	0.078	0.084	0.032	0.032	0.026	0.000	0.000	0.000	0.000	0.000	1.04E-06	1.91E-05	1.47E-06	21.566146	0.017
554357.97	4195889.01	0.068	0.074	0.028	0.028	0.023	0.000	0.000	0.000	0.000	0.000	9.13E-07	1.67E-05	1.29E-06	18.927877	0.015
554457.97	4195889.01	0.041	0.045	0.017	0.017	0.014	0.000	0.000	0.000	0.000	0.000	5.56E-07	1.02E-05	7.85E-07	11.528915	0.009
554477.97	4195889.01	0.038	0.041	0.016	0.016	0.013	0.000	0.000	0.000	0.000	0.000	5.11E-07	9.35E-06	7.21E-07	10.584675	0.008
554277.97	4195909.01	0.116	0.126	0.048	0.048	0.039	0.000	0.000	0.000	0.000	0.000	1.56E-06	2.86E-05	2.21E-06	32.37027	0.025
554297.97	4195909.01	0.101	0.110	0.042	0.042	0.034	0.000	0.000	0.000	0.000	0.000	1.35E-06	2.48E-05	1.91E-06	28.084633	0.022
554317.97	4195909.01	0.090	0.098	0.037	0.037	0.030	0.000	0.000	0.000	0.000	0.000	1.21E-06	2.22E-05	1.71E-06	25.156687	0.020
554337.97	4195909.01	0.078	0.085	0.032	0.032	0.026	0.000	0.000	0.000	0.000	0.000	1.05E-06	1.93E-05	1.49E-06	21.818634	0.017
554437.97	4195909.01	0.046	0.050	0.019	0.019	0.015	0.000	0.000	0.000	0.000	0.000	6.16E-07	1.13E-05	8.69E-07	12.761086	0.010
554457.97	4195909.01	0.042	0.046	0.017	0.017	0.014	0.000	0.000	0.000	0.000	0.000	5.63E-07	1.03E-05	7.96E-07	11.676671	0.009
554477.97	4195909.01	0.039	0.042	0.016	0.016	0.013	0.000	0.000	0.000	0.000	0.000	5.19E-07	9.52E-06	7.34E-07	10.770144	0.008

554497.97	4195909.01	0.035	0.038	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	4.76E-07	8.72E-06	6.72E-07	9.8643707	0.008
554277.97	4195929.01	0.117	0.127	0.048	0.048	0.039	0.000	0.000	0.000	0.000	0.000	1.57E-06	2.88E-05	2.22E-06	32.62784	0.025
554297.97	4195929.01	0.102	0.110	0.042	0.042	0.034	0.000	0.000	0.000	0.000	0.000	1.36E-06	2.49E-05	1.92E-06	28.223009	0.022
554317.97	4195929.01	0.091	0.099	0.038	0.038	0.030	0.000	0.000	0.000	0.000	0.000	1.22E-06	2.24E-05	1.72E-06	25.305236	0.020
554337.97	4195929.01	0.079	0.086	0.033	0.033	0.026	0.000	0.000	0.000	0.000	0.000	1.06E-06	1.95E-05	1.50E-06	22.022233	0.017
554357.97	4195929.01	0.069	0.075	0.029	0.029	0.023	0.000	0.000	0.000	0.000	0.000	9.30E-07	1.70E-05	1.31E-06	19.283709	0.015
554417.97	4195929.01	0.051	0.055	0.021	0.021	0.017	0.000	0.000	0.000	0.000	0.000	6.78E-07	1.24E-05	9.57E-07	14.050338	0.011
554437.97	4195929.01	0.046	0.050	0.019	0.019	0.015	0.000	0.000	0.000	0.000	0.000	6.17E-07	1.13E-05	8.71E-07	12.788568	0.010
554457.97	4195929.01	0.043	0.046	0.018	0.018	0.014	0.000	0.000	0.000	0.000	0.000	5.72E-07	1.05E-05	8.08E-07	11.862792	0.009
554477.97	4195929.01	0.039	0.042	0.016	0.016	0.013	0.000	0.000	0.000	0.000	0.000	5.25E-07	9.62E-06	7.41E-07	10.88224	0.008
554497.97	4195929.01	0.036	0.039	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	4.79E-07	8.77E-06	6.76E-07	9.9232148	0.008
554297.97	4195949.01	0.099	0.108	0.041	0.041	0.033	0.000	0.000	0.000	0.000	0.000	1.33E-06	2.44E-05	1.88E-06	27.651405	0.022
554317.97	4195949.01	0.088	0.096	0.036	0.036	0.029	0.000	0.000	0.000	0.000	0.000	1.19E-06	2.17E-05	1.67E-06	24.584794	0.019
554337.97	4195949.01	0.079	0.085	0.032	0.032	0.026	0.000	0.000	0.000	0.000	0.000	1.06E-06	1.93E-05	1.49E-06	21.873319	0.017
554357.97	4195949.01	0.069	0.075	0.028	0.028	0.023	0.000	0.000	0.000	0.000	0.000	9.25E-07	1.69E-05	1.31E-06	19.180509	0.015
554377.97	4195949.01	0.061	0.066	0.025	0.025	0.020	0.000	0.000	0.000	0.000	0.000	8.21E-07	1.50E-05	1.16E-06	17.028603	0.013
554397.97	4195949.01	0.055	0.060	0.023	0.023	0.018	0.000	0.000	0.000	0.000	0.000	7.40E-07	1.36E-05	1.05E-06	15.340962	0.012
554417.97	4195949.01	0.050	0.054	0.021	0.021	0.017	0.000	0.000	0.000	0.000	0.000	6.73E-07	1.23E-05	9.50E-07	13.946656	0.011
554437.97	4195949.01	0.046	0.050	0.019	0.019	0.015	0.000	0.000	0.000	0.000	0.000	6.19E-07	1.13E-05	8.75E-07	12.838324	0.010
554457.97	4195949.01	0.042	0.046	0.017	0.017	0.014	0.000	0.000	0.000	0.000	0.000	5.67E-07	1.04E-05	8.01E-07	11.760464	0.009
554477.97	4195949.01	0.039	0.042	0.016	0.016	0.013	0.000	0.000	0.000	0.000	0.000	5.18E-07	9.50E-06	7.32E-07	10.74752	0.008
554497.97	4195949.01	0.035	0.038	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	4.73E-07	8.67E-06	6.68E-07	9.8083003	0.008
554317.97	4195969.01	0.083	0.091	0.034	0.034	0.028	0.000	0.000	0.000	0.000	0.000	1.12E-06	2.05E-05	1.58E-06	23.19517	0.018
554337.97	4195969.01	0.075	0.082	0.031	0.031	0.025	0.000	0.000	0.000	0.000	0.000	1.01E-06	1.85E-05	1.43E-06	20.949293	0.016
554357.97	4195969.01	0.067	0.073	0.028	0.028	0.022	0.000	0.000	0.000	0.000	0.000	9.03E-07	1.65E-05	1.28E-06	18.722283	0.015
554377.97	4195969.01	0.060	0.066	0.025	0.025	0.020	0.000	0.000	0.000	0.000	0.000	8.11E-07	1.49E-05	1.15E-06	16.81237	0.013
554397.97	4195969.01	0.055	0.059	0.023	0.023	0.018	0.000	0.000	0.000	0.000	0.000	7.32E-07	1.34E-05	1.03E-06	15.169012	0.012
554417.97	4195969.01	0.049	0.054	0.020	0.020	0.016	0.000	0.000	0.000	0.000	0.000	6.63E-07	1.22E-05	9.37E-07	13.754053	0.011
554437.97	4195969.01	0.045	0.049	0.019	0.019	0.015	0.000	0.000	0.000	0.000	0.000	6.05E-07	1.11E-05	8.55E-07	12.547978	0.010
554457.97	4195969.01	0.041	0.044	0.017	0.017	0.014	0.000	0.000	0.000	0.000	0.000	5.47E-07	1.00E-05	7.73E-07	11.351649	0.009
554477.97	4195969.01	0.037	0.041	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	5.01E-07	9.18E-06	7.08E-07	10.392714	0.008
554317.97	4195989.01	0.078	0.084	0.032	0.032	0.026	0.000	0.000	0.000	0.000	0.000	1.04E-06	1.91E-05	1.47E-06	21.616767	0.017
554337.97	4195989.01	0.069	0.075	0.029	0.029	0.023	0.000	0.000	0.000	0.000	0.000	9.30E-07	1.70E-05	1.31E-06	19.278717	0.015
554357.97	4195989.01	0.063	0.068	0.026	0.026	0.021	0.000	0.000	0.000	0.000	0.000	8.40E-07	1.54E-05	1.19E-06	17.415335	0.014
554377.97	4195989.01	0.057	0.062	0.023	0.023	0.019	0.000	0.000	0.000	0.000	0.000	7.64E-07	1.40E-05	1.08E-06	15.832478	0.012
554397.97	4195989.01	0.052	0.056	0.021	0.021	0.017	0.000	0.000	0.000	0.000	0.000	6.94E-07	1.27E-05	9.80E-07	14.386141	0.011
554417.97	4195989.01	0.047	0.051	0.020	0.020	0.016	0.000	0.000	0.000	0.000	0.000	6.34E-07	1.16E-05	8.95E-07	13.141393	0.010
554437.97	4195989.01	0.043	0.046	0.018	0.018	0.014	0.000	0.000	0.000	0.000	0.000	5.73E-07	1.05E-05	8.10E-07	11.891533	0.009
554457.97	4195989.01	0.039	0.042	0.016	0.016	0.013	0.000	0.000	0.000	0.000	0.000	5.24E-07	9.60E-06	7.40E-07	10.861917	0.008
554777.97	4195989.01	0.014	0.016	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1.94E-07	3.60E-06	2.76E-07	4.0682533	0.003
554357.97	4196009.01	0.057	0.062	0.024	0.024	0.019	0.000	0.000	0.000	0.000	0.000	7.71E-07	1.41E-05	1.09E-06	15.989182	0.012
554377.97	4196009.01	0.052	0.057	0.022	0.022	0.017	0.000	0.000	0.000	0.000	0.000	7.00E-07	1.28E-05	9.89E-07	14.518512	0.011
554397.97	4196009.01	0.048	0.052	0.020	0.020	0.016	0.000	0.000	0.000	0.000	0.000	6.39E-07	1.17E-05	9.02E-07	13.246397	0.010
554417.97	4196009.01	0.045	0.048	0.018	0.018	0.015	0.000	0.000	0.000	0.000	0.000	5.97E-07	1.09E-05	8.44E-07	12.387789	0.010
554437.97	4196009.01	0.041	0.044	0.017	0.017	0.013	0.000	0.000	0.000	0.000	0.000	5.44E-07	9.96E-06	7.68E-07	11.274403	0.009
554457.97	4196009.01	0.037	0.040	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	4.96E-07	9.09E-06	7.01E-07	10.290225	0.008
554757.97	4196009.01	0.015	0.016	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1.98E-07	3.67E-06	2.82E-07	4.1507946	0.003
554777.97	4196009.01	0.014	0.015	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1.88E-07	3.48E-06	2.67E-07	3.9338553	0.003
554317.97	4196029.01	0.065	0.071	0.027	0.027	0.022	0.000	0.000	0.000	0.000	0.000	8.74E-07	1.60E-05	1.23E-06	18.114059	0.014
554337.97	4196029.01	0.058	0.062	0.024	0.024	0.019	0.000	0.000	0.000	0.000	0.000	7.72E-07	1.42E-05	1.09E-06	16.015835	0.013
554397.97	4196029.01	0.044	0.047	0.018	0.018	0.015	0.000	0.000	0.000	0.000	0.000	5.87E-07	1.08E-05	8.30E-07	12.179081	0.010
554417.97	4196029.01	0.041	0.045	0.017	0.017	0.014	0.000	0.000	0.000	0.000	0.000	5.52E-07	1.01E-05	7.80E-07	11.457089	0.009
554437.97	4196029.01	0.038	0.041	0.016	0.016	0.013	0.000	0.000	0.000	0.000	0.000	5.08E-07	9.30E-06	7.17E-07	10.52618	0.008
554457.97	4196029.01	0.035	0.037	0.014	0.014	0.011	0.000	0.000	0.000	0.000	0.000	4.64E-07	8.50E-06	6.55E-07	9.6158636	0.008
554737.97	4196029.01	0.015	0.016	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	2.01E-07	3.74E-06	2.87E-07	4.2233391	0.003
554757.97	4196029.01	0.014	0.015	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1.91E-07	3.55E-06	2.72E-07	4.0115422	0.003
554317.97	4196049.01	0.057	0.061	0.023	0.023	0.019	0.000	0.000	0.000	0.000	0.000	7.60E-07	1.39E-05	1.07E-06	15.753182	0.012
554337.97	4196049.01	0.051	0.056	0.021	0.021	0.017	0.000	0.000	0.000	0.000	0.000	6.89E-07	1.26E-05	9.73E-07	14.28556	0.011
554397.97	4196049.01	0.040	0.043	0.016	0.016	0.013	0.000	0.000	0.000	0.000	0.000	5.32E-07	9.76E-06	7.52E-07	11.042403	0.009
554417.97	4196049.01	0.038	0.041	0.016	0.016	0.012	0.000	0.000	0.000	0.000	0.000	5.04E-07	9.23E-06	7.12E-07	10.45052	0.008
554437.97	4196049.01	0.035	0.038	0.014	0.014	0.012	0.000	0.000	0.000	0.000	0.000	4.68E-07	8.58E-06	6.61E-07	9.710053	0.008
554457.97	4196049.01	0.032	0.035	0.013	0.013	0.011	0.000	0.000	0.000	0.000	0.000	4.28E-07	7.85E-06	6.05E-07	8.8834065	0.007
554717.97	4196049.01	0.015	0.016	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	2.03E-07	3.78E-06	2.90E-07	4.2756354	0.003
554737.97	4196049.01	0.014	0.016	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1.93E-07	3.57E-06	2.74E-07	4.0398206	0.003
554317.97	4196069.01	0.049	0.053	0.020	0.020	0.016	0.000	0.000	0.000	0.000	0.000	6.56E-07	1.20E-05	9.27E-07	13.608788	0.011
554337.97	4196069.01	0.045	0.049	0.018	0.018	0.015	0.000	0.000	0.000	0.000	0.000	6.01E-07	1.10E-05	8.49E-07	12.469948	0.010
554397.97	4196069.01	0.036	0.039	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	4.78E-07	8.76E-06	6.75E-07	9.9090834	0.008
554417.97	4196069.01	0.034	0.037	0.014	0.014	0.011	0.000	0.000	0.000	0.000	0.000	4.57E-07	8.38E-06	6.46E-07	9.4826927	0.007
554437.97	4196069.01	0.032	0.034	0.013	0.013	0.010	0.000	0.000	0.000	0.000	0.000	4.23E-07	7.76E-06	5.98E-07	8.7810301	0.007
554717.97	4196069.01	0.014	0.016	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1.94E-07	3.61E-06	2.77E-07	4.0840046	0.003
554737.97	4196069.01	0.014	0.015	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1.85E-07	3.43E-06	2.63E-07	3.8773709	0.003
554317.97	4196089.01	0.042	0.046	0.017	0.017	0.014	0.000	0.000	0.000	0.000	0.000	5.63E-07	1.03E-05	7.96E-07	11.692625	0.009
554337.97	4196089.01	0.039	0.042	0.016	0.016	0.013	0.000	0.000	0.000	0.000	0.000	5.21E-07	9.56E-06	7.36E-07	10.813143	0.008
554397.97	4196089.01	0.032	0.034	0.013	0.013	0.011	0.000	0.000	0.000	0.000	0.000	4.26E-07	7.81E-06	6.02E-07	8.8364937	0.007

554417.97	4196089.01	0.031	0.033	0.013	0.013	0.010	0.000	0.000	0.000	0.000	0.000	4.11E-07	7.53E-06	5.81E-07	8.524279	0.007
554437.97	4196089.01	0.028	0.031	0.012	0.012	0.009	0.000	0.000	0.000	0.000	0.000	3.81E-07	6.99E-06	5.39E-07	7.9153912	0.006
554717.97	4196089.01	0.014	0.015	0.006	0.006	0.005	0.000	0.000	0.000	0.000	0.000	1.85E-07	3.44E-06	2.64E-07	3.8865436	0.003
554737.97	4196089.01	0.013	0.014	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.76E-07	3.27E-06	2.51E-07	3.6986188	0.003
554317.97	4196109.01	0.036	0.039	0.015	0.015	0.012	0.000	0.000	0.000	0.000	0.000	4.85E-07	8.90E-06	6.86E-07	10.070041	0.008
554337.97	4196109.01	0.033	0.036	0.014	0.014	0.011	0.000	0.000	0.000	0.000	0.000	4.49E-07	8.23E-06	6.34E-07	9.313028	0.007
554397.97	4196109.01	0.028	0.031	0.012	0.012	0.009	0.000	0.000	0.000	0.000	0.000	3.79E-07	6.95E-06	5.35E-07	7.8592574	0.006
554417.97	4196109.01	0.027	0.030	0.011	0.011	0.009	0.000	0.000	0.000	0.000	0.000	3.68E-07	6.75E-06	5.20E-07	7.639894	0.006
554437.97	4196109.01	0.026	0.028	0.011	0.011	0.009	0.000	0.000	0.000	0.000	0.000	3.47E-07	6.37E-06	4.91E-07	7.2118607	0.006
554757.97	4196109.01	0.012	0.013	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.59E-07	2.94E-06	2.26E-07	3.3228156	0.003
554777.97	4196109.01	0.011	0.012	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.49E-07	2.75E-06	2.12E-07	3.1142719	0.002
554317.97	4196129.01	0.031	0.034	0.013	0.013	0.010	0.000	0.000	0.000	0.000	0.000	4.22E-07	7.75E-06	5.97E-07	8.7641109	0.007
554337.97	4196129.01	0.029	0.031	0.012	0.012	0.010	0.000	0.000	0.000	0.000	0.000	3.89E-07	7.15E-06	5.51E-07	8.086665	0.006
554397.97	4196129.01	0.025	0.027	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000	3.37E-07	6.18E-06	4.77E-07	6.9984588	0.005
554417.97	4196129.01	0.025	0.027	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000	3.30E-07	6.05E-06	4.66E-07	6.8476082	0.005
554437.97	4196129.01	0.023	0.025	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000	3.14E-07	5.76E-06	4.44E-07	6.5154081	0.005
554717.97	4196129.01	0.012	0.013	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.60E-07	2.97E-06	2.28E-07	3.3543947	0.003
554737.97	4196129.01	0.011	0.012	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.53E-07	2.82E-06	2.17E-07	3.1935878	0.002
554757.97	4196129.01	0.011	0.012	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.48E-07	2.73E-06	2.10E-07	3.0850212	0.002
554777.97	4196129.01	0.011	0.011	0.004	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1.42E-07	2.61E-06	2.01E-07	2.9524636	0.002
554317.97	4196149.01	0.027	0.029	0.011	0.011	0.009	0.000	0.000	0.000	0.000	0.000	3.64E-07	6.70E-06	5.16E-07	7.5772053	0.006
554397.97	4196149.01	0.022	0.024	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000	3.01E-07	5.53E-06	4.26E-07	6.2558867	0.005
554417.97	4196149.01	0.022	0.024	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000	2.96E-07	5.44E-06	4.19E-07	6.1522188	0.005
554437.97	4196149.01	0.021	0.023	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000	2.83E-07	5.21E-06	4.01E-07	5.8897371	0.005
554697.97	4196149.01	0.012	0.013	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.55E-07	2.87E-06	2.21E-07	3.2498594	0.003
554717.97	4196149.01	0.011	0.012	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.50E-07	2.77E-06	2.13E-07	3.1329546	0.002
554737.97	4196149.01	0.011	0.012	0.004	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1.45E-07	2.68E-06	2.06E-07	3.0271214	0.002
554757.97	4196149.01	0.010	0.011	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.39E-07	2.56E-06	1.97E-07	2.9006408	0.002
554777.97	4196149.01	0.010	0.011	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.34E-07	2.47E-06	1.90E-07	2.7958887	0.002
554317.97	4196169.01	0.024	0.026	0.010	0.010	0.008	0.000	0.000	0.000	0.000	0.000	3.18E-07	5.84E-06	4.50E-07	6.6097981	0.005
554377.97	4196169.01	0.021	0.023	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000	2.80E-07	5.15E-06	3.97E-07	5.829586	0.005
554397.97	4196169.01	0.020	0.022	0.008	0.008	0.007	0.000	0.000	0.000	0.000	0.000	2.74E-07	5.04E-06	3.88E-07	5.706301	0.004
554417.97	4196169.01	0.020	0.021	0.008	0.008	0.007	0.000	0.000	0.000	0.000	0.000	2.65E-07	4.89E-06	3.76E-07	5.5364219	0.004
554437.97	4196169.01	0.019	0.021	0.008	0.008	0.006	0.000	0.000	0.000	0.000	0.000	2.55E-07	4.72E-06	3.63E-07	5.3334616	0.004
554697.97	4196169.01	0.011	0.012	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.48E-07	2.73E-06	2.10E-07	3.0925668	0.002
554717.97	4196169.01	0.011	0.011	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.41E-07	2.61E-06	2.01E-07	2.9512241	0.002
554737.97	4196169.01	0.010	0.011	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.36E-07	2.50E-06	1.92E-07	2.8280538	0.002
554757.97	4196169.01	0.010	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.28E-07	2.36E-06	1.82E-07	2.6703747	0.002
554777.97	4196169.01	0.009	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.22E-07	2.24E-06	1.73E-07	2.5389084	0.002
554317.97	4196189.01	0.021	0.023	0.009	0.009	0.007	0.000	0.000	0.000	0.000	0.000	2.85E-07	5.26E-06	4.04E-07	5.9457561	0.005
554337.97	4196189.01	0.020	0.022	0.008	0.008	0.007	0.000	0.000	0.000	0.000	0.000	2.75E-07	5.07E-06	3.90E-07	5.738595	0.004
554697.97	4196189.01	0.011	0.012	0.004	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1.44E-07	2.66E-06	2.05E-07	3.011902	0.002
554717.97	4196189.01	0.010	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.28E-07	2.35E-06	1.81E-07	2.6638913	0.002
554737.97	4196189.01	0.009	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.20E-07	2.21E-06	1.70E-07	2.5032958	0.002
554757.97	4196189.01	0.009	0.009	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.15E-07	2.11E-06	1.62E-07	2.382561	0.002
554777.97	4196189.01	0.008	0.009	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1.10E-07	2.03E-06	1.56E-07	2.2968306	0.002
554717.97	4196209.01	0.009	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.18E-07	2.17E-06	1.67E-07	2.4548951	0.002
554737.97	4196209.01	0.008	0.009	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1.08E-07	1.99E-06	1.53E-07	2.2537066	0.002
554757.97	4196209.01	0.008	0.009	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1.05E-07	1.94E-06	1.49E-07	2.1907479	0.002
554777.97	4196209.01	0.007	0.008	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	1.00E-07	1.84E-06	1.42E-07	2.0855747	0.002
554717.97	4196229.01	0.009	0.009	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.16E-07	2.13E-06	1.64E-07	2.4114359	0.002
554737.97	4196229.01	0.007	0.008	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	9.96E-08	1.83E-06	1.41E-07	2.0710257	0.002
554757.97	4196229.01	0.007	0.008	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	9.39E-08	1.72E-06	1.33E-07	1.9515795	0.002
554777.97	4196229.01	0.006	0.007	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	8.71E-08	1.60E-06	1.23E-07	1.8112966	0.001
554737.97	4196249.01	0.006	0.007	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	8.42E-08	1.55E-06	1.19E-07	1.7492912	0.001
554757.97	4196249.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.84E-08	1.44E-06	1.11E-07	1.6286473	0.001
554777.97	4196249.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.57E-08	1.39E-06	1.07E-07	1.5723974	0.001
554737.97	4196269.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.76E-08	1.43E-06	1.10E-07	1.6131646	0.001
554757.97	4196269.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.09E-08	1.30E-06	1.00E-07	1.4720769	0.001
554777.97	4196269.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.95E-08	1.28E-06	9.83E-08	1.4436256	0.001
554317.97	4196289.01	0.011	0.012	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.54E-07	2.82E-06	2.17E-07	3.1894695	0.002
554337.97	4196289.01	0.012	0.013	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.57E-07	2.89E-06	2.23E-07	3.2690663	0.003
554357.97	4196289.01	0.012	0.013	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.56E-07	2.86E-06	2.20E-07	3.2356954	0.003
554397.97	4196289.01	0.011	0.012	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.51E-07	2.77E-06	2.13E-07	3.1335116	0.002
554417.97	4196289.01	0.011	0.012	0.005	0.005	0.004	0.000	0.000	0.000	0.000	0.000	1.47E-07	2.70E-06	2.08E-07	3.0527435	0.002
554437.97	4196289.01	0.011	0.012	0.004	0.004	0.004	0.000	0.000	0.000	0.000	0.000	1.46E-07	2.68E-06	2.06E-07	3.0293555	0.002
554577.97	4196289.01	0.009	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.23E-07	2.26E-06	1.74E-07	2.5559533	0.002
554597.97	4196289.01	0.009	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.20E-07	2.20E-06	1.69E-07	2.4836099	0.002
554757.97	4196289.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.47E-08	1.19E-06	9.15E-08	1.3438973	0.001
554777.97	4196289.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.22E-08	1.14E-06	8.80E-08	1.2919728	0.001
554337.97	4196309.01	0.010	0.011	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.33E-07	2.45E-06	1.89E-07	2.7701564	0.002
554357.97	4196309.01	0.010	0.011	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.33E-07	2.44E-06	1.88E-07	2.7648241	0.002
554377.97	4196309.01	0.010	0.011	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.32E-07	2.43E-06	1.87E-07	2.7469334	0.002
554397.97	4196309.01	0.010	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.29E-07	2.36E-06	1.82E-07	2.6716486	0.002

554417.97	4196309.01	0.009	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.26E-07	2.32E-06	1.79E-07	2.6237292	0.002
554477.97	4196309.01	0.010	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.29E-07	2.36E-06	1.82E-07	2.6697804	0.002
554497.97	4196309.01	0.009	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.25E-07	2.30E-06	1.77E-07	2.6058572	0.002
554517.97	4196309.01	0.009	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.22E-07	2.25E-06	1.73E-07	2.5442874	0.002
554537.97	4196309.01	0.009	0.010	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.20E-07	2.20E-06	1.70E-07	2.4919157	0.002
554557.97	4196309.01	0.009	0.009	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	1.16E-07	2.13E-06	1.64E-07	2.4144582	0.002
554577.97	4196309.01	0.008	0.009	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1.10E-07	2.01E-06	1.55E-07	2.2785863	0.002
554597.97	4196309.01	0.008	0.009	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1.05E-07	1.93E-06	1.49E-07	2.1875024	0.002
554757.97	4196309.01	0.004	0.005	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	5.73E-08	1.05E-06	8.11E-08	1.1907921	0.001
554777.97	4196309.01	0.004	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	5.52E-08	1.01E-06	7.81E-08	1.1470571	0.001
554477.97	4196329.01	0.008	0.009	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1.13E-07	2.07E-06	1.59E-07	2.339763	0.002
554497.97	4196329.01	0.008	0.009	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1.08E-07	1.99E-06	1.53E-07	2.2494682	0.002
554517.97	4196329.01	0.008	0.009	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1.06E-07	1.94E-06	1.50E-07	2.1998524	0.002
554537.97	4196329.01	0.008	0.008	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1.05E-07	1.92E-06	1.48E-07	2.1759348	0.002
554557.97	4196329.01	0.008	0.008	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	1.01E-07	1.86E-06	1.43E-07	2.1053627	0.002
554397.97	4196349.01	0.007	0.008	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	9.74E-08	1.79E-06	1.38E-07	2.021499	0.002
554417.97	4196349.01	0.007	0.007	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	9.19E-08	1.69E-06	1.30E-07	1.9081509	0.001
554437.97	4196349.01	0.006	0.007	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	8.48E-08	1.56E-06	1.20E-07	1.7599529	0.001
554597.97	4196349.01	0.006	0.007	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	8.30E-08	1.52E-06	1.17E-07	1.7223935	0.001
554617.97	4196349.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.12E-08	1.31E-06	1.01E-07	1.4788312	0.001
554357.97	4196369.01	0.006	0.007	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	8.11E-08	1.49E-06	1.15E-07	1.6827301	0.001
554377.97	4196369.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.69E-08	1.41E-06	1.09E-07	1.5966317	0.001
554397.97	4196369.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.38E-08	1.35E-06	1.04E-07	1.5310611	0.001
554417.97	4196369.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.44E-08	1.36E-06	1.05E-07	1.5437289	0.001
554437.97	4196369.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.40E-08	1.36E-06	1.05E-07	1.5359992	0.001
554457.97	4196369.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.47E-08	1.37E-06	1.06E-07	1.5500888	0.001
554477.97	4196369.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.90E-08	1.45E-06	1.12E-07	1.6408085	0.001
554497.97	4196369.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.97E-08	1.46E-06	1.13E-07	1.6545501	0.001
554517.97	4196369.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.43E-08	1.36E-06	1.05E-07	1.54181	0.001
554537.97	4196369.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.50E-08	1.38E-06	1.06E-07	1.5575301	0.001
554557.97	4196369.01	0.006	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.51E-08	1.38E-06	1.06E-07	1.5593632	0.001
554577.97	4196369.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.91E-08	1.27E-06	9.78E-08	1.4353224	0.001
554597.97	4196369.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.68E-08	1.23E-06	9.45E-08	1.3874157	0.001
554617.97	4196369.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.45E-08	1.18E-06	9.11E-08	1.3382618	0.001
554357.97	4196389.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.82E-08	1.25E-06	9.64E-08	1.4149409	0.001
554377.97	4196389.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.71E-08	1.23E-06	9.49E-08	1.3930362	0.001
554397.97	4196389.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.43E-08	1.18E-06	9.09E-08	1.3345501	0.001
554417.97	4196389.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.52E-08	1.20E-06	9.22E-08	1.353075	0.001
554437.97	4196389.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.71E-08	1.23E-06	9.49E-08	1.392786	0.001
554457.97	4196389.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.05E-08	1.29E-06	9.96E-08	1.4626369	0.001
554477.97	4196389.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.34E-08	1.35E-06	1.04E-07	1.5238861	0.001
554497.97	4196389.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	7.06E-08	1.30E-06	9.98E-08	1.4657138	0.001
554517.97	4196389.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.67E-08	1.22E-06	9.43E-08	1.3853189	0.001
554537.97	4196389.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.43E-08	1.18E-06	9.09E-08	1.3339787	0.001
554557.97	4196389.01	0.005	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.08E-08	1.12E-06	8.60E-08	1.2626644	0.001
554577.97	4196389.01	0.004	0.005	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	5.86E-08	1.07E-06	8.28E-08	1.2159062	0.001
554637.97	4196409.01	0.003	0.004	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	4.37E-08	8.02E-07	6.18E-08	0.9072178	0.001
554657.97	4196409.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	4.19E-08	7.69E-07	5.93E-08	0.8702118	0.001
554537.97	4196429.01	0.003	0.004	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	4.38E-08	8.03E-07	6.19E-08	0.9088197	0.001
554557.97	4196429.01	0.003	0.004	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	4.46E-08	8.18E-07	6.30E-08	0.9255658	0.001
554617.97	4196429.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	4.24E-08	7.78E-07	6.00E-08	0.8805992	0.001
554637.97	4196429.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	4.10E-08	7.52E-07	5.79E-08	0.8508071	0.001
554537.97	4196449.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.99E-08	7.32E-07	5.64E-08	0.8282268	0.001
554557.97	4196449.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	4.14E-08	7.60E-07	5.86E-08	0.8599476	0.001
554577.97	4196449.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	4.07E-08	7.46E-07	5.75E-08	0.843769	0.001
554597.97	4196449.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	4.01E-08	7.35E-07	5.66E-08	0.831406	0.001
554617.97	4196449.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.93E-08	7.22E-07	5.56E-08	0.8165213	0.001
554637.97	4196449.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.85E-08	7.07E-07	5.45E-08	0.7997052	0.001
554577.97	4196469.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.64E-08	6.67E-07	5.14E-08	0.7544481	0.001
554597.97	4196469.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.64E-08	6.67E-07	5.14E-08	0.7548571	0.001
554617.97	4196469.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.64E-08	6.67E-07	5.14E-08	0.7553308	0.001
CONCUNIT ug	/m^3															
DEPUNIT g/m	^2															

Terminal One Construction HRA

Cancer Risk, Hazard Index and $PM_{2.5}$ Concentration Calculations - Offsite Residential - with Tier 4 Final equipment

						Exposure Duration (Days)				DPM		$PM_{2.5}$	
					Start Date	10/1/2023	12/31/2023	12/31/2025		Emisions (tons)	Emission Rate (g/s)	Emisions (tons)	Emission Rate (g/s)
					Stop Date	12/30/2023	12/30/2025						
Source		Year	Start Date	End Date	Calendar Days	3rd Trimester	0<2	2<9	Exposure Duration	Tier 4F	Tier 4F	Tier 4F	Tier 4F
Construction Equipment	PAREA	2023	10/1/2023	12/31/2023	91	90	0	1	91	0.00	0.001	0.00	0.001
Construction Equipment	PAREA	2024	1/1/2024	12/31/2024	365	0	365	0	365	0.01	0.001	0.01	0.001
Construction Equipment	PAREA	2025	1/1/2025	12/31/2025	364	0	363	1	364	0.00	0.000	0.00	0.000
Construction Equipment	PAREA	2026	1/1/2026	12/31/2026	364	0	0	364	364	0.00	0.000	0.00	0.000
Construction Equipment	PAREA	2027	1/1/2027	10/1/2027	273	0	0	273	273	0.00	0.000	0.00	0.000
Haul Trucks	ARLN	2023	10/1/2023	12/31/2023	91	90	0	1	91	0.00	0.000	0.00	0.000
Haul Trucks	ARLN	2024	1/1/2024	12/31/2024	365	0	365	0	365	0.00	0.000	0.00	0.000
Haul Trucks	ARLN	2025	1/1/2025	12/31/2025	364	0	363	1	364	0.00	0.000	0.00	0.000
Haul Trucks	ARLN	2026	1/1/2026	12/31/2026	364	0	0	364	364	0.00	0.000	0.00	0.000
Haul Trucks	ARLN	2027	1/1/2027	10/1/2027	273	0	0	273	273	0.00	0.000	0.00	0.000
										0.02		0.02	

Cancer Risk Factors

	Abbreviation	UOM	3rd Trimester	0<2	2<9	
Daily Breathing Rate	DBR	L/kg-day	361	1090	631	
Fraction Of Time At Home	FAH	unitless	1	1	1	Conservatively assume risk at nearby schools >1
Exposure Frequency	EF	days/year	0.96	0.96	0.96	
Age Sensitivity Factor	ASF	unitless	10	10	3	
Inhalation Absorption Factor	A	unitless	1	1	1	
Conversion Factor	CF_1	m^3/L	0.001	0.001	0.001	
Conversion Factor	CF_2	$\mu g/m^3$	0.001	0.001	0.001	
Cancer Potency Factor (diesel exhaust)	CPF	mg/kg-day^{-1}	1.1	1.1	1.1	
Averaging Time (for residential exposure)	AT	years	70.00	70.00	70.00	

SOURCE: Office of Environmental Health Hazard Assessment, 2015. *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments* . February 2015

Daily breathing rate for residential receptor is based on the OEHHA 95th percentile moderate intensity breathing rates (OEHHA Table 5.7).

Fraction of time at home is set to values per OEHHA Table 8.4 for residential since the nearest school has an unmitigated cancer risk of <1 per million.

Inhalation cancer potency factor from OEHHA Table 7.1

Hazard Index

Chronic Inhalation	REL	$\mu g/m^3$	5

Intake Factor for Inhalation, IF (m^3/kg-day) = DBR*FAH*EF*ED*ASF*A*CF/AT

Source	3rd Trimester	0<2	2<9
PAREA	0.012	0.000	0.000
PAREA	0.000	0.149	0.000
PAREA	0.000	0.148	0.000
PAREA	0.000	0.000	0.026
PAREA	0.000	0.000	0.019
ARLN	0.012	0.000	0.000
ARLN	0.000	0.149	0.000
ARLN	0.000	0.148	0.000
ARLN	0.000	0.000	0.026
ARLN	0.000	0.000	0.019

Risk Calculation Part 1, R1 = IF*CPF*CF

3rd Trimester	0<2	2<9
1.34E-05	0.00E+00	7.81E-08
0.00E+00	1.64E-04	0.00E+00
0.00E+00	1.63E-04	7.81E-08
0.00E+00	0.00E+00	2.84E-05
0.00E+00	0.00E+00	2.13E-05
1.34E-05	0.00E+00	7.81E-08
0.00E+00	1.64E-04	0.00E+00
0.00E+00	1.63E-04	7.81E-08
0.00E+00	0.00E+00	2.84E-05
0.00E+00	0.00E+00	2.13E-05

	Cancer Risk	**UTM X**	**UTM Y**
MAX - Tier 4 Final	2.36	554278.0	4195929.01
1313 Sanderling Island			

HI	**UTM X**	**UTM Y**
0.00	554278.0	4195929.01

$PM_{2.5}$ Conc.	**UTM X**	**UTM Y**
0.002	554278.0	4195929.01

$PM_{2.5}$ concentration, $C_{PM2.5}$ ($\mu g/m^3$) - at max. HI receptor

X (UTM)	Y (UTM)	Project Construction										$PM_{2.5}$ Conc.
		PAREA	PAREA	PAREA	PAREA	PAREA	ARLN	ARLN	ARLN	ARLN	ARLN	$\mu g/m^3$
		2023	2024	2025	2026	2027	2023	2024	2025	2026	2027	Max. Annual
	Index Lookup HIDE	1	2	3	4	5	6	7	8	9	10	
554277.97	4195929.010	0.007	0.009	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.002

Diesel Particulate Matter concentration, C_{DPM} ($\mu g/m^3$)

X (UTM)	Y (UTM)	Project Construction									
		PAREA	PAREA	PAREA	PAREA	PAREA	ARLN	ARLN	ARLN	ARLN	ARLN
		2023	2024	2025	2026	2027	2023	2024	2025	2026	2027
	Index Lookup HIDE	1	2	3	4	5	6	7	8	9	10
554517.97	4195689.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
554537.97	4195689.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
554557.97	4195689.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
554577.97	4195689.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
554597.97	4195689.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000

Risk Calculation Part 2

Cancer Risk = $\sum$R1*C_{DPM}				HI
3rd Trimester	0<2	2<9	Total	C_{DPM}/REL
				unitless
	Source: All			
2.05E-08	4.39E-07	3.78E-08	0.4975545	0.000
1.95E-08	4.17E-07	3.58E-08	0.4722408	0.000
1.85E-08	3.96E-07	3.40E-08	0.4480408	0.000
1.75E-08	3.75E-07	3.22E-08	0.4249722	0.000
1.66E-08	3.56E-07	3.06E-08	0.4031212	0.000

554617.97	4195689.01	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.58E-08	3.38E-07	2.90E-08	0.3824801	0.000
554637.97	4195689.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.49E-08	3.21E-07	2.75E-08	0.363013	0.000
554477.97	4195709.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.38E-08	5.10E-07	4.39E-08	0.578165	0.000
554497.97	4195709.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.25E-08	4.83E-07	4.15E-08	0.5468803	0.000
554517.97	4195709.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.14E-08	4.58E-07	3.94E-08	0.5189407	0.000
554537.97	4195709.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.03E-08	4.35E-07	3.74E-08	0.4922996	0.000
554557.97	4195709.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.92E-08	4.11E-07	3.53E-08	0.4652025	0.000
554577.97	4195709.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.81E-08	3.88E-07	3.33E-08	0.4394755	0.000
554597.97	4195709.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.71E-08	3.66E-07	3.15E-08	0.4148951	0.000
554617.97	4195709.01	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.61E-08	3.46E-07	2.97E-08	0.3918598	0.000
554637.97	4195709.01	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.52E-08	3.27E-07	2.81E-08	0.3703373	0.000
554657.97	4195709.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.44E-08	3.09E-07	2.66E-08	0.3503031	0.000
554677.97	4195709.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.37E-08	2.93E-07	2.52E-08	0.3319992	0.000
554697.97	4195709.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.30E-08	2.78E-07	2.39E-08	0.3150992	0.000
554477.97	4195729.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.50E-08	5.34E-07	4.59E-08	0.6051965	0.000
554497.97	4195729.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.36E-08	5.06E-07	4.35E-08	0.5732339	0.000
554517.97	4195729.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.22E-08	4.76E-07	4.09E-08	0.5392172	0.000
554537.97	4195729.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.09E-08	4.47E-07	3.84E-08	0.5062338	0.000
554557.97	4195729.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.96E-08	4.21E-07	3.61E-08	0.4763559	0.000
554577.97	4195729.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.85E-08	3.96E-07	3.41E-08	0.4490142	0.000
554597.97	4195729.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.74E-08	3.74E-07	3.21E-08	0.4237859	0.000
554617.97	4195729.01	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.65E-08	3.54E-07	3.04E-08	0.4003694	0.000
554637.97	4195729.01	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.56E-08	3.34E-07	2.87E-08	0.3782544	0.000
554657.97	4195729.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.47E-08	3.16E-07	2.71E-08	0.3575392	0.000
554677.97	4195729.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.39E-08	2.99E-07	2.57E-08	0.3384628	0.000
554697.97	4195729.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.31E-08	2.82E-07	2.42E-08	0.3195652	0.000
554437.97	4195749.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.98E-08	6.38E-07	5.49E-08	0.7229415	0.001
554457.97	4195749.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.79E-08	5.98E-07	5.14E-08	0.6775251	0.001
554477.97	4195749.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.61E-08	5.59E-07	4.81E-08	0.6334175	0.000
554497.97	4195749.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.44E-08	5.22E-07	4.49E-08	0.591602	0.000
554557.97	4195749.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.00E-08	4.29E-07	3.68E-08	0.48535	0.000
554577.97	4195749.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.88E-08	4.03E-07	3.46E-08	0.4562418	0.000
554597.97	4195749.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.77E-08	3.79E-07	3.26E-08	0.4294176	0.000
554617.97	4195749.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.67E-08	3.57E-07	3.07E-08	0.4047141	0.000
554637.97	4195749.01	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.57E-08	3.37E-07	2.90E-08	0.3820603	0.000
554657.97	4195749.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.49E-08	3.19E-07	2.74E-08	0.3617291	0.000
554677.97	4195749.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.41E-08	3.03E-07	2.60E-08	0.3433678	0.000
554697.97	4195749.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.34E-08	2.87E-07	2.47E-08	0.3252578	0.000
554437.97	4195769.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.10E-08	6.63E-07	5.70E-08	0.7511025	0.001
554457.97	4195769.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.91E-08	6.23E-07	5.36E-08	0.7056804	0.001
554477.97	4195769.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.71E-08	5.80E-07	4.98E-08	0.6566449	0.000
554657.97	4195769.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.51E-08	3.24E-07	2.78E-08	0.3665702	0.000
554677.97	4195769.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.42E-08	3.06E-07	2.63E-08	0.3467109	0.000
554697.97	4195769.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.35E-08	2.91E-07	2.50E-08	0.3292483	0.000
554437.97	4195789.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.22E-08	6.90E-07	5.93E-08	0.7818695	0.001
554457.97	4195789.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.00E-08	6.42E-07	5.52E-08	0.7270829	0.001
554477.97	4195789.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.79E-08	5.98E-07	5.14E-08	0.6774061	0.001
554697.97	4195789.01	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	1.37E-08	2.95E-07	2.53E-08	0.3339747	0.000
554337.97	4195809.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.14E-08	1.10E-06	9.46E-08	1.2460309	0.001
554457.97	4195809.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.09E-08	6.63E-07	5.70E-08	0.7508348	0.001
554317.97	4195829.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.07E-08	1.30E-06	1.12E-07	1.4705289	0.001
554337.97	4195829.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.52E-08	1.18E-06	1.02E-07	1.3385359	0.001
554357.97	4195829.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.00E-08	1.07E-06	9.21E-08	1.2128152	0.001
554297.97	4195849.01	0.005	0.007	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	7.26E-08	1.55E-06	1.34E-07	1.7586024	0.001
554317.97	4195849.01	0.005	0.006	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	6.51E-08	1.39E-06	1.20E-07	1.5764667	0.001
554337.97	4195849.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.94E-08	1.27E-06	1.09E-07	1.4394854	0.001
554357.97	4195849.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.35E-08	1.14E-06	9.84E-08	1.2966687	0.001
554377.97	4195849.01	0.004	0.004	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	4.75E-08	1.02E-06	8.74E-08	1.1516427	0.001
554297.97	4195869.01	0.006	0.007	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	7.75E-08	1.66E-06	1.43E-07	1.878125	0.001
554317.97	4195869.01	0.005	0.006	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	6.94E-08	1.49E-06	1.28E-07	1.6830746	0.001
554337.97	4195869.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.23E-08	1.33E-06	1.15E-07	1.5108819	0.001
554357.97	4195869.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.50E-08	1.18E-06	1.01E-07	1.3334468	0.001
554377.97	4195869.01	0.004	0.004	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	4.92E-08	1.05E-06	9.06E-08	1.1940752	0.001
554297.97	4195889.01	0.006	0.007	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	8.13E-08	1.74E-06	1.50E-07	1.9712738	0.001
554317.97	4195889.01	0.005	0.007	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	7.32E-08	1.57E-06	1.35E-07	1.7753702	0.001
554337.97	4195889.01	0.005	0.006	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	6.43E-08	1.38E-06	1.18E-07	1.557978	0.001
554357.97	4195889.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.64E-08	1.21E-06	1.04E-07	1.3677645	0.001
554457.97	4195889.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.44E-08	7.37E-07	6.33E-08	0.8344848	0.001
554477.97	4195889.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.15E-08	6.77E-07	5.81E-08	0.7664346	0.001
554277.97	4195909.01	0.007	0.009	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	9.64E-08	2.06E-06	1.77E-07	2.3370709	0.002
554297.97	4195909.01	0.006	0.008	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	8.37E-08	1.79E-06	1.54E-07	2.0282273	0.002
554317.97	4195909.01	0.006	0.007	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	7.50E-08	1.60E-06	1.38E-07	1.8173725	0.001
554337.97	4195909.01	0.005	0.006	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	6.50E-08	1.39E-06	1.20E-07	1.5766519	0.001

554437.97	4195909.01	0.003	0.003	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	3.80E-08	8.16E-07	7.01E-08	0.9236661	0.001
554457.97	4195909.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.48E-08	7.47E-07	6.41E-08	0.8455037	0.001
554477.97	4195909.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.21E-08	6.89E-07	5.92E-08	0.7802034	0.001
554497.97	4195909.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.94E-08	6.31E-07	5.42E-08	0.7148803	0.001
554277.97	4195929.01	0.007	0.009	0.004	0.004	0.003	0.000	0.000	0.000	0.000	0.000	9.72E-08	2.08E-06	1.79E-07	2.3564194	0.002
554297.97	4195929.01	0.006	0.008	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	8.41E-08	1.80E-06	1.55E-07	2.0389066	0.002
554317.97	4195929.01	0.006	0.007	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	7.54E-08	1.61E-06	1.39E-07	1.8287305	0.001
554337.97	4195929.01	0.005	0.006	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	6.56E-08	1.41E-06	1.21E-07	1.5919612	0.001
554357.97	4195929.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.75E-08	1.23E-06	1.06E-07	1.3944223	0.001
554417.97	4195929.01	0.003	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	4.19E-08	8.98E-07	7.72E-08	1.0170478	0.001
554437.97	4195929.01	0.003	0.003	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	3.81E-08	8.18E-07	7.02E-08	0.9260692	0.001
554457.97	4195929.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.54E-08	7.59E-07	6.52E-08	0.8594383	0.001
554477.97	4195929.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.24E-08	6.97E-07	5.98E-08	0.7887742	0.001
554497.97	4195929.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.96E-08	6.35E-07	5.46E-08	0.7195478	0.001
554297.97	4195949.01	0.006	0.007	0.003	0.003	0.003	0.000	0.000	0.000	0.000	0.000	8.24E-08	1.76E-06	1.52E-07	1.9985372	0.001
554317.97	4195949.01	0.005	0.007	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	7.33E-08	1.57E-06	1.35E-07	1.7774923	0.001
554337.97	4195949.01	0.005	0.006	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	6.52E-08	1.40E-06	1.20E-07	1.582021	0.001
554357.97	4195949.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.72E-08	1.23E-06	1.05E-07	1.3876841	0.001
554377.97	4195949.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.07E-08	1.09E-06	9.35E-08	1.2324052	0.001
554397.97	4195949.01	0.003	0.004	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	4.57E-08	9.81E-07	8.43E-08	1.1106674	0.001
554417.97	4195949.01	0.003	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	4.16E-08	8.92E-07	7.66E-08	1.010119	0.001
554437.97	4195949.01	0.003	0.003	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	3.83E-08	8.21E-07	7.05E-08	0.9302675	0.001
554457.97	4195949.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.51E-08	7.53E-07	6.46E-08	0.8525679	0.001
554477.97	4195949.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.20E-08	6.88E-07	5.91E-08	0.7794835	0.001
554497.97	4195949.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.92E-08	6.29E-07	5.39E-08	0.7116903	0.001
554317.97	4195969.01	0.005	0.006	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	6.91E-08	1.48E-06	1.27E-07	1.6781266	0.001
554337.97	4195969.01	0.005	0.006	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	6.24E-08	1.34E-06	1.15E-07	1.5162005	0.001
554357.97	4195969.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.58E-08	1.20E-06	1.03E-07	1.3555477	0.001
554377.97	4195969.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.01E-08	1.08E-06	9.24E-08	1.2176817	0.001
554397.97	4195969.01	0.003	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	4.52E-08	9.71E-07	8.33E-08	1.0990765	0.001
554417.97	4195969.01	0.003	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	4.10E-08	8.80E-07	7.56E-08	0.9969922	0.001
554437.97	4195969.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.74E-08	8.04E-07	6.90E-08	0.9099619	0.001
554457.97	4195969.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.38E-08	7.27E-07	6.24E-08	0.8235394	0.001
554477.97	4195969.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.10E-08	6.66E-07	5.72E-08	0.7543386	0.001
554317.97	4195989.01	0.005	0.006	0.003	0.003	0.002	0.000	0.000	0.000	0.000	0.000	6.44E-08	1.38E-06	1.19E-07	1.5654397	0.001
554337.97	4195989.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.75E-08	1.23E-06	1.06E-07	1.3965916	0.001
554357.97	4195989.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.19E-08	1.11E-06	9.57E-08	1.2620644	0.001
554377.97	4195989.01	0.004	0.004	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	4.72E-08	1.01E-06	8.70E-08	1.147807	0.001
554397.97	4195989.01	0.003	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	4.29E-08	9.21E-07	7.91E-08	1.0433768	0.001
554417.97	4195989.01	0.003	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	3.92E-08	8.42E-07	7.23E-08	0.9535753	0.001
554437.97	4195989.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.55E-08	7.62E-07	6.54E-08	0.8631972	0.001
554457.97	4195989.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.24E-08	6.97E-07	5.98E-08	0.7888328	0.001
554777.97	4195989.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.25E-08	3.19E-07	2.54E-08	0.3569635	0.000
554357.97	4196009.01	0.004	0.004	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	4.77E-08	1.02E-06	8.79E-08	1.160224	0.001
554377.97	4196009.01	0.003	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	4.33E-08	9.31E-07	7.99E-08	1.0538831	0.001
554397.97	4196009.01	0.003	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	3.95E-08	8.50E-07	7.29E-08	0.9619236	0.001
554417.97	4196009.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.69E-08	7.95E-07	6.82E-08	0.9000868	0.001
554437.97	4196009.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.36E-08	7.24E-07	6.21E-08	0.8195551	0.001
554457.97	4196009.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.07E-08	6.61E-07	5.67E-08	0.7483757	0.001
554757.97	4196009.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.27E-08	3.22E-07	2.57E-08	0.3600544	0.000
554777.97	4196009.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.20E-08	2.93E-07	2.38E-08	0.3284237	0.000
554317.97	4196029.01	0.004	0.005	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	5.40E-08	1.16E-06	9.97E-08	1.3163072	0.001
554337.97	4196029.01	0.004	0.004	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	4.78E-08	1.03E-06	8.82E-08	1.1639363	0.001
554397.97	4196029.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.63E-08	7.83E-07	6.71E-08	0.8859548	0.001
554417.97	4196029.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.42E-08	7.37E-07	6.31E-08	0.8339441	0.001
554437.97	4196029.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.14E-08	6.77E-07	5.80E-08	0.7665873	0.001
554457.97	4196029.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.87E-08	6.19E-07	5.30E-08	0.7006415	0.001
554737.97	4196029.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.29E-08	3.31E-07	2.64E-08	0.3699653	0.000
554757.97	4196029.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.22E-08	3.01E-07	2.44E-08	0.3377094	0.000
554317.97	4196049.01	0.003	0.004	0.002	0.002	0.002	0.000	0.000	0.000	0.000	0.000	4.70E-08	1.01E-06	8.69E-08	1.147961	0.001
554337.97	4196049.01	0.003	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	4.26E-08	9.19E-07	7.88E-08	1.0408129	0.001
554397.97	4196049.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.29E-08	7.11E-07	6.09E-08	0.8051041	0.001
554417.97	4196049.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.12E-08	6.74E-07	5.77E-08	0.7624719	0.001
554437.97	4196049.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.90E-08	6.26E-07	5.36E-08	0.7089001	0.001
554457.97	4196049.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.65E-08	5.73E-07	4.91E-08	0.6488911	0.000
554717.97	4196049.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.31E-08	3.44E-07	2.72E-08	0.3846103	0.000
554737.97	4196049.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.23E-08	3.09E-07	2.49E-08	0.3463196	0.000
554317.97	4196069.01	0.003	0.004	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	4.06E-08	8.80E-07	7.52E-08	0.9953661	0.001
554337.97	4196069.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.72E-08	8.05E-07	6.89E-08	0.9115437	0.001
554397.97	4196069.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.96E-08	6.40E-07	5.48E-08	0.7246634	0.001
554417.97	4196069.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.83E-08	6.13E-07	5.25E-08	0.6940986	0.001
554437.97	4196069.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.62E-08	5.68E-07	4.86E-08	0.6431381	0.000
554717.97	4196069.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.25E-08	3.26E-07	2.58E-08	0.3640958	0.000

554737.97	4196069.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.18E-08	2.95E-07	2.38E-08	0.3302957	0.000
554317.97	4196089.01	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.49E-08	7.60E-07	6.49E-08	0.8594808	0.001
554337.97	4196089.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.23E-08	7.02E-07	5.99E-08	0.7938783	0.001
554397.97	4196089.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.64E-08	5.74E-07	4.90E-08	0.6488643	0.000
554417.97	4196089.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.55E-08	5.54E-07	4.73E-08	0.6267146	0.000
554437.97	4196089.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.36E-08	5.15E-07	4.39E-08	0.5823714	0.000
554717.97	4196089.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.19E-08	3.09E-07	2.45E-08	0.3452684	0.000
554737.97	4196089.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.13E-08	2.79E-07	2.25E-08	0.3123884	0.000
554317.97	4196109.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	3.01E-08	6.59E-07	5.61E-08	0.7451245	0.001
554337.97	4196109.01	0.002	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.78E-08	6.08E-07	5.18E-08	0.6875469	0.001
554397.97	4196109.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.35E-08	5.13E-07	4.37E-08	0.5803818	0.000
554417.97	4196109.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.28E-08	5.00E-07	4.26E-08	0.5652822	0.000
554437.97	4196109.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.16E-08	4.73E-07	4.02E-08	0.5344681	0.000
554757.97	4196109.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.00E-08	2.38E-07	1.96E-08	0.2672179	0.000
554777.97	4196109.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.39E-09	2.19E-07	1.81E-08	0.2460889	0.000
554317.97	4196129.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.62E-08	5.79E-07	4.91E-08	0.6540525	0.000
554337.97	4196129.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.42E-08	5.32E-07	4.52E-08	0.6015166	0.000
554397.97	4196129.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.09E-08	4.61E-07	3.92E-08	0.5211502	0.000
554417.97	4196129.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.05E-08	4.53E-07	3.84E-08	0.5117678	0.000
554437.97	4196129.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.95E-08	4.32E-07	3.66E-08	0.4885557	0.000
554717.97	4196129.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.02E-08	2.50E-07	2.03E-08	0.2807813	0.000
554737.97	4196129.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.66E-09	2.30E-07	1.89E-08	0.2590449	0.000
554757.97	4196129.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.31E-09	2.18E-07	1.80E-08	0.2456761	0.000
554777.97	4196129.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.89E-09	2.06E-07	1.71E-08	0.2315487	0.000
554317.97	4196149.01	0.002	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	2.27E-08	5.06E-07	4.28E-08	0.5719667	0.000
554397.97	4196149.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.87E-08	4.18E-07	3.53E-08	0.4723104	0.000
554417.97	4196149.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.85E-08	4.15E-07	3.49E-08	0.4682471	0.000
554437.97	4196149.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.77E-08	4.00E-07	3.36E-08	0.4515041	0.000
554697.97	4196149.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.87E-09	2.40E-07	1.96E-08	0.2698237	0.000
554717.97	4196149.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.48E-09	2.26E-07	1.86E-08	0.2543704	0.000
554737.97	4196149.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.14E-09	2.15E-07	1.77E-08	0.2416289	0.000
554757.97	4196149.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.74E-09	2.03E-07	1.68E-08	0.2281674	0.000
554777.97	4196149.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.41E-09	1.93E-07	1.61E-08	0.2176086	0.000
554317.97	4196169.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.99E-08	4.51E-07	3.78E-08	0.5082908	0.000
554377.97	4196169.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.75E-08	3.98E-07	3.33E-08	0.4486726	0.000
554397.97	4196169.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.72E-08	3.94E-07	3.29E-08	0.4443039	0.000
554417.97	4196169.01	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.67E-08	3.91E-07	3.23E-08	0.4397735	0.000
554437.97	4196169.01	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.61E-08	3.85E-07	3.16E-08	0.4332033	0.000
554697.97	4196169.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.35E-09	2.21E-07	1.82E-08	0.248815	0.000
554717.97	4196169.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.90E-09	2.08E-07	1.72E-08	0.233906	0.000
554737.97	4196169.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.52E-09	1.97E-07	1.64E-08	0.2216162	0.000
554757.97	4196169.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.03E-09	1.84E-07	1.53E-08	0.2068958	0.000
554777.97	4196169.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.63E-09	1.73E-07	1.45E-08	0.1951558	0.000
554317.97	4196189.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.80E-08	4.29E-07	3.52E-08	0.4819577	0.000
554337.97	4196189.01	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	1.73E-08	4.09E-07	3.37E-08	0.4600079	0.000
554697.97	4196189.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.08E-09	2.10E-07	1.75E-08	0.2369078	0.000
554717.97	4196189.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.01E-09	1.83E-07	1.53E-08	0.2062124	0.000
554737.97	4196189.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.52E-09	1.71E-07	1.43E-08	0.1923992	0.000
554757.97	4196189.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.15E-09	1.61E-07	1.36E-08	0.182156	0.000
554777.97	4196189.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.89E-09	1.55E-07	1.30E-08	0.1748715	0.000
554717.97	4196209.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.37E-09	1.66E-07	1.40E-08	0.1876118	0.000
554737.97	4196209.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.76E-09	1.52E-07	1.28E-08	0.1713754	0.000
554757.97	4196209.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.57E-09	1.47E-07	1.24E-08	0.1661252	0.000
554777.97	4196209.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.25E-09	1.40E-07	1.18E-08	0.1576728	0.000
554717.97	4196229.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.23E-09	1.62E-07	1.37E-08	0.1831326	0.000
554737.97	4196229.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.21E-09	1.38E-07	1.17E-08	0.1563762	0.000
554757.97	4196229.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.85E-09	1.30E-07	1.10E-08	0.147033	0.000
554777.97	4196229.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.42E-09	1.21E-07	1.02E-08	0.1361971	0.000
554737.97	4196249.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.24E-09	1.16E-07	9.84E-09	0.1313816	0.000
554757.97	4196249.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.88E-09	1.08E-07	9.16E-09	0.1221691	0.000
554777.97	4196249.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.71E-09	1.04E-07	8.83E-09	0.1177952	0.000
554737.97	4196269.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.83E-09	1.07E-07	9.05E-09	0.1206842	0.000
554757.97	4196269.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.41E-09	9.74E-08	8.26E-09	0.110048	0.000
554777.97	4196269.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.32E-09	9.54E-08	8.09E-09	0.1078101	0.000
554317.97	4196289.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.54E-09	2.10E-07	1.78E-08	0.2373322	0.000
554337.97	4196289.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.78E-09	2.16E-07	1.83E-08	0.2436674	0.000
554357.97	4196289.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.68E-09	2.14E-07	1.81E-08	0.2417591	0.000
554397.97	4196289.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.38E-09	2.08E-07	1.76E-08	0.2348056	0.000
554417.97	4196289.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.14E-09	2.02E-07	1.72E-08	0.2287895	0.000
554437.97	4196289.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.07E-09	2.01E-07	1.70E-08	0.2273702	0.000
554577.97	4196289.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.65E-09	1.70E-07	1.44E-08	0.1920465	0.000
554597.97	4196289.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.44E-09	1.65E-07	1.40E-08	0.1865167	0.000
554757.97	4196289.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.02E-09	8.86E-08	7.52E-09	0.100169	0.000

554777.97	4196289.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.86E-09	8.51E-08	7.23E-09	0.0962323	0.000
554337.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.28E-09	1.82E-07	1.54E-08	0.2052909	0.000
554357.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.27E-09	1.82E-07	1.54E-08	0.2052725	0.000
554377.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.21E-09	1.81E-07	1.54E-08	0.2042634	0.000
554397.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.99E-09	1.76E-07	1.49E-08	0.1988055	0.000
554417.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.85E-09	1.73E-07	1.47E-08	0.1953743	0.000
554477.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.99E-09	1.76E-07	1.50E-08	0.1992379	0.000
554497.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.80E-09	1.72E-07	1.46E-08	0.1945136	0.000
554517.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.61E-09	1.68E-07	1.43E-08	0.1899717	0.000
554537.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.46E-09	1.65E-07	1.40E-08	0.1861386	0.000
554557.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.22E-09	1.60E-07	1.35E-08	0.1802901	0.000
554577.97	4196309.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.82E-09	1.51E-07	1.28E-08	0.1702685	0.000
554597.97	4196309.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.55E-09	1.45E-07	1.23E-08	0.1633658	0.000
554757.97	4196309.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.56E-09	7.83E-08	6.65E-09	0.0885321	0.000
554777.97	4196309.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.43E-09	7.54E-08	6.41E-09	0.0852351	0.000
554477.97	4196329.01	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.00E-09	1.54E-07	1.31E-08	0.1738016	0.000
554497.97	4196329.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.73E-09	1.48E-07	1.26E-08	0.1670723	0.000
554517.97	4196329.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.58E-09	1.45E-07	1.23E-08	0.1634353	0.000
554537.97	4196329.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.51E-09	1.43E-07	1.22E-08	0.1617456	0.000
554557.97	4196329.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.30E-09	1.38E-07	1.18E-08	0.1564965	0.000
554397.97	4196349.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.04E-09	1.32E-07	1.12E-08	0.1491669	0.000
554417.97	4196349.01	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.70E-09	1.25E-07	1.06E-08	0.1408669	0.000
554437.97	4196349.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.26E-09	1.15E-07	9.79E-09	0.1299897	0.000
554597.97	4196349.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.15E-09	1.13E-07	9.60E-09	0.127522	0.000
554617.97	4196349.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.42E-09	9.68E-08	8.24E-09	0.1094794	0.000
554357.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.02E-09	1.09E-07	9.34E-09	0.1237278	0.000
554377.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.77E-09	1.04E-07	8.86E-09	0.1174686	0.000
554397.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.57E-09	9.96E-08	8.50E-09	0.1127171	0.000
554417.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.61E-09	1.01E-07	8.58E-09	0.11372	0.000
554437.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.59E-09	1.00E-07	8.54E-09	0.1132161	0.000
554457.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.63E-09	1.01E-07	8.62E-09	0.1143124	0.000
554477.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.90E-09	1.07E-07	9.12E-09	0.1210454	0.000
554497.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.94E-09	1.08E-07	9.20E-09	0.1220853	0.000
554517.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.61E-09	1.01E-07	8.57E-09	0.1137777	0.000
554537.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.65E-09	1.02E-07	8.66E-09	0.1149492	0.000
554557.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.66E-09	1.02E-07	8.67E-09	0.1150974	0.000
554577.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.29E-09	9.37E-08	7.98E-09	0.1059549	0.000
554597.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.15E-09	9.06E-08	7.72E-09	0.1024393	0.000
554617.97	4196369.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.00E-09	8.74E-08	7.45E-09	0.0988431	0.000
554357.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.22E-09	9.18E-08	7.84E-09	0.1039131	0.000
554377.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.16E-09	9.05E-08	7.72E-09	0.1023571	0.000
554397.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.99E-09	8.67E-08	7.40E-09	0.0981123	0.000
554417.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.04E-09	8.80E-08	7.51E-09	0.0995289	0.000
554437.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.16E-09	9.06E-08	7.73E-09	0.1024956	0.000
554457.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.37E-09	9.52E-08	8.12E-09	0.1076717	0.000
554477.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.55E-09	9.92E-08	8.46E-09	0.1122169	0.000
554497.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.38E-09	9.54E-08	8.14E-09	0.107962	0.000
554517.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.14E-09	9.02E-08	7.70E-09	0.1020599	0.000
554537.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.98E-09	8.69E-08	7.41E-09	0.0982862	0.000
554557.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.77E-09	8.23E-08	7.02E-09	0.0930401	0.000
554577.97	4196389.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.63E-09	7.92E-08	6.76E-09	0.0896037	0.000
554637.97	4196409.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.71E-09	5.91E-08	5.04E-09	0.0668004	0.000
554657.97	4196409.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.60E-09	5.66E-08	4.83E-09	0.064076	0.000
554537.97	4196429.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.71E-09	5.90E-08	5.04E-09	0.0667499	0.000
554557.97	4196429.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.76E-09	6.01E-08	5.13E-09	0.0680076	0.000
554617.97	4196429.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.63E-09	5.72E-08	4.89E-09	0.0647428	0.000
554637.97	4196429.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.54E-09	5.53E-08	4.72E-09	0.0625574	0.000
554537.97	4196449.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.47E-09	5.37E-08	4.59E-09	0.0607469	0.000
554557.97	4196449.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.57E-09	5.58E-08	4.77E-09	0.0631112	0.000
554577.97	4196449.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.52E-09	5.47E-08	4.68E-09	0.0619349	0.000
554597.97	4196449.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.48E-09	5.40E-08	4.61E-09	0.0610423	0.000
554617.97	4196449.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.44E-09	5.30E-08	4.53E-09	0.059961	0.000
554637.97	4196449.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.39E-09	5.19E-08	4.43E-09	0.0587304	0.000
554577.97	4196469.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.25E-09	4.89E-08	4.18E-09	0.0553045	0.000
554597.97	4196469.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.25E-09	4.89E-08	4.18E-09	0.0553571	0.000
554617.97	4196469.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.25E-09	4.90E-08	4.18E-09	0.0554096	0.000
CONCUNIT ug	/m^3															
DEPUNIT g/m	^2															

Terminal One Construction HRA

Summary of AERMOD Source Outputs for All Offsite Receptors

X	Y	Lookup	PAREA	ARLN
			Construction	Truck Route
554517.97	4195689.01	554517.97_4195689.01	1.97102	1.52603
554537.97	4195689.01	554537.97_4195689.01	1.87033	1.54287
554557.97	4195689.01	554557.97_4195689.01	1.77407	1.55904
554577.97	4195689.01	554577.97_4195689.01	1.68231	1.57446
554597.97	4195689.01	554597.97_4195689.01	1.59539	1.58985
554617.97	4195689.01	554617.97_4195689.01	1.51328	1.60502
554637.97	4195689.01	554637.97_4195689.01	1.43584	1.61931
554477.97	4195709.01	554477.97_4195709.01	2.29097	1.63141
554497.97	4195709.01	554497.97_4195709.01	2.16653	1.65211
554517.97	4195709.01	554517.97_4195709.01	2.05533	1.68557
554537.97	4195709.01	554537.97_4195709.01	1.94929	1.71941
554557.97	4195709.01	554557.97_4195709.01	1.84151	1.73663
554577.97	4195709.01	554577.97_4195709.01	1.7392	1.74825
554597.97	4195709.01	554597.97_4195709.01	1.64147	1.75473
554617.97	4195709.01	554617.97_4195709.01	1.54989	1.75919
554637.97	4195709.01	554637.97_4195709.01	1.46433	1.76209
554657.97	4195709.01	554657.97_4195709.01	1.38469	1.76405
554677.97	4195709.01	554677.97_4195709.01	1.31191	1.77001
554697.97	4195709.01	554697.97_4195709.01	1.24471	1.77605
554477.97	4195729.01	554477.97_4195729.01	2.39767	1.80215
554497.97	4195729.01	554497.97_4195729.01	2.27039	1.85625
554517.97	4195729.01	554517.97_4195729.01	2.13512	1.87019
554537.97	4195729.01	554537.97_4195729.01	2.00402	1.86978
554557.97	4195729.01	554557.97_4195729.01	1.88522	1.87939
554577.97	4195729.01	554577.97_4195729.01	1.77648	1.8937
554597.97	4195729.01	554597.97_4195729.01	1.67613	1.91046
554617.97	4195729.01	554617.97_4195729.01	1.58298	1.92761
554637.97	4195729.01	554637.97_4195729.01	1.49501	1.94311
554657.97	4195729.01	554657.97_4195729.01	1.41262	1.95496
554677.97	4195729.01	554677.97_4195729.01	1.3368	1.95387
554697.97	4195729.01	554697.97_4195729.01	1.26178	1.9323
554437.97	4195749.01	554437.97_4195749.01	2.86498	1.96296
554457.97	4195749.01	554457.97_4195749.01	2.68431	1.99733
554477.97	4195749.01	554477.97_4195749.01	2.50888	2.02293
554497.97	4195749.01	554497.97_4195749.01	2.3427	2.01664
554557.97	4195749.01	554557.97_4195749.01	1.92035	2.02154
554577.97	4195749.01	554577.97_4195749.01	1.80461	2.03098
554597.97	4195749.01	554597.97_4195749.01	1.69795	2.04009
554617.97	4195749.01	554617.97_4195749.01	1.59972	2.04896
554637.97	4195749.01	554637.97_4195749.01	1.50963	2.05954
554657.97	4195749.01	554657.97_4195749.01	1.42872	2.08205
554677.97	4195749.01	554677.97_4195749.01	1.35558	2.1182
554697.97	4195749.01	554697.97_4195749.01	1.28351	2.1381
554437.97	4195769.01	554437.97_4195769.01	2.97618	2.13139
554457.97	4195769.01	554457.97_4195769.01	2.79534	2.19951
554477.97	4195769.01	554477.97_4195769.01	2.60032	2.22577
554657.97	4195769.01	554657.97_4195769.01	1.44728	2.23853
554677.97	4195769.01	554677.97_4195769.01	1.3683	2.24853
554697.97	4195769.01	554697.97_4195769.01	1.29874	2.28297

554437.97	4195789.01	554437.97_4195789.01	3.09756	2.34062
554457.97	4195789.01	554457.97_4195789.01	2.87963	2.3785
554477.97	4195789.01	554477.97_4195789.01	2.68201	2.41647
554697.97	4195789.01	554697.97_4195789.01	1.31677	2.45648
554337.97	4195809.01	554337.97_4195809.01	4.94214	2.42348
554457.97	4195809.01	554457.97_4195809.01	2.97308	2.59845
554317.97	4195829.01	554317.97_4195829.01	5.8333	2.6922
554337.97	4195829.01	554337.97_4195829.01	5.30838	2.75555
554357.97	4195829.01	554357.97_4195829.01	4.80855	2.78246
554297.97	4195849.01	554297.97_4195849.01	6.97687	3.02708
554317.97	4195849.01	554317.97_4195849.01	6.25271	3.07531
554337.97	4195849.01	554337.97_4195849.01	5.70765	3.21036
554357.97	4195849.01	554357.97_4195849.01	5.13997	3.21367
554377.97	4195849.01	554377.97_4195849.01	4.56389	3.12949
554297.97	4195869.01	554297.97_4195869.01	7.44994	3.48747
554317.97	4195869.01	554317.97_4195869.01	6.67434	3.56013
554337.97	4195869.01	554337.97_4195869.01	5.98957	3.63838
554357.97	4195869.01	554357.97_4195869.01	5.28477	3.5315
554377.97	4195869.01	554377.97_4195869.01	4.73096	3.49427
554297.97	4195889.01	554297.97_4195889.01	7.81785	4.02343
554317.97	4195889.01	554317.97_4195889.01	7.03865	4.14399
554337.97	4195889.01	554337.97_4195889.01	6.17493	4.05981
554357.97	4195889.01	554357.97_4195889.01	5.41941	3.93646
554457.97	4195889.01	554457.97_4195889.01	3.30052	3.75723
554477.97	4195889.01	554477.97_4195889.01	3.03011	3.74004
554277.97	4195909.01	554277.97_4195909.01	9.26886	4.70124
554297.97	4195909.01	554297.97_4195909.01	8.04154	4.64012
554317.97	4195909.01	554317.97_4195909.01	7.20299	4.7428
554337.97	4195909.01	554337.97_4195909.01	6.24709	4.5335
554437.97	4195909.01	554437.97_4195909.01	3.65327	4.15324
554457.97	4195909.01	554457.97_4195909.01	3.34272	4.12378
554477.97	4195909.01	554477.97_4195909.01	3.0831	4.13872
554497.97	4195909.01	554497.97_4195909.01	2.82372	4.0779
554277.97	4195929.01	554277.97_4195929.01	9.34238	5.47814
554297.97	4195929.01	554297.97_4195929.01	8.08095	5.33709
554317.97	4195929.01	554317.97_4195929.01	7.24533	5.38653
554337.97	4195929.01	554337.97_4195929.01	6.3052	5.16239
554357.97	4195929.01	554357.97_4195929.01	5.521	4.93886
554417.97	4195929.01	554417.97_4195929.01	4.02234	4.63554
554437.97	4195929.01	554437.97_4195929.01	3.66101	4.56893
554457.97	4195929.01	554457.97_4195929.01	3.39586	4.6393
554477.97	4195929.01	554477.97_4195929.01	3.11505	4.62442
554497.97	4195929.01	554497.97_4195929.01	2.84044	4.49824
554297.97	4195949.01	554297.97_4195949.01	7.917	6.13782
554317.97	4195949.01	554317.97_4195949.01	7.0388	6.04472
554337.97	4195949.01	554337.97_4195949.01	6.26231	5.93778
554357.97	4195949.01	554357.97_4195949.01	5.49123	5.62418
554377.97	4195949.01	554377.97_4195949.01	4.87503	5.39473
554397.97	4195949.01	554397.97_4195949.01	4.39176	5.25442
554417.97	4195949.01	554417.97_4195949.01	3.99248	5.16768
554437.97	4195949.01	554437.97_4195949.01	3.67507	5.17174
554457.97	4195949.01	554457.97_4195949.01	3.3664	5.13291
554477.97	4195949.01	554477.97_4195949.01	3.07634	5.03321
554497.97	4195949.01	554497.97_4195949.01	2.8074	4.91314
554317.97	4195969.01	554317.97_4195969.01	6.6406	6.78877

554337.97	4195969.01	554337.97_4195969.01	5.99745	6.6806
554357.97	4195969.01	554357.97_4195969.01	5.35973	6.48783
554377.97	4195969.01	554377.97_4195969.01	4.81284	6.23608
554397.97	4195969.01	554397.97_4195969.01	4.34227	6.03874
554417.97	4195969.01	554417.97_4195969.01	3.93709	5.90502
554437.97	4195969.01	554437.97_4195969.01	3.59173	5.77502
554457.97	4195969.01	554457.97_4195969.01	3.24919	5.55229
554477.97	4195969.01	554477.97_4195969.01	2.9746	5.44483
554317.97	4195989.01	554317.97_4195989.01	6.18825	7.80826
554337.97	4195989.01	554337.97_4195989.01	5.51879	7.42407
554357.97	4195989.01	554357.97_4195989.01	4.98523	7.15871
554377.97	4195989.01	554377.97_4195989.01	4.53199	6.9503
554397.97	4195989.01	554397.97_4195989.01	4.11785	6.73289
554417.97	4195989.01	554417.97_4195989.01	3.76141	6.61787
554437.97	4195989.01	554437.97_4195989.01	3.40357	6.2982
554457.97	4195989.01	554457.97_4195989.01	3.10876	6.12097
554777.97	4195989.01	554777.97_4195989.01	1.14538	62.74075
554357.97	4196009.01	554357.97_4196009.01	4.57652	8.05719
554377.97	4196009.01	554377.97_4196009.01	4.15546	7.68511
554397.97	4196009.01	554397.97_4196009.01	3.79124	7.38699
554417.97	4196009.01	554417.97_4196009.01	3.54534	7.41275
554437.97	4196009.01	554437.97_4196009.01	3.22658	7.10625
554457.97	4196009.01	554457.97_4196009.01	2.94481	6.84176
554757.97	4196009.01	554757.97_4196009.01	1.1699	59.93397
554777.97	4196009.01	554777.97_4196009.01	1.11271	44.21039
554317.97	4196029.01	554317.97_4196029.01	5.18413	10.99086
554337.97	4196029.01	554337.97_4196029.01	4.5836	9.8182
554397.97	4196029.01	554397.97_4196029.01	3.48529	8.30254
554417.97	4196029.01	554417.97_4196029.01	3.27852	8.31139
554437.97	4196029.01	554437.97_4196029.01	3.01201	8.0318
554457.97	4196029.01	554457.97_4196029.01	2.75142	7.6807
554737.97	4196029.01	554737.97_4196029.01	1.18923	64.53702
554757.97	4196029.01	554757.97_4196029.01	1.13382	47.83498
554317.97	4196049.01	554317.97_4196049.01	4.50747	12.71616
554337.97	4196049.01	554337.97_4196049.01	4.0876	11.33493
554397.97	4196049.01	554397.97_4196049.01	3.15944	9.33172
554417.97	4196049.01	554417.97_4196049.01	2.98993	9.34462
554437.97	4196049.01	554437.97_4196049.01	2.77794	9.12751
554457.97	4196049.01	554457.97_4196049.01	2.54134	8.68632
554717.97	4196049.01	554717.97_4196049.01	1.20085	75.2259
554737.97	4196049.01	554737.97_4196049.01	1.13989	54.29406
554317.97	4196069.01	554317.97_4196069.01	3.89276	14.59245
554337.97	4196069.01	554337.97_4196069.01	3.56716	12.85431
554397.97	4196069.01	554397.97_4196069.01	2.8345	10.52596
554417.97	4196069.01	554417.97_4196069.01	2.71234	10.68006
554437.97	4196069.01	554437.97_4196069.01	2.51152	10.28158
554717.97	4196069.01	554717.97_4196069.01	1.14804	68.63443
554737.97	4196069.01	554737.97_4196069.01	1.0947	50.04941
554317.97	4196089.01	554317.97_4196089.01	3.34333	16.72955
554337.97	4196089.01	554337.97_4196089.01	3.09215	14.53266
554397.97	4196089.01	554397.97_4196089.01	2.52687	11.98162
554417.97	4196089.01	554417.97_4196089.01	2.43735	12.32113
554437.97	4196089.01	554437.97_4196089.01	2.26312	11.85662
554717.97	4196089.01	554717.97_4196089.01	1.09291	64.11375
554737.97	4196089.01	554737.97_4196089.01	1.04506	45.10821

554317.97	4196109.01	554317.97_4196109.01	2.87786	19.23683
554337.97	4196109.01	554337.97_4196109.01	2.662	16.25463
554397.97	4196109.01	554397.97_4196109.01	2.24641	13.87595
554417.97	4196109.01	554417.97_4196109.01	2.18337	14.56935
554437.97	4196109.01	554437.97_4196109.01	2.06078	14.59475
554757.97	4196109.01	554757.97_4196109.01	0.94302	27.32727
554777.97	4196109.01	554777.97_4196109.01	0.88518	21.3294
554317.97	4196129.01	554317.97_4196129.01	2.50293	22.20518
554337.97	4196129.01	554337.97_4196129.01	2.31007	18.54384
554397.97	4196129.01	554397.97_4196129.01	1.99903	16.6169
554417.97	4196129.01	554417.97_4196129.01	1.95537	18.07769
554437.97	4196129.01	554437.97_4196129.01	1.86001	18.78814
554717.97	4196129.01	554717.97_4196129.01	0.94858	38.42023
554737.97	4196129.01	554737.97_4196129.01	0.90566	28.44547
554757.97	4196129.01	554757.97_4196129.01	0.87628	22.99487
554777.97	4196129.01	554777.97_4196129.01	0.83973	18.49744
554317.97	4196149.01	554317.97_4196149.01	2.16196	25.57689
554397.97	4196149.01	554397.97_4196149.01	1.78493	21.19902
554417.97	4196149.01	554417.97_4196149.01	1.75419	24.54615
554437.97	4196149.01	554437.97_4196149.01	1.67835	26.67754
554697.97	4196149.01	554697.97_4196149.01	0.9197	35.05362
554717.97	4196149.01	554717.97_4196149.01	0.88839	28.14496
554737.97	4196149.01	554737.97_4196149.01	0.85966	23.11717
554757.97	4196149.01	554757.97_4196149.01	0.82478	18.84384
554777.97	4196149.01	554777.97_4196149.01	0.79571	15.88456
554317.97	4196169.01	554317.97_4196169.01	1.88305	31.49882
554377.97	4196169.01	554377.97_4196169.01	1.66066	28.1539
554397.97	4196169.01	554397.97_4196169.01	1.62396	32.58993
554417.97	4196169.01	554417.97_4196169.01	1.57293	40.16606
554437.97	4196169.01	554437.97_4196169.01	1.51232	48.07993
554697.97	4196169.01	554697.97_4196169.01	0.87764	25.54521
554717.97	4196169.01	554717.97_4196169.01	0.83862	20.90168
554737.97	4196169.01	554737.97_4196169.01	0.8044	17.54538
554757.97	4196169.01	554757.97_4196169.01	0.76028	14.24394
554777.97	4196169.01	554777.97_4196169.01	0.72333	12.01536
554317.97	4196189.01	554317.97_4196189.01	1.68624	52.63812
554337.97	4196189.01	554337.97_4196189.01	1.62908	45.73583
554697.97	4196189.01	554697.97_4196189.01	0.85642	19.55533
554717.97	4196189.01	554717.97_4196189.01	0.75849	14.03141
554737.97	4196189.01	554737.97_4196189.01	0.71319	11.82788
554757.97	4196189.01	554757.97_4196189.01	0.67909	10.31044
554777.97	4196189.01	554777.97_4196189.01	0.65488	9.22195
554717.97	4196209.01	554717.97_4196209.01	0.69973	10.55034
554737.97	4196209.01	554737.97_4196209.01	0.64265	8.83972
554757.97	4196209.01	554757.97_4196209.01	0.62484	8.13806
554777.97	4196209.01	554777.97_4196209.01	0.59499	7.27848
554717.97	4196229.01	554717.97_4196229.01	0.6877	9.22567
554737.97	4196229.01	554737.97_4196229.01	0.5909	7.03449
554757.97	4196229.01	554757.97_4196229.01	0.55692	6.31009
554777.97	4196229.01	554777.97_4196229.01	0.51697	5.59422
554737.97	4196249.01	554737.97_4196249.01	0.49932	5.25227
554757.97	4196249.01	554757.97_4196249.01	0.46493	4.74116
554777.97	4196249.01	554777.97_4196249.01	0.44892	4.42568
554737.97	4196269.01	554737.97_4196269.01	0.46061	4.37818
554757.97	4196269.01	554757.97_4196269.01	0.42035	3.91556

554777.97	4196269.01	554777.97_4196269.01	0.41226	3.73086
554317.97	4196289.01	554317.97_4196289.01	0.91109	7.3998
554337.97	4196289.01	554337.97_4196289.01	0.9337	7.9897
554357.97	4196289.01	554357.97_4196289.01	0.92399	8.47722
554397.97	4196289.01	554397.97_4196289.01	0.8946	8.87897
554417.97	4196289.01	554417.97_4196289.01	0.87153	8.68564
554437.97	4196289.01	554437.97_4196289.01	0.86475	8.94688
554577.97	4196289.01	554577.97_4196289.01	0.72955	7.75298
554597.97	4196289.01	554597.97_4196289.01	0.70893	7.44095
554757.97	4196289.01	554757.97_4196289.01	0.38384	3.28306
554777.97	4196289.01	554777.97_4196289.01	0.36903	3.09087
554337.97	4196309.01	554337.97_4196309.01	0.79157	5.60179
554357.97	4196309.01	554357.97_4196309.01	0.78993	5.96128
554377.97	4196309.01	554377.97_4196309.01	0.78472	6.23632
554397.97	4196309.01	554397.97_4196309.01	0.76317	6.2033
554417.97	4196309.01	554417.97_4196309.01	0.74944	6.2244
554477.97	4196309.01	554477.97_4196309.01	0.76246	6.76048
554497.97	4196309.01	554497.97_4196309.01	0.74419	6.64394
554517.97	4196309.01	554517.97_4196309.01	0.72659	6.54004
554537.97	4196309.01	554537.97_4196309.01	0.71161	6.48131
554557.97	4196309.01	554557.97_4196309.01	0.68951	6.21829
554577.97	4196309.01	554577.97_4196309.01	0.65067	5.99036
554597.97	4196309.01	554597.97_4196309.01	0.62469	5.6561
554757.97	4196309.01	554757.97_4196309.01	0.34018	2.68791
554777.97	4196309.01	554777.97_4196309.01	0.3277	2.54456
554477.97	4196329.01	554477.97_4196329.01	0.66846	5.13078
554497.97	4196329.01	554497.97_4196329.01	0.64267	4.91109
554517.97	4196329.01	554517.97_4196329.01	0.62848	4.85
554537.97	4196329.01	554537.97_4196329.01	0.62162	4.88297
554557.97	4196329.01	554557.97_4196329.01	0.60146	4.72142
554397.97	4196349.01	554397.97_4196349.01	0.57784	3.45649
554417.97	4196349.01	554417.97_4196349.01	0.54542	3.32559
554437.97	4196349.01	554437.97_4196349.01	0.50304	3.12958
554597.97	4196349.01	554597.97_4196349.01	0.49221	3.36387
554617.97	4196349.01	554617.97_4196349.01	0.42261	2.87855
554357.97	4196369.01	554357.97_4196369.01	0.48114	2.44368
554377.97	4196369.01	554377.97_4196369.01	0.4565	2.38884
554397.97	4196369.01	554397.97_4196369.01	0.43773	2.36216
554417.97	4196369.01	554417.97_4196369.01	0.44133	2.4508
554437.97	4196369.01	554437.97_4196369.01	0.4391	2.50286
554457.97	4196369.01	554457.97_4196369.01	0.44311	2.5826
554477.97	4196369.01	554477.97_4196369.01	0.46903	2.77581
554497.97	4196369.01	554497.97_4196369.01	0.47295	2.82478
554517.97	4196369.01	554517.97_4196369.01	0.44072	2.64334
554537.97	4196369.01	554537.97_4196369.01	0.44521	2.68151
554557.97	4196369.01	554557.97_4196369.01	0.44573	2.69738
554577.97	4196369.01	554577.97_4196369.01	0.41027	2.49565
554597.97	4196369.01	554597.97_4196369.01	0.39657	2.43284
554617.97	4196369.01	554617.97_4196369.01	0.38251	2.37907
554357.97	4196389.01	554357.97_4196389.01	0.40461	1.93224
554377.97	4196389.01	554377.97_4196389.01	0.39833	1.95403
554397.97	4196389.01	554397.97_4196389.01	0.38159	1.92377
554417.97	4196389.01	554417.97_4196389.01	0.38687	2.00416
554437.97	4196389.01	554437.97_4196389.01	0.39821	2.10793
554457.97	4196389.01	554457.97_4196389.01	0.41817	2.2487

554477.97	4196389.01	554477.97_4196389.01	0.43567	2.37867
554497.97	4196389.01	554497.97_4196389.01	0.41903	2.31618
554517.97	4196389.01	554517.97_4196389.01	0.39604	2.20842
554537.97	4196389.01	554537.97_4196389.01	0.38136	2.1351
554557.97	4196389.01	554557.97_4196389.01	0.36097	2.0291
554577.97	4196389.01	554577.97_4196389.01	0.3476	1.96277
554637.97	4196409.01	554637.97_4196409.01	0.25937	1.41033
554657.97	4196409.01	554657.97_4196409.01	0.24879	1.35323
554537.97	4196429.01	554537.97_4196429.01	0.25988	1.2472
554557.97	4196429.01	554557.97_4196429.01	0.26466	1.29749
554617.97	4196429.01	554617.97_4196429.01	0.25179	1.27295
554637.97	4196429.01	554637.97_4196429.01	0.24327	1.23474
554537.97	4196449.01	554537.97_4196449.01	0.23686	1.05435
554557.97	4196449.01	554557.97_4196449.01	0.24592	1.13187
554577.97	4196449.01	554577.97_4196449.01	0.24129	1.12135
554597.97	4196449.01	554597.97_4196449.01	0.23775	1.11959
554617.97	4196449.01	554617.97_4196449.01	0.23349	1.11086
554637.97	4196449.01	554637.97_4196449.01	0.22868	1.09218
554577.97	4196469.01	554577.97_4196469.01	0.21577	0.92998
554597.97	4196469.01	554597.97_4196469.01	0.21588	0.9527
554617.97	4196469.01	554617.97_4196469.01	0.21601	0.97073
CONCUNIT ug	/m^3	CONCUNIT ug_/m^3		
DEPUNIT g/m	^2	DEPUNIT g/m_^2		