

3Roots San Diego Project
Environmental Impact Report
SCH No. 2018041065; Project No. 587128

Appendix U

3Roots Additional Center Line
BRT Analysis

June 2020

3Roots Additional Center Line BRT Analysis

INTRODUCTION

This appendix provides supplemental information to the publicly circulated Draft EIR for the 3Roots Project addressing the potential environmental effects of constructing Carroll Canyon Road improvements within the Project boundaries to accommodate potential future bus rapid transit (BRT) service in a center alignment within the Road.

The Draft EIR did not study the full implementation (full construction) of BRT along the Carroll Canyon corridor. Rather, the Draft EIR analyzed potential impacts associated with the disturbance footprint of an unimproved Irrevocable Offer of Dedication (IOD) adjacent to the Carroll Canyon Road right-of-way (ROW). This is incorporated into the project disturbance area as part of project impacts and is depicted on project maps as the IOD. The IOD is earmarked for transit dedication at no cost to Metropolitan Transit System (MTS)/San Diego Association of Governments (SANDAG). Furthermore, the Draft EIR indicated that BRT implementation feasibility, off-site east and west of 3Roots, would be undertaken by others based on future alignment studies. Those off-site studies would include detailed environmental assessment. The 3Roots Draft EIR disclosed known information and commitments on site relative to the BRT IOD and has left the detailed, precise footprint analysis off site relative to the BRT to the responsible agencies pending their implementation analysis and overall conditions existing at that time. This is appropriate relative to the EIR because detailed analysis of that design is speculative pending more refined plans closer to the time of BRT construction. This is also consistent with City requirements for applicants to provide IODs based upon potential future public transportation alignments reflected in adopted regional plans. Although SANDAG has not completed the updates to their Regional Transit Plan as of May 2020, the Draft Mira Mesa Community Plan Update is underway and identifies a center alignment for the BRT along Carroll Canyon Road. The timing of approval or implementation of the BRT is unknown, and feasibility studies would also be required east and west of the Project. Nevertheless, for planning consistency purposes, the analysis below supplements the discussion contained in the Draft EIR. It addresses potential impacts associated with the construction of specific design elements necessary to implement a future center-aligned BRT corridor within the existing road ROW and proposed IOD along Carroll Canyon Road. In summary, and as explained in more detail below, some of these construction impacts would vary slightly from those impacts already identified in the 3Roots DEIR; but none of the impacts would constitute new significant impacts under CEQA, require a new mitigation measure, or constitute a substantial increase in the severity of a previously identified environmental impact.

DESIGN ELEMENTS DESCRIPTION

Should the IOD be utilized, the majority of the on-site Carroll Canyon Road general alignment and grading would not change regardless of exact placement of BRT implementation (e.g., in a center-line alignment; see Figures 1a through 1g). At the eastern and western extents of on-site Carroll Canyon Road, however, retaining walls specific to the BRT would be required which would require additional grading.

At the west end of the property, adjacent to Camino Santa Fe, on the south side of Carroll Canyon Road, a retaining wall longer and taller than analyzed in the DEIR would be required to

accommodate a wider road with the utilized IOD. The footprint of this wall would be outside MHPA boundaries, as well as City Open Space mapped lots, and would be contained within the IOD mapped with the Project's vesting tentative map (VTM). This wall would incorporate and extend east from the 10-foot wall noted in the Draft EIR and incorporate the western wingwall associated with the undercrossing opening, adding approximately 1,000 linear feet to the length of the wall. Rather than being 10 feet in height at the western extent, the wall would range between 20 and 30 feet in height above ground. (Thirty feet was the maximum height of the wingwall feature as described in Draft EIR Section 5.3.)

At the east end of the property, at toe of slope adjacent to the future road, an area identified as IOD to MTS on Figure 3-29e of the Draft EIR would be used to implement a retaining wall approximately 1,200 feet in length and up to 15 feet in height. The retaining wall would be placed within the IOD at its southern edge. Grading south of future Carroll Canyon Road would remain the same as assessed in the Draft EIR south of the wall and up slope toward the mesa top and off-site uses. The disturbance area east and west of the wall would increase slightly to the south to accommodate construction of the wall (a combined total of 0.2 acre).

Off site and west of Camino Santa Fe¹, two retaining walls would be connected by an additional 140 feet of retaining wall on the north side of future Carroll Canyon Road, and the wall would be placed slightly more northerly. The wall would range up to a single point 29 feet in height.

Potential Effects

The discussion below addresses environmental effects associated with implementation of the BRT center alignment that vary from analyses in the Draft EIR. Issues addressed include biological resources, visual effects and neighborhood character, air quality, noise, and recreation,

Biological Resources

A longer retaining wall necessitated by the construction of the center alignment would be implemented at the west end of the reconstructed creek, and tie into the undercrossing wingwalls. This would result in deletion of a section of creek-side stabilization (revetment rip rap located out of the MHPA) that comprises part of the proposed project in this area. It also would pull toe-of-slope northerly by approximately 2 feet in this area, allowing for an incrementally wider and less impeded creek bottom. Additionally, the undercrossing of the road would be extended 49 linear feet to account for the expanded width of road ROW. Although this does not result in any additional biological resources impacts due to the extent of previously planned grading, it would slightly lessen the area available for creek restoration (by 0.03 acre) as a marginally larger area would be in undercrossing culvert rather than open air. It is also noted that the "openness ratio"² for the longer undercrossing is projected to be 3.48 using this potential design as opposed to the 4.0 ratio noted in the Draft EIR. The 3.48 openness ratio continues to exceed the ratio of 0.75, discussed in the Draft EIR as an appropriate/adequate openness ratio. This construction within the IOD would result in the MHPA increase associated with the Project being slightly reduced by 0.08 acre, from 6.68 acres to

¹ The Project has proposed improvements for the section of future Carroll Canyon Road West between Camino Santa Fe and a point southerly of the Fenton Business Park western boundary. These improvements are subject to future confirmation of road and BRT design between that point and a connection to Carroll Road to be completed by the City per Mira Mesa Public Facilities Financing Plan Projects T-5B and T-5A, respectively.

² Openness ratio refers to visibility of habitats through the culvert crossing and is a ratio of height x width/ length.

6.6 acres. The total MHPA associated with the Project would continue to exceed 150 acres. No new CEQA significant or unmitigated biological impacts would result from construction to accommodate a BRT center alignment.

The 0.2-acre total additional disturbance area necessary to implement the eastern wall within the on-site IOD at its eastern and western extents would incrementally increase impacts to Diegan coastal sage scrub (including disturbed), baccharis scrub and southern mixed chaparral; as well as 0.01 acre of impacts to RWQCB/CDFW jurisdictional resources and City wetlands (waters of the state, southern willow scrub vegetation). The construction to facilitate transit using the IOD reserved for MTS also would nominally increase upland habitat for the section of Carroll Canyon Road West (west of Camino Santa Fe). Combined, upland impacts would total: 0.84 acre of impacts to Diegan coastal sage scrub and baccharis scrub vegetation; and 0.03 acre of impacts to southern mixed chaparral. In addition, construction restrictions related to nesting season, or requiring construction-generated noise to be restricted to 60 dBA hourly at edge of occupied habitat would be required for California gnatcatcher, as required in the City MHPA Land Use Adjacency Guidelines (LUAGs) and detailed in the Draft EIR LUAGs discussions, with this specific quote of note: "Conformance with the MHPA LUAGs ...is a standard requirement as part of conditions of approval in the City and required to be included as 'Environmental Requirements' on future construction plans."

These potential de minimis incremental increases to impacts conservatively have been forwarded to the resource agencies (relative to the Biological Technical Report tables, as well as Habitat Reclamation and Mitigation Plan and Long-Term Habitat Management Plan documents; see EIR Appendices G and H) so that potential worst-case effects associated with potential future build of BRT on-site Carroll Canyon Road are known. These documents were provided to the resource agencies in September 2019, and approval of revisions was received in February 2020 in the form of the Resource Agency approved MHPA BLA.

Visual Effects and Neighborhood Character

Visually, the Project as a whole would remain generally the same with or without implementation of the BRT center-lane alignment. Carroll Canyon Road is already designed as a six-lane roadway, and residential/retail structures (comprising notable vertical/massing visual elements) and park features would remain the same. The creek would continue to provide a linear green element through the heart of the Project, and the park would continue to provide a notable open green feature in the central portion of the Project south of proposed Carroll Canyon Road.

The Draft EIR addressed substantial wing walls at each end of the proposed Carroll Canyon Road undercrossing. These features were described as extending between 40 to 225 feet in length, variously, and as being approximately 30 feet in height at their connections with the undercrossing opening. An additional retaining wall approximately 350 feet in length and 10 feet in height also was analyzed. As described above, these two features would be joined by an intervening stretch of wall, and the overall height would remain at 20 to 30 feet.

As described for the features assessed in the Draft EIR, the western wall east of Camino Santa Fe would be downslope, and therefore not very noticeable to future on-site Carroll Canyon Road users. It would be notable to future on-site trail users within the creek, although generally peripheral to view and not constituting a changed condition for those users (i.e., the pathway under the roadway and along the creek would not be available for use until the creek is reconstructed). Given their

recessed nature from most viewers, and the fact that trail users would be passing by them in order to access the underpass (as opposed to being part of a picnic area in a park, for example), view effects would not be significant. It is also expected that vegetation within the creek would obscure portions of these features as time passes, resulting in further lowering the less than significant effects for these users.

As an example, willows in the creek bottom would easily be expected to reach 30 feet in height at maturity. For travelers heading north along Camino Santa Fe (the feature would be downslope and generally “behind” southbound travelers given its location supporting the northern creek bench), a momentary view east along the creek would be a change from that currently seen, but also would be part of a much larger change from what is currently disturbed soil, and until recently, an active industrial use. The potential downslope, brief, and peripheral view in an area of upcoming cross traffic and where other (higher) project features would be coming into view, would render adverse effects of this wall on views minimal. Visual effects to these potential viewers are considered noticeable, but less than significant.

On the east side of the project, the potential retaining wall required to be constructed within the IOD would retain soil in an area already assessed for substantial slope cut in the EIR (ranging approximately 70 feet higher than the wall) and still lower than the mesa top. As described in the Draft EIR, cut would occur in an area along a steep downslope from southern mesa-top viewers, and edging uses are either protected fenced open space or driveway/parking). From the northern mesa, the retaining wall could be visible at a distance, but would be expected to be subsumed by the larger construction effort, and then intervening multi-story homes associated with Planning Area 18 as well as Carroll Canyon Road landscaping. As noted above, there are no existing users of Carroll Canyon Road on site, and so direct comparisons cannot be made by viewers of existing versus future conditions. Upon full Project implementation, the wall within the IOD to enable centerline BRT routing would be along the south side of the road, trees would be planted in front of it as shown on EIR Figure 3-21e edging Carroll Canyon Road, and it would be surmounted by the revegetation required for the slope modifications. This feature would not be out of the norm for other Essential Public Project roadways. Given its location, relatively limited visibility, height minimization due to slope surmounting it, and vegetative shielding along the roadway, visual effects also would be expected to be noticeable, but less than significant.

West of Camino Santa Fe along the north side of Carroll Canyon Road, the Draft EIR analyzed retaining walls attaining a maximum height of 14 feet. This is refined in the Final EIR to include three walls ranging from maximum heights of 5 to 17 feet and totaling 1,260 linear feet. With BRT construction, the easternmost portion of the wall (approximately 450 feet) would remain the same. For the more western part of the improvement the footprint would be pushed a little further north, into the easement dedicated to MTDB as part of the 2001-approved VTM 14555 overall, and a single higher wall feature connecting these two features and extending for a total of 1,400 linear feet (an additional 140 feet) would be implemented. The new longer wall would continue to the western terminus of Carroll Canyon Road West south of Fenton Business Park. This new portion of wall would range up to a single point 29 feet in height (highest point 12 feet higher, although height would vary from that single high point along the extent). As described in the Draft EIR, views to the new road approach from Camino Santa Fe would be peripheral, and could be of very short duration if the viewer is not stopped at the intersection. Carroll Canyon Road West also would constitute the fourth approach of an intersection in which attention would likely be drawn to the Carroll Canyon

Road entry into the Project, with monument signs and entry landscaping. As such, its visual importance to the overall view experience is likely to be diminished from Camino Santa Fe. Overall, the modification of BRT-related retaining walls into the graded setting in this disturbed and business-park setting, and immediately adjacent to wider streets, would result in a less-than-significant impact.

As noted in the Draft EIR, Carroll Canyon Road West does not currently exist, and the dirt road that is present is currently closed to through traffic. Once constructed, the road segment would have a landscaped buffer along both sides of the road. Vines and shrubbery would be installed along the north side of the road, between roadway users (the greatest anticipated number of potential viewers along the roadway) and the retaining walls. Pedestrians on the sidewalk would have more open views to the feature, but they would not be expecting a natural setting due to their location along an arterial roadway in an office/industrial area. Consistent with the Draft EIR conclusion, it is noted that the future setting is expected to be similar to the existing condition. Fenton Technology Park would remain to the north, and existing businesses to the south would continue to be present. The eastern boundary would continue to be the major arterial of Camino Santa Fe. Planned landscaping along the road would be notable. The consistency with the light industrial park setting, combined with landscaping, result in identification of a less than significant impact.

Air Quality

With regard to air quality, the retaining walls described above could require use of silos, limited batching activities and drilling rigs not used in the construction of shorter retaining features. The potential for air quality impacts associated with these machine types has been conservatively reviewed. It is anticipated that the addition of equipment required for the construction of the larger retaining walls would not result in a substantial increase to the peak daily construction period emissions previously estimated for the project such that an exceedance of the San Diego Air Pollution Control District (SDAPCD) thresholds would occur.

To confirm this, emissions from the equipment required for the large retaining walls were estimated using CalEEMod 2016.3.2 and added to the peak daily construction emission estimates previously presented in Table 5.4-8 of the Draft EIR, which assumed construction ongoing with Phase 1 residential operations. (Modeling is shown in Attachment A to this appendix.) The results are presented in Table 1, below. As shown, even if the construction of the larger retaining walls were to occur concurrently with the previously estimated peak day, emissions would still remain below the SDAPCD thresholds.

Table 1
MAXIMUM DAILY CONSTRUCTION EMISSIONS

Phase	Pollutant Emissions (pounds/day)					
	VOC	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Maximum Daily Emissions – DEIR Table 5.4-8	63	201	247	<0.5	28	14
Peak Daily Retaining Wall Emissions	1	27	35	<0.5	2	2
Maximum Daily Emissions w/ Retaining Wall	64	228	282	<0.5	30	16
<i>Screening-Level Thresholds</i>	<i>137</i>	<i>250</i>	<i>550</i>	<i>250</i>	<i>100</i>	<i>55</i>
<i>Significant Impact?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

Source: DEIR Table 5.4-8 and CalEEMod

VOC = volatile organic compound; NO_x = nitrogen oxides; CO = carbon monoxide; SO₂ = sulfur dioxide;

PM₁₀ = particulate matter 10 microns or less in diameter; PM_{2.5} = particulate matter 2.5 microns or less in diameter

Noise

The larger retaining walls schematically shown on Figure 1a could require use of silos, limited batching activities and drilling rigs not used in the construction of shorter retaining features. The potential for noise impacts associated with these machine types has been preliminarily reviewed. The loudest of the retaining wall machinery would be a hydraulic drill rig. Based on a provided average noise level for the drill rig of 81 dBA at 45 feet, the noise level at 600 feet (the approximate distance to nearest residences) would be 58.5 dBA, which would be lower than the 75-dBA construction noise limit. This calculation is done without topography factored in, so noise levels actually would be lower due to the retaining wall equipment being located within the creek bed rather than at road grade (assumed in the direct line-of-sight distance attenuation). Potential use of multiple pieces of equipment simultaneously could result in higher noise levels, but it is considered unlikely that they would exceed the 75-dBA limit.³ These assumptions would result in less than significant noise impacts associated with implementation of the BRT center-lane alignment and associated retaining walls.

Recreation

All park features have been designed to be located out of the identified IOD and would not be impacted by implementation of the BRT. Park references in the Draft EIR disclose the BRT IOD in relation to the park. The approved October 2018 General Development Plan (provided in the Draft EIR as Figure 3-14) developed for the park retained space for the BRT IOD as part of the approved design.

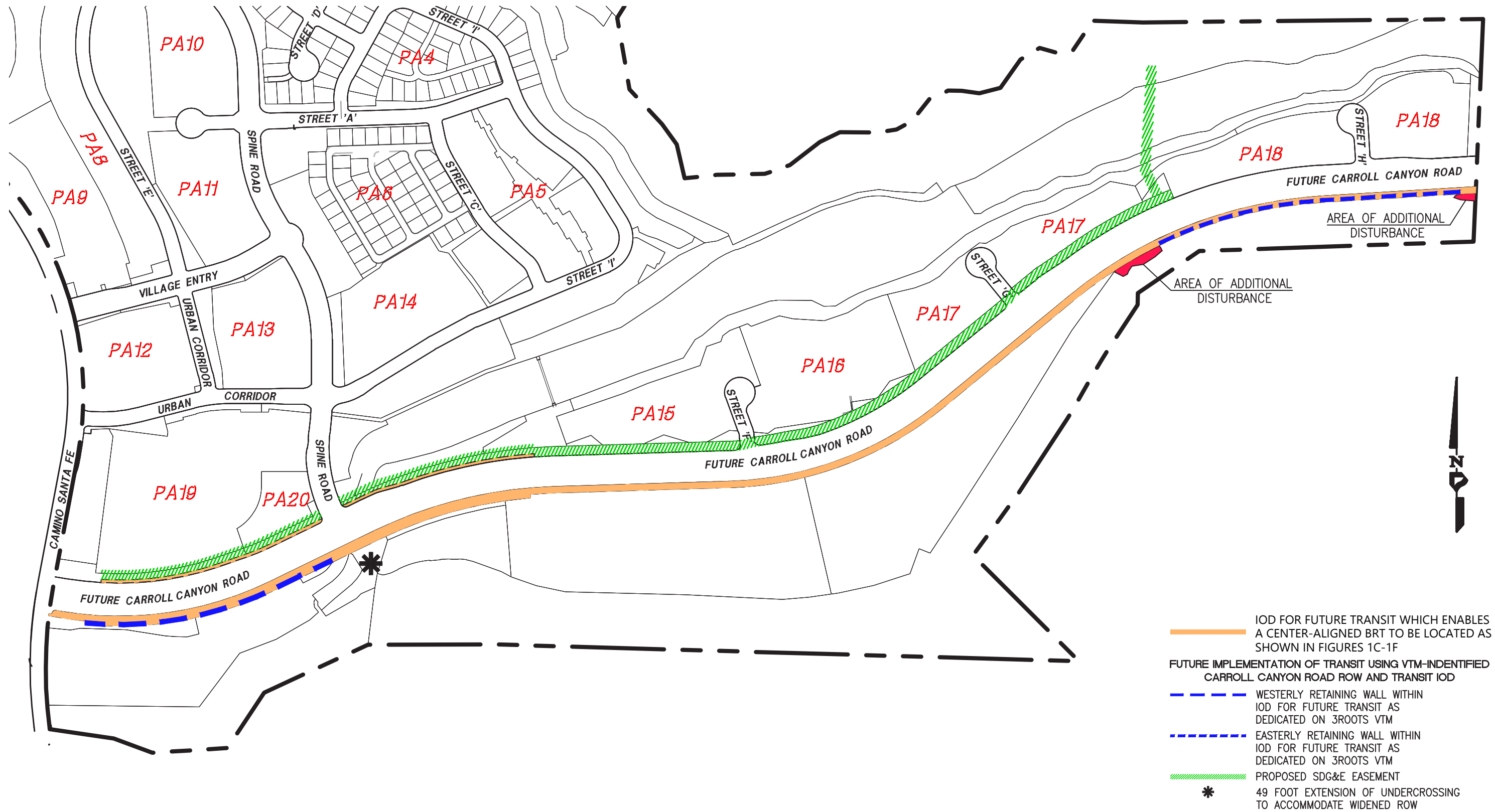
³ For a worst-case example, the typical loudest equipment is a D9/10 Cat dozer (approximately 85 dBA at 50 feet and 63.5 dBA at 600 feet). A large pile driver is generally the loudest generator, and may be as loud as 90 to 95 dBA which at 50 feet would be down to 73.5 at 600 feet. Although these pieces of equipment would not be expected to work closely together, generated noise would be approximately 74.0 at 600 feet. When actual operating time percentages is factored in for those pieces of equipment (40% or less) this drops to approximately 70 dBA at 600 feet.

BRT Analysis Conclusion

The construction-related impacts of using the dedicated IOD for transit located in the center of Carroll Canyon Road and thereby increasing road ROW to accommodate transit within 3Roots project boundaries would result in minor changes to footprint, and less than significant changes relative to assessed design analyses.

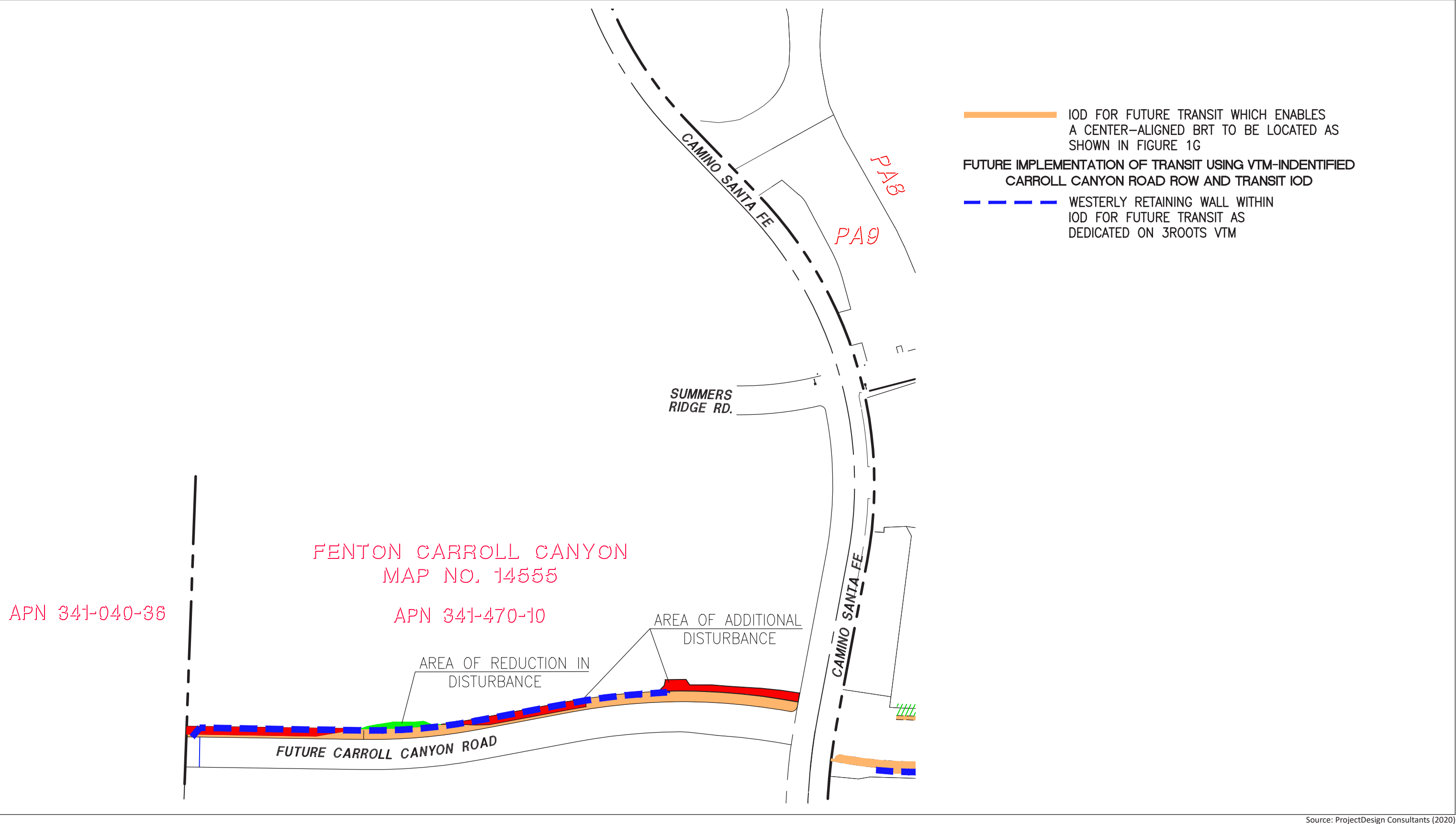
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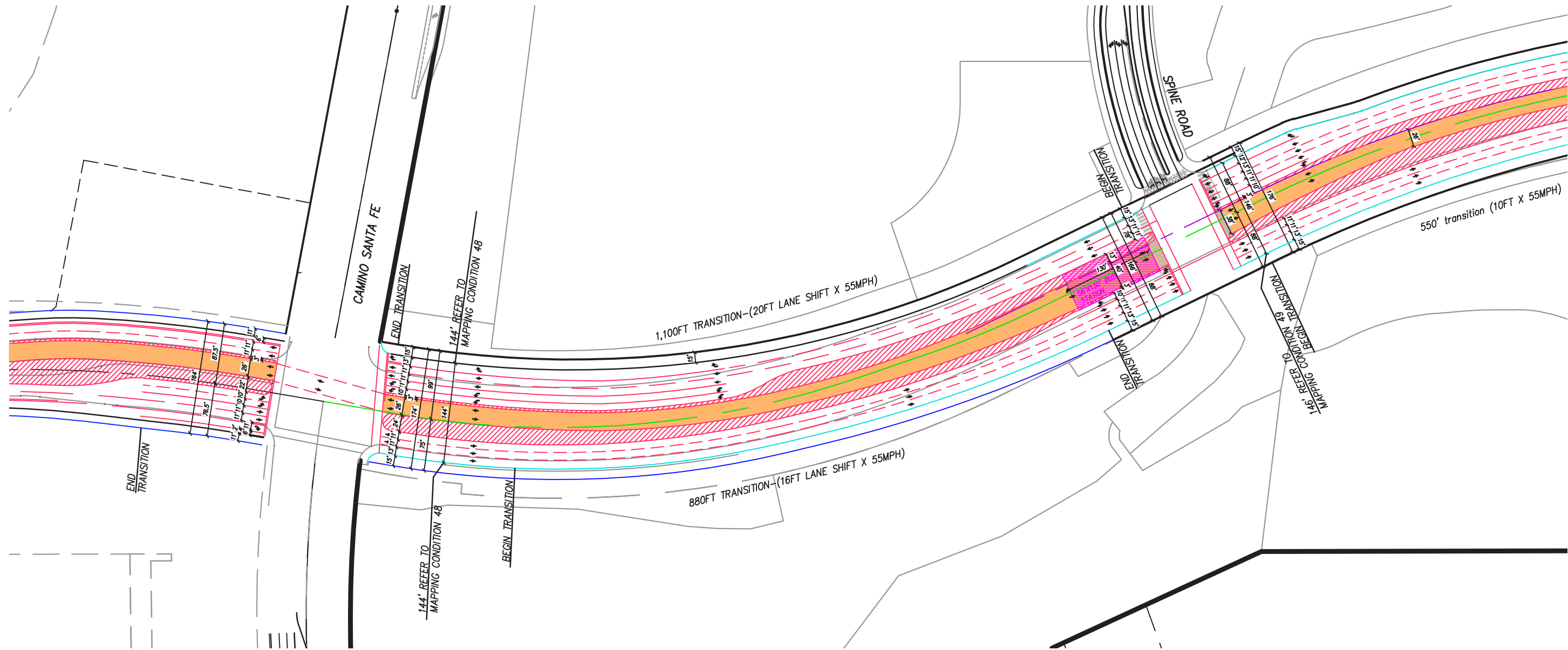
Source: ProjectDesign Consultants (2020)

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Source: ProjectDesign Consultants (2020)

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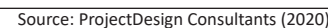


LEGEND
 IOD FOR FUTURE CENTER-ALIGNED BRT



Source: ProjectDesign Consultants (2020)









Attachment A

CalEEMod Modeling

3Roots Retaining Walls - San Diego County, Winter

3Roots Retaining Walls

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	40
Climate Zone	13			Operational Year	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MW hr)	720.49	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - 1 day duration to estimate max daily emissions

Off-road Equipment - Provided by Condon-Johnson

Construction Off-road Equipment Mitigation - Tier 3 Equipment

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

3Roots Retaining Walls - San Diego County, Winter

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	PhaseEndDate	2/28/2020	3/2/2020
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

2.0 Emissions Summary

3Roots Retaining Walls - San Diego County, Winter

2.1 Overall Construction (Maximum Daily Emission)**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	3.1637	28.8156	27.5403	0.0588	0.0000	1.4642	1.4642	0.0000	1.4269	1.4269	0.0000	5,572.328 ₄	5,572.328 ₄	1.0153	0.0000	5,597.711 ₃
Maximum	3.1637	28.8156	27.5403	0.0588	0.0000	1.4642	1.4642	0.0000	1.4269	1.4269	0.0000	5,572.328 ₄	5,572.328 ₄	1.0153	0.0000	5,597.711 ₃

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.2598	26.6722	34.5335	0.0588	0.0000	1.5231	1.5231	0.0000	1.5231	1.5231	0.0000	5,572.328 ₄	5,572.328 ₄	1.0153	0.0000	5,597.711 ₃
Maximum	1.2598	26.6722	34.5335	0.0588	0.0000	1.5231	1.5231	0.0000	1.5231	1.5231	0.0000	5,572.328 ₄	5,572.328 ₄	1.0153	0.0000	5,597.711 ₃

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	60.18	7.44	-25.39	0.00	0.00	-4.02	-4.02	0.00	-6.74	-6.74	0.00	0.00	0.00	0.00	0.00	0.00

3Roots Retaining Walls - San Diego County, Winter

2.2 Overall Operational**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	1.0000e-005	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000	0.0000	2.3000e-004

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	1.0000e-005	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000	0.0000	2.3000e-004

3Roots Retaining Walls - San Diego County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	2/29/2020	3/2/2020	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Bore/Drill Rigs	2	8.00	221	0.50
Building Construction	Cement and Mortar Mixers	3	8.00	9	0.56
Building Construction	Pumps	2	8.00	84	0.74
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Air Compressors	1	8.00	78	0.48
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37

3Roots Retaining Walls - San Diego County, Winter

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	13	0.00	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

3.2 Building Construction - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.1637	28.8156	27.5403	0.0588		1.4642	1.4642		1.4269	1.4269		5,572.3284	5,572.3284	1.0153		5,597.7113
Total	3.1637	28.8156	27.5403	0.0588		1.4642	1.4642		1.4269	1.4269		5,572.3284	5,572.3284	1.0153		5,597.7113

3Roots Retaining Walls - San Diego County, Winter

3.2 Building Construction - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2598	26.6722	34.5335	0.0588		1.5231	1.5231		1.5231	1.5231	0.0000	5,572.328 4	5,572.328 4	1.0153		5,597.711 3
Total	1.2598	26.6722	34.5335	0.0588		1.5231	1.5231		1.5231	1.5231	0.0000	5,572.328 4	5,572.328 4	1.0153		5,597.711 3

3Roots Retaining Walls - San Diego County, Winter

3.2 Building Construction - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

3Roots Retaining Walls - San Diego County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
User Defined Recreational	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Recreational	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

5.0 Energy Detail

Historical Energy Use: N

3Roots Retaining Walls - San Diego County, Winter

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

3Roots Retaining Walls - San Diego County, Winter

5.2 Energy by Land Use - NaturalGas**Mitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

3Roots Retaining Walls - San Diego County, Winter

6.2 Area by SubCategory**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

7.0 Water Detail

3Roots Retaining Walls - San Diego County, Winter

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation
