

MEMORANDUM

Date: June 29, 2020

Project #: 24724

To: Joshua Taylor
Senior Project Manager/Lead Planner
TRC Companies, Inc.

From: Damian Stefanakis, Principal Planner
Hassan Ahmed, TE, Project Manager

Project: Hunter Substation Replacement Project

Subject: Trip Generation Memorandum

This technical memorandum documents the trip generation estimates prepared by Kittelson & Associates, Inc. for the proposed Hunter Substation Replacement Project in Riverside, CA (hereby referred to as the “proposed project”). The trip generation estimates are based on expected operations and maintenance activities of the new substation and expected construction activities as prepared by TRC Companies, Inc. (TRC).

PROJECT DESCRIPTION

Introduction

The existing Hunter Electrical Substation is located at 1731 Marlborough Avenue in the City of Riverside, California (City) on the northwest corner of the intersection of Chicago Avenue and Marlborough Avenue. The proposed project site consists of approximately 2.5 acres of land and includes the parcel with the existing substation as well as the currently vacant parcel located immediately to the west of the existing substation parcel. The proposed project would consist of construction of a new 69/12kV Hunter Substation on the currently vacant parcel, decommissioning and removal of the existing substation, and construction of a warehouse facility that will store equipment and materials used for operation and maintenance of the Riverside Public Utilities’ electrical grid system.

Figure 1 provides an aerial view of the project site.

Figure 1: Aerial View of Project Site



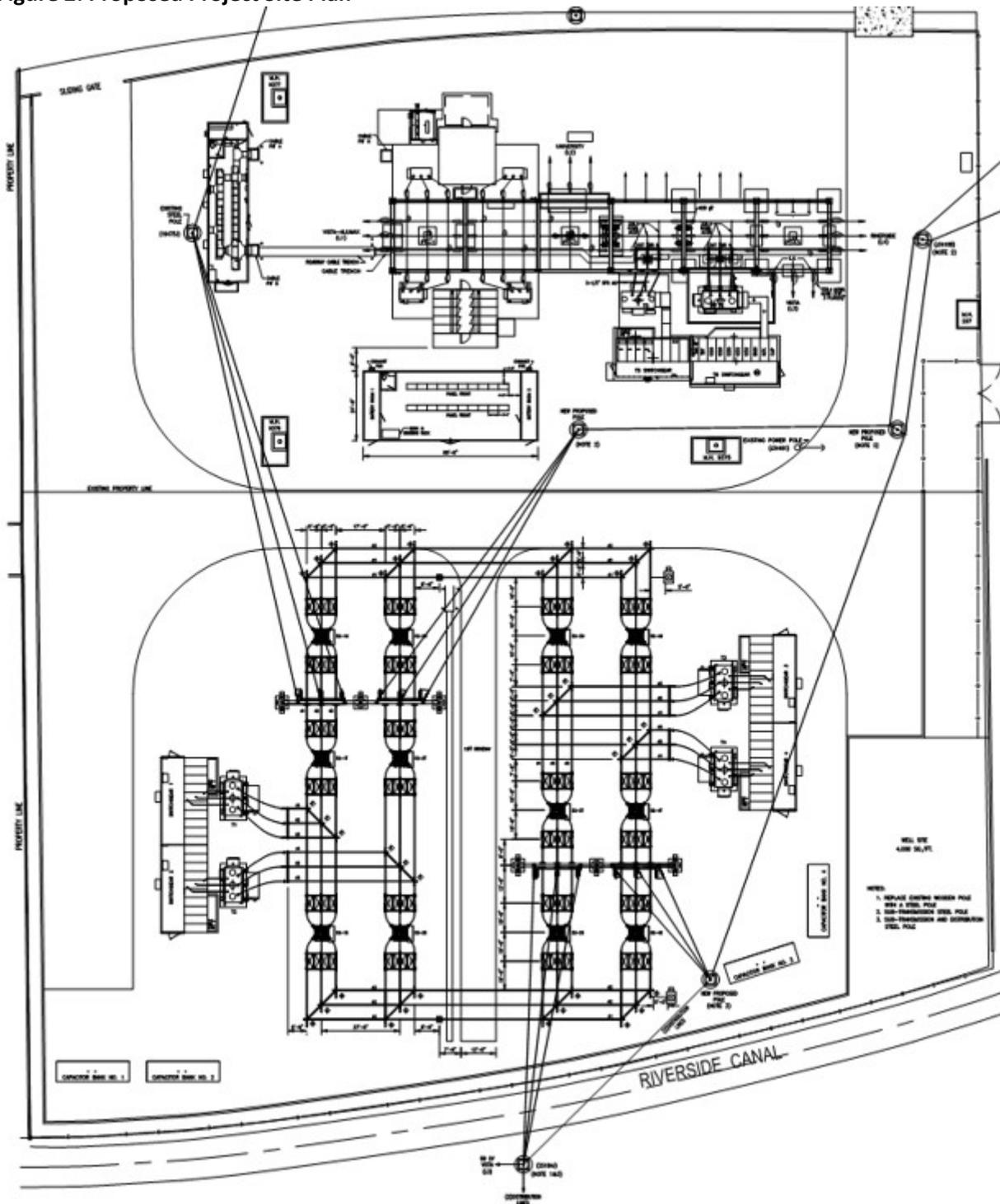
Source: Google Maps

Project Access

Access to the project site would be maintained via the two existing driveways located on Chicago Avenue. One driveway is located on the north side of the project site (approximately 30 feet south of the driveway of the industrial development to the north) and one driveway is located on the south side of the project site (approximately 50 feet north of Marlborough Avenue). The northern driveway will be extended to provide access to the western parcel. The southern driveway will also be extended to provide access to the western parcel as well as the water site located at the southwest corner of the project site. No new access issues are anticipated.

The project site plan is shown in Figure 2.

Figure 2: Proposed Project Site Plan



Source: TRC, September 2019

TRIP GENERATION ESTIMATES

Project Operations and Maintenance

When open and operational, the new substation would be unmanned and is expected to generate fewer maintenance and repair trips compared to the existing aging substation. Based on information provided by the proposed project sponsor, routine maintenance is expected to consist of a single light utility truck trip several times a week and larger maintenance truck trips several times a year for substation equipment maintenance. A major maintenance inspection is expected to take place annually, requiring approximately 10 workers for approximately one week. Routine maintenance for vegetation clearing and trimming is expected to generate one or two small maintenance vehicles on an as needed basis.

Proposed Project Construction Activities

Based on information provided by TRC, the construction activities associated with the proposed project would consist of 12 phases and occur from April of 2022 to November of 2023. With the exception of Phase 2, which would overlap with Phases 3a and 3b, all other phases would occur independently without any overlaps.

The expected number of daily passenger vehicle and truck trips as well as the expected passenger car equivalent (PCE) peak hour trips are presented in Table 1. For the purposes of this assessment, a PCE factor of 3.0 was applied to the truck trips to convert them to passenger vehicle trips. Further, it was assumed that 10% of daily trips would occur during the peak hour (AM or PM). As shown in Table 1, the construction activities associated with the proposed project would generate a maximum number of eight (8) trips during the peak hour. This occurs during Phase 5 of the construction activities.

The data provided by TRC is provided in the attachment.

Table 1: Trip Generation Estimates – Construction Activities

Construction Phases	Daily Passenger Vehicle Trips	Daily Truck Trips		Total Daily Trips	Estimated Peak Hour Trips [b]
		Number of Trucks	PCE Equivalent [a]		
Phase 1 - Mobilization and Set-Up	10	2	6	16	2
Phase 2 - Material Delivery and Set-up	8	4	12	20	2
Phase 3a - Grading & Site Preparation (Western Parcel)	16	8	24	40	4
Phase 3b - Temp Line Relocations	10	2	6	16	2
Phase 4a - Civil Survey and Marking	6	N/A	N/A	N/A	N/A
Phase 4b - Below-grade Civil Construction (Western Parcel)	20	8	24	44	5
Phase 4c - Below-grade Electrical Construction (Western Parcel)	16	4	12	28	3
Phase 5 - Underground Distribution Getaways	20	20	60	80	8
Phase 6a - Above-grade Structural Construction	20	2	6	26	3
Phase 6b - Above-grade Electrical Construction	30	2	6	36	4
Phase 7 - Sub-transmission Line Getaways	10	2	6	16	2
Phase 8 - Substation Testing, Energization, & Cutover	12	N/A	N/A	N/A	N/A
Phase 9 - Demolition of the Old Substation	20	16	48	68	7
Phase 10 - Grading and Site Preparation (Easter Parcel)	16	8	24	40	4
Phase 11 - Below-grade Construction (Storage Facility)	20	8	24	44	5
Phase 12 - Above-grade Construction (Storage Facility)	16	2	6	22	3

Notes:

[a] A passenger car equivalent (PCE) factor of 3.0 was applied.

[b] It was assumed that 10% of daily trucks would occur during the peak hour.

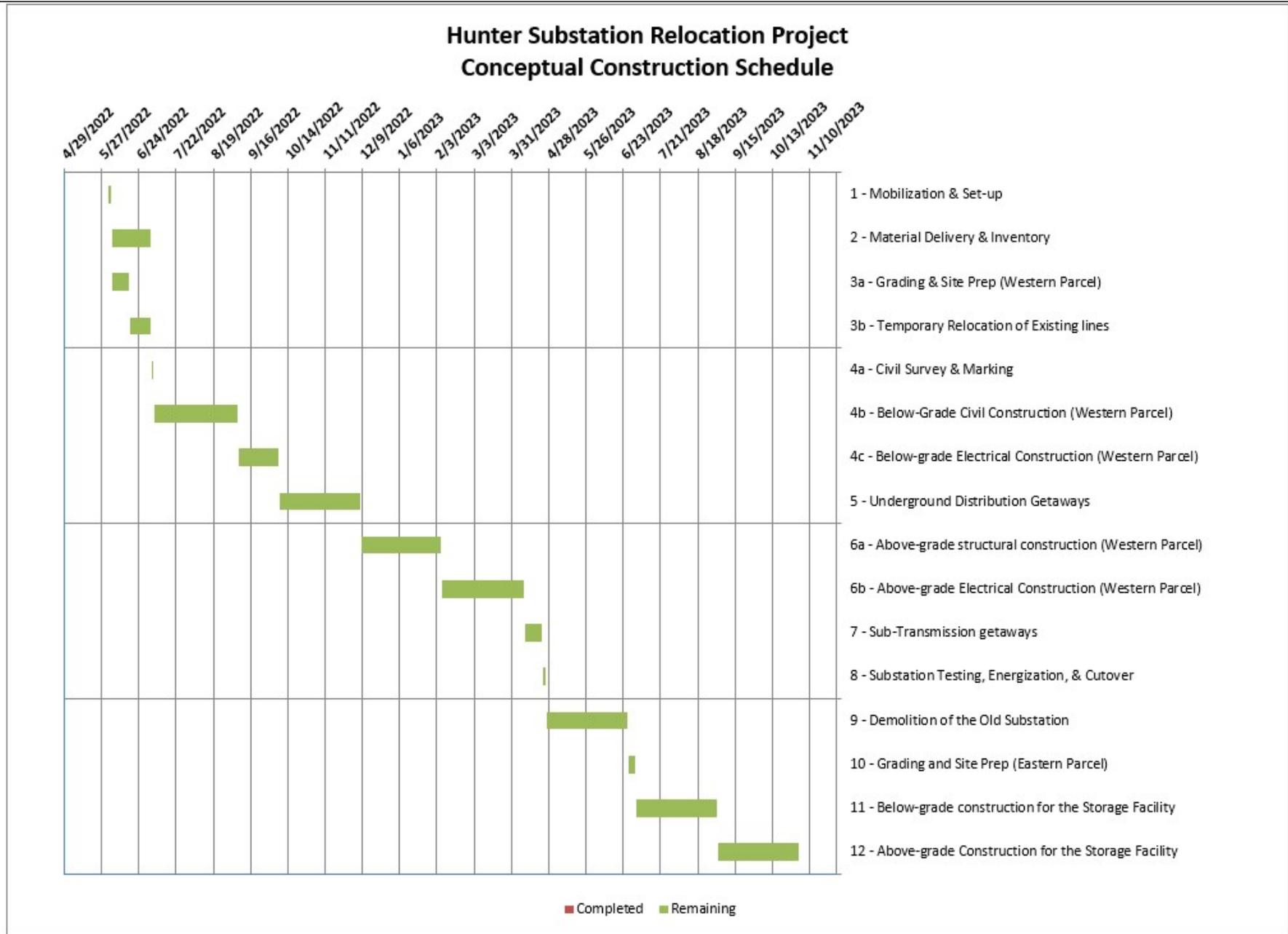
CONCLUSION

The proposed project would consist of construction of a new 69/12kV Hunter Substation, decommissioning and removal of the existing substation, and construction of a warehouse facility that will store equipment and materials used for operation and maintenance of the Riverside Public Utilities' electrical grid system on a 2.5-acre site. Access to the project site would be maintained via the two existing driveways located on Chicago Avenue.

When open and operational, the new substation would be unmanned and is expected to generate only a handful of maintenance and repair trips per week. Therefore no impacts are anticipated during normal activities.

The construction activities associated with the proposed project are expected to generate a maximum of eight (8) trips during the peak hour. This occurs during Phase 5 of the construction activities. As presented in the City of Riverside Traffic Impact Analysis Preparation Guide (City of Riverside, Public Works Department, April 2019), a local/focused traffic impact analysis study may be requested if a project generates more than 50 peak hour trips. The proposed project is expected to generate fewer than 50 peak hour trips when open and operational and during construction activities. As such, no additional traffic impact analysis is required for the proposed project.

ATTACHMENT



	Start Date	Completed	Remaining	End Date
1 - Mobilization & Set-up	6/1/2022	0	2	6/3/2022
2 - Material Delivery & Inventory	6/4/2022	0	29	7/3/2022
3a - Grading & Site Prep (Western Parcel)	6/4/2022	0	13	6/17/2022
3b - Temporary Relocation of Existing lines	6/18/2022	0	15	7/3/2022
4a - Civil Survey & Marking	7/4/2022	0	1	7/5/2022
4b - Below-Grade Civil Construction (Western Parcel)	7/6/2022	0	62	9/6/2022
4c - Below-grade Electrical Construction (Western Parcel)	9/7/2022	0	30	10/7/2022
5 - Underground Distribution Getaways	10/8/2022	0	60	12/7/2022
6a - Above-grade structural construction (Western Parcel)	12/8/2022	0	60	2/6/2023
6b - Above-grade Electrical Construction (Western Parcel)	2/7/2023	0	61	4/9/2023
7 - Sub-Transmission getaways	4/10/2023	0	13	4/23/2023
8 - Substation Testing, Energization, & Cutover	4/24/2023	0	2	4/26/2023
9 - Demolition of the Old Substation	4/27/2023	0	60	6/26/2023
10 - Grading and Site Prep (Eastern Parcel)	6/27/2023	0	5	7/2/2023
11 - Below-grade construction for the Storage Facility	7/3/2023	0	60	9/1/2023
12 - Above-grade Construction for the Storage Facility	9/2/2023	0	61	11/2/2023

Construction Personnel Daily Trips by Construction Phase			
Construction Phase	Estimated No. of Workers	Estimated No. of Vehicles	Estimated No. of one-way Daily Trips
Phase 1 - Mobilization and Set-Up	5	5	10
Phase 2 - Material Delivery and Set-up	4	4	8
Phase 3a - Grading & Site Preparation (Western Parcel)	8	8	16
Phase 3b - Temp Line Relocations	5	5	10
Phase 4a - Civil Survey and Marking	3	3	6
Phase 4b - Below-grade Civil Construction (Western Parcel)	10	10	20
Phase 4c - Below-grade Electrical Construction (Western Parcel)	8	8	16
Phase 5 - Underground Distribution Getaways	10	10	20
Phase 6a - Above-grade Structural Construction	10	10	20
Phase 6b - Above-grade Electrical Construction	15	15	30
Phase 7 - Sub-transmission Line Getaways	5	5	10
Phase 8 - Substation Testing, Energization, & Cutover	6	6	12
Phase 9 - Demolition of the Old Substation	10	10	20
Phase 10 - Grading and Site Preparation (Easter Parcel)	8	8	16
Phase 11 - Below-grade Construction (Storage Facility)	10	10	20
Phase 12 - Above-grade Construction (Storage Facility)	8	8	16

Notes:

Assumes worst case, with 1 car per worker.

Trips to the Project site in the morning would occur prior to peak AM hours, as work typically begins at 7am.

Worker return trips vary by time of year and specific construction task. Return trips can occur anywhere between 2pm and 7pm.