Appendix J

ACOUSTICAL SITE ASSESSMENT REPORT

Gateway Station West Project

Acoustical Site Assessment Report

June 2015

Prepared for:
City of Newark
Community Development Department
37101 Newark Boulevard
Newark, CA 94560

Prepared by:
HELIX Environmental Planning, Inc.
11 Natoma Street, Suite 155
Folsom, CA 95630

ACOUSTICAL SITE ASSESSMENT REPORT

for the

Gateway Station West Project

Prepared for:

City of Newark
Community Development Department
37101 Newark Boulevard
Newark, CA 94560

Prepared by:

HELIX Environmental Planning, Inc.
11 Natoma Street, Suite 155
Folsom, CA 95630

June 2015

TABLE OF CONTENTS

Section	Title	Page
ES	**EXECUTIVE SUMMARY**	**1**
1.0	**INTRODUCTION**	**1**
	1.1 Project Location	1
	1.2 Project Description	1
	1.3 Project Design Features	2
2.0	**ENVIRONMENTAL SETTING**	**3**
	2.1 Noise and Sound Level Descriptors and Vibration Basics	3
	2.2 Noise and Vibration Sensitive Land Uses	5
	2.3 Regulatory Framework	5
	2.4 Existing Conditions	7
	2.4.1 Existing Site Conditions	7
	2.4.2 Existing Noise Environment	8
	2.4.3 Existing Transportation Noise Sources	10
	2.5 Future Noise Environment	11
3.0	**METHODOLOGY AND SIGNIFICANCE CRITERIA**	**11**
	3.1 Methodology and Equipment	11
	3.2 Assumptions	12
	3.2.1 Construction	12
	3.2.2 Operation	12
	3.3 Significance Criteria	15
4.0	**IMPACTS**	**17**
	4.1 Issue 1: On-Site Noise Levels in Excess of Standards	17
	4.1.1 Impact Analysis	17
	4.1.2 Mitigation Measures	21
	4.1.3 Significance of Impacts After Mitigation	21
	4.2 Issue 2: Permanent Increase in Ambient Noise	21
	4.2.1 Impact Analysis	21
	4.2.2 Mitigation Measures	22
	4.2.3 Significance of Impacts After Mitigation	23
	4.3 Issue 3: Temporary Increase in Ambient Noise	23
	4.3.1 Impact Analysis	23

TABLE OF CONTENTS (cont.)

Section	Title	Page
4.0	**IMPACTS (cont.)**	
	4.3.2 Mitigation Measures	24
	4.3.3 Significance of Impacts After Mitigation	24
	4.4 Issue 4: Excessive Ground-Borne Vibration	24
	4.4.1 Impact Analysis	24
	4.4.2 Mitigation Measures	25
	4.4.3 Significance of Impacts After Mitigation	25
	4.5 Issue 5:Airport Noise	25
	4.5.1 Impact Analysis	25
	4.5.2 Mitigation Measures	25
	4.5.3 Significance of Impacts After Mitigation	25
5.0	**CUMULATIVE IMPACTS**	**26**
	5.1 Cumulative Impact Analysis	26
	5.1.1 Exceedance of Noise Standards	26
	5.1.2 Permanent Increases in Noise Levels	26
	5.1.3 Construction Noise	28
	5.1.4 Vibration	28
	5.1.5 Airport Noise	28
	5.2 Mitigation Measures	28
	5.3 Significance After Mitigation	29
6.0	**LIST OF PREPARERs**	**31**
7.0	**REFERENCES**	**32**

LIST OF APPENDICES

A Site Visit Survey Sheets
B Construction Noise Model Results

TABLE OF CONTENTS (cont.)

LIST OF FIGURES

No.	Name	Follows Page
1	Site and Vicinity Map	2
2	Aerial Map	2
3	Site Plan	2
4	Receiver Locations	18

LIST OF TABLES

No.	Name	Page
2-1	City of Newark Exterior Land Use Noise Compatibility Guidelines	6
2-2	Noise Measurement Conditions and Results	9
2-3	Traffic Counts – Willow Street	9
2-4	Calculated Versus Measured Traffic Noise Levels	10
3-1	Anticipated Construction Schedule	12
3-2	Carrier HDR060 Condenser Noise	13
3-3	Project Traffic Generation	13
3-4	Existing and Future Traffic Levels (Peak Hour)	14
3-5	Assumed Vehicle Distribution and Speeds	14
4-1	2035 Buildout Traffic Noise Levels for On-site Receiver Locations	18
4-2	Salt Harvest Transport Noise Levels	20
4-3	Direct Project Traffic Noise Impacts at 75-foot Representative Distance (CNEL)	22
5-1	Cumulative Traffic Noise Impacts at 75-foot Representative Distance (CNEL)	27
5-2	Mitigated Cumulative Exterior Traffic Noise Levels at 75-foot Representative Distance (CNEL)	30

ACRONYMS

ADT	Average Daily Trips (roadway traffic)
Amsl	above mean sea level
ANSI	American National Standards Institute
CADNA	Computer Aided Noise Abatement
CEQA	California Environmental Quality Act
City	City of Newark
CNEL	Community Noise Equivalent Level
County	County of Alameda
dBA	A-weighted decibels
DRC	Dumbarton Rail Corridor
DRS	Dumbarton Rail Service
du	dwelling unit
EIR	Environmental Impact Report
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HNL	Hourly Noise Level
HT	Heavy truck
HVAC	Heating, ventilating, and air conditioning
Hz	hertz
In/sec	inches per second
kHz	kilohertz
L_{DN}	Day-Night level
LDR	Low-density Residential
LEQ	Time-averaged noise levels, with a specified duration
NSLU	Noise-sensitive land uses
MDR	Medium-density Residential
MF	Multi-Family
MG	General Industrial District
MHDR	Medium/High-density Residential
ML	Limited Industrial District
MP	Industrial Park District
mPa	micro-Pascals
mph	Miles per hour
MT	Medium trucks

ACRONYMS (cont.)

P	Park
PPV	Peak particle velocity
Project	Gateway Station West Project
RCNM	Roadway Construction Noise Model
RMS	root mean square
SF	Square feet (foot)/Single-Family
SPL	sound pressure level
SWL	sound power levels
TNM	Traffic Noise Model
TOD	Dumbarton Transit-Oriented Development
U.S. DOT	U.S. Department of Transportation

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

The proposed Gateway Station West Project (Project) would involve the construction of a residential development on approximately 41 acres of the approximately 54.5-acre Project site in the City of Newark (City) in southwestern Alameda County (County). The property is located in a planned development area covered by the Dumbarton Transit-Oriented Development (TOD) Specific Plan and Environmental Impact Report (EIR). The Project proposes the development 589 single- and multi-family residential units and associated features (parks, trails, etc.) including 321 detached single-family units and 268 attached multi-family units.

Exterior use areas associated with the proposed multi- and single-family residences adjacent to Hickory Street would be consistent with City thresholds (60 Community Noise Equivalent Level [CNEL] for single-family uses, 65 CNEL for multi-family uses). Additionally, noise levels for the proposed park located adjacent to Hickory Street in the northeastern portion of the Project site would also be consistent with the City's threshold (70 CNEL for parks).

The Cargill solar salt basins are located immediately west of the proposed Project site. Cargill harvests salt approximately once per year over a 7 to 14 day period. As the truck trips associated with the salt harvest events would not result in noise levels in excess of the 65 CNEL multi-family or 60 CNEL single-family thresholds, associated impacts would be less than significant.

Heating, ventilation, and air conditioning (HVAC) equipment would potentially result in a significant impact if ground-mounted HVAC equipment is located closer than 25 feet from adjacent residential property lines. To reduce this potential impact, attenuation of exterior HVAC noise to levels of 45 dBA LEQ is required (Mitigation Measure Noi-1).

Construction activities would be conducted in accordance with the Alameda County Noise Ordinance. Additionally, modeled construction noise levels at the nearest residence (1,670 feet away) would be 50.9 A-weighted decibels over an hour (dBA LEQ hourly). These noise levels are below the standard 75 dBA LEQ construction noise limits for residentially zoned property, and thus, no significant impact would occur. Construction vibration impacts would also be less than significant. Further, the Project would implement all required measures from the Dumbarton TOD EIR (Mitigation Measures 4.10-1a and 4.10-1b) to reduce construction noise levels to the extent feasible.

Potential noise from the Dumbarton Railroad corridor at a distance of 560 feet (minimum distance from the rail line to the northern Project boundary) with no intervening structures (worst-case) would be 38 CNEL, and would not be audible over ambient noise levels. Impacts to the Project site would be less than significant. No impact related to aircraft noise would occur.

A cumulative traffic noise impact was identified for Enterprise Drive from Hickory Street to Willow Street. Prior to the issuance of building permits, the Project's contribution to the cumulatively significant noise levels on this segment shall be reduced to less than significant levels via speed limit reductions (to 25 miles per hour [mph]) and site-specific noise analysis (Mitigation Measures Noi-2 and Noi-3).

THIS PAGE INTENTIONALLY LEFT BLANK

1.0 INTRODUCTION

The proposed Gateway Station West Project (hereafter referred to as the "Project" or "Proposed Project") involves the construction of a residential development on approximately 41 acres of the approximately 54.35-acre Project site in the City of Newark (City) in southwestern Alameda County (County). The property is located within a planned development area covered by the Dumbarton Transit-Oriented Development (TOD) Specific Plan (City of Newark 2010).

This report addresses the potential for noise impacts on proposed on-site uses and the surrounding community generated by the Project, as well as potential noise impacts from off-site and on-site noise sources on the Project's usable outdoor and indoor residential areas.

1.1 PROJECT LOCATION

The proposed Project site is situated within the City in the southwestern area of the County; it is located at the southwest corner of the intersection of Hickory Street and Enterprise Drive. The Project site is bounded by Hickory Street on the east and solar salt basins on the west. Enterprise Drive (formerly Wells Avenue) terminates near the northeast corner of the property. The Project site is bounded by vacant industrial land on the north and vacant undeveloped land on the south. Construction of residential development associated with the Dumbarton TOD Specific Plan is underway to the east of the Project site, east of Hickory Street and south of Enterprise Drive. Refer to Figure 1, *Site and Vicinity Map,* for the Project location in the region. Refer to Figure 2, *Aerial Map*, for an aerial photograph of the Project site.

1.2 PROJECT DESCRIPTION

The proposed Project site is within the Dumbarton TOD Specific Plan area, and the Environmental Impact Report (EIR) for the Specific Plan (State Clearinghouse number: 2010042012) serves as the foundation document for subsequent projects proposed under the program. The Specific Plan area encompasses approximately 233 acres in the vicinity of the Union Pacific Railroad corridor, which is also the future Dumbarton Rail Corridor (DRC). The purpose of the Dumbarton TOD Specific Plan is to facilitate the development of a new neighborhood around a train station planned separately as part of the Dumbarton Rail Service (DRS) Project (City of Newark 2011a). The DRS is still under development and will undergo separate environmental analysis in the future. The proposed Gateway Station West Project will be analyzed and reviewed in light of the prior certified Dumbarton TOD Specific Plan EIR as the next step in the City's California Environmental Quality Act (CEQA) process for implementation of projects within the approved Dumbarton TOD Specific Plan.

The proposed Project includes the development of 589 single- and multi-family residential units and associated features (parks, trails, etc.) on approximately 41 acres of the approximately 54.35-acre site. A total of 321 detached single-family units and 268 attached multi-family units are proposed for construction. The proposed residential development is consistent with the approved Specific Plan Area Low-density Residential (LDR), Medium-density Residential (MDR), and Medium/High-density Residential (MHDR) land use designations and zoning codes.

In preparing the site for construction, the Project would require the demolition of the buildings associated with the pistol range and dog training area. Additionally, off-site improvements will take place within an approximately 1.6-acre portion of the 80-foot-wide Hickory Street right-of-way (an unimproved 12-foot-wide public road) located adjacent to the eastern Project site boundary. Refer to Figure 3, *Site Plan*, for the detailed site plan for the proposed Project.

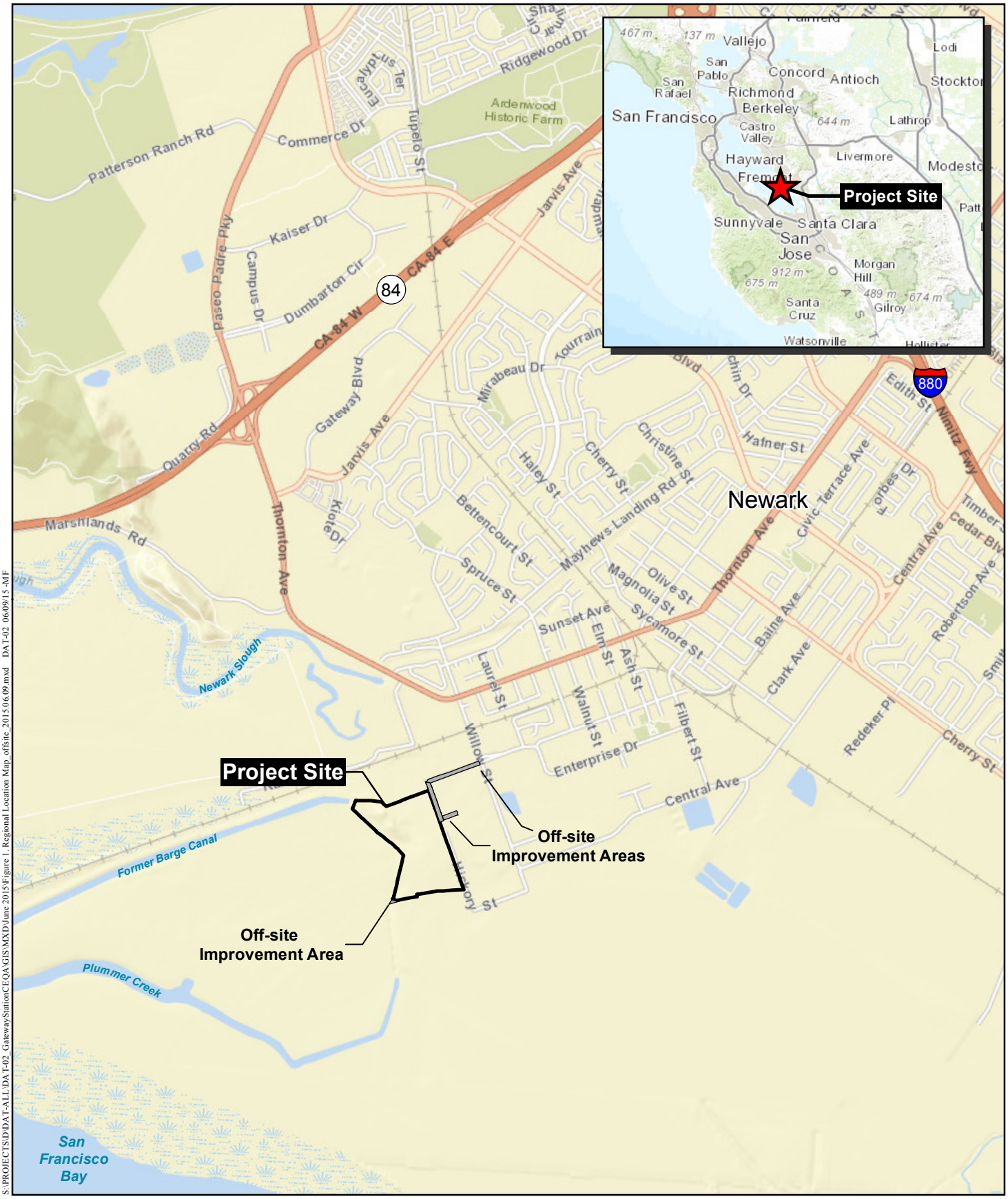
1.3 PROJECT DESIGN FEATURES

The Project would comply with the applicable mitigation measures pertaining to noise included in the Dumbarton TOD Specific Plan EIR. These measures would be included as Project Design Features (City of Newark 2011a).

Mitigation Measure 4.10-1a from the Dumbarton TOD Specific Plan EIR stipulates that projects require construction contractors to implement a site-specific noise reduction program, subject to City review and approval. The program includes the following measures that would be required throughout demolition, grading, and/or construction:

- Restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, and between 8:00 a.m. to 5:00 p.m. on Saturdays.
- Equipment and trucks used for project construction shall utilize 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, wherever feasible).
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electronically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.
- Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporated insulation barriers, or other measures to the extent feasible.
- If feasible, the noisiest phases of construction shall be limited to less than 10 days at a time.

Mitigation Measure 4.10-1b from the Dumbarton TOD Specific Plan EIR requires project applicants to implement a list of measures to respond to and track complaints pertaining to



S:\PROJECTS\DDAT-ALL\DAT-02_GatewayStationCEQA\GIS\MXD\June 2015\Figure 1. Regional Location Map_offsite_2015.06.09.mxd DAT-02 06/09/15-MF

Base Map: USGS, ESRI 2014 Map Date: 06-09-2015

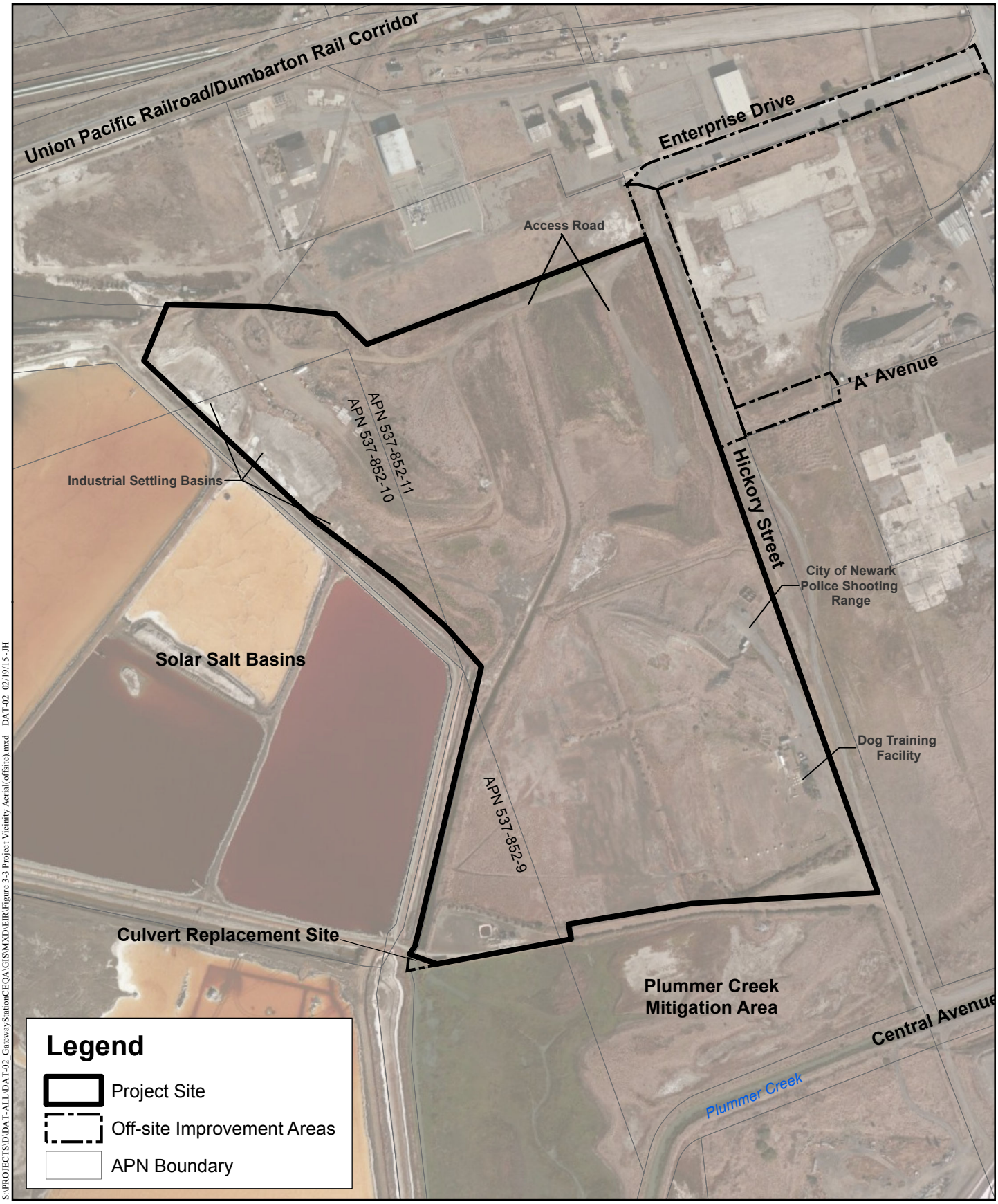
Site and Vicinity Map

GATEWAY STATION WEST

HELIX Environmental Planning

N 0 0.5 Miles 1 inch = 0.5 miles

Figure 1



S:\PROJECTS\D\DAT-ALL\DAT-02_GatewayStationCEQA\GIS\MXD\EIR\Figure 3-3 Project Vicinity Aerial(offsite).mxd DAT-02 02/19/15 -JH

Map Date: 06-17-2015

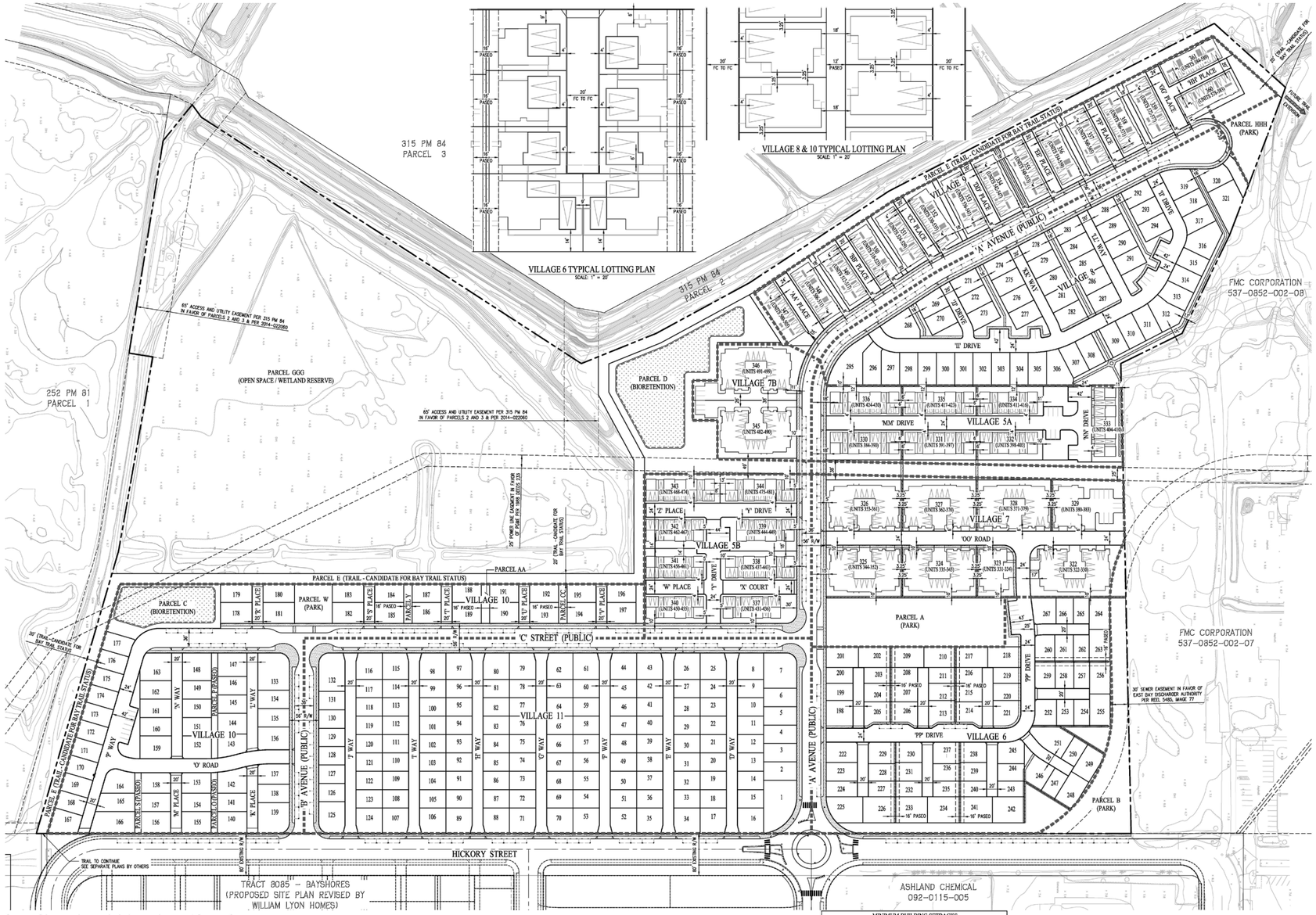
Aerial Map

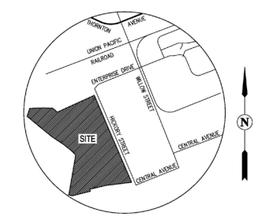
GATEWAY STATION WEST

HELIX Environmental Planning

0 400 Feet 1 inch = 400 feet

Figure 2





VICINITY MAP

NOT TO SCALE

GENERAL NOTES:

1. OWNER/DEVELOPER: DUMBARTON AREA 2, LLC
500 LA GONDA WAY, SUITE 102
DANVILLE, CA 94526
CONTACT: GLENN BROWN
(925) 362-3749

2. ENGINEER: CARLSON, BARBEE & GIBSON, INC.
2633 CAMINO RAMON, SUITE 350
SAN RAMON, CA 94583
CONTACT: GREG MILLER
(925) 866-0322

3. SOILS ENGINEER: BERLOGAR, STEVENS & ASSOCIATES
5587 SUNOL BOULEVARD
PLEASATON, CA, 94566
CONTACT: FRANK BERLOGAR
(925) 484-0220
(925) 846-9645 (FAX)

4. EXISTING USE: LIGHT INDUSTRIAL

5. SUBDIVISION AREA: 54.53±
DEVELOPABLE AREA: 41.0±

6. NUMBER OF UNITS 589 UNITS

7. THIS PROPERTY LIES IN THE JURISDICTION OF:

FIRE PROTECTION
CITY OF NEWARK FIRE PROTECTION DISTRICT

DOMESTIC WATER
ALAMEDA COUNTY COUNTY WATER DISTRICT

SANITARY SEWER
UNION SANITARY DISTRICT

STORM DRAIN WITHIN STREETS, LANES & PASEOS
CITY OF NEWARK (SDC)

STORM DRAIN WITHIN PRIVATE YARDS
PRIVATELY MAINTAINED BY HOMEOWNERS (PSDE)

GAS & ELECTRIC SERVICE
PACIFIC GAS & ELECTRIC

TELEPHONE SERVICE
AT&T

8. ROADWAYS AND PARCELS: UNLESS OTHERWISE NOTED (I.E. PUBLIC) ALL ROADWAYS AND PARCELS ARE TO BE MAINTAINED BY THE HOA ESTABLISHED WITH THE PROJECT. PUBLIC ACCESS EASEMENTS WILL BE DEDICATED OVER PARCEL E FOR PUBLIC USE.

9. PROPOSED LAND USE SUMMARY: SEE TABLE (THIS SHEET)

10. ASSESSORS PARCEL NUMBERS: 537-0852-009
537-0852-010
537-0852-011

11. BENCHMARK: CITY OF NEWARK OFFICIAL BENCHMARK NO. 62,
ALSO BEING AN ALAMEDA COUNTY BENCHMARK, THE TOP OF CURB AT STORM WATER INLET AT THE NORTH-EAST CORNER OF THORTON AVENUE AT WILLOW STREET, ELEVATION TAKEN AS 11.39 (NAVD 88) (8.661 NGVD 29 PER CITY OF NEWARK RECORDS).

12. TOPOGRAPHY: PREPARED BY HJW GEOSPATIAL, INC. DATED MAY 2005

13. FLOOD ZONE: ZONED X AND AE
FLOOD INSURANCE RATE MAP (FIRM)
COMMUNITY PANEL NUMBER: 060009 0443 G

14. THIS PROJECT MAY BE BUILT IN PHASES AND MULTIPLE FINAL MAPS MAY BE FILED. A PHASING PLAN WILL BE PROVIDED TO THE CITY OF NEWARK PRIOR TO FINAL MAP APPROVAL.

15. LOTS 1 – 321 WILL BE RESIDENTIAL LOTS
LOTS 322 – 361 (UNITS 322–589) WILL BE CONDOMINIUM UNITS.

16. LOT DIMENSIONS AND AREAS ARE APPROXIMATE AND ARE ROUNDED TO THE NEAREST WHOLE NUMBER. EXACT DIMENSIONS AND AREAS WILL BE PROVIDED ON THE FINAL MAP

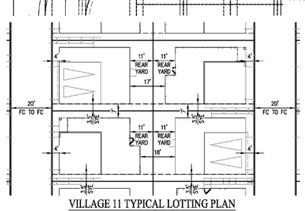
17. ALL BUILDINGS SHALL BE EQUIPPED WITH AN AUTOMATIC FIRE SPRINKLER SYSTEM AS REQUIRED BY CHAPTER 15.09.020.G OF THE NEWARK MUNICIPAL CODE.

18. GRADING SHOWN IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL DESIGN.

19. ALL UTILITIES SHOWN ARE TO BE USED AS A GUIDE AND MAY CHANGE DURING FINAL DESIGN.

20. GENERAL PLAN DESIGNATION: CONSERVATION/OPEN SPACE (PORTION), LOW–MEDIUM DENSITY RESIDENTIAL (PORTION), MEDIUM DENSITY RESIDENTIAL (PORTION), HIGH DENSITY RESIDENTIAL (PORTION), SALT HARVESTING, REFINING & PRODUCTION (PORTION).

21. ZONING: EXISTING: MT–1 HIGH TECHNOLOGY PARK DISTRICT
PROPOSED: DUMBARTON FORM BASED CODE



PARKING SUMMARY

PARKING REQUIRED:	
OFF-STREET COVERED SPACES PER UNIT (2 PER UNIT) =(321X2)+(268X2) =	1,178 SPACES
GUEST SPACES= = .20X OF MULTI-FAMILY UNITS + 1 = (268X0.20+1) =	56 SPACES
TOTAL PARKING REQUIRED =	**1,233 SPACES**
PARKING PROVIDED:	
OFF-STREET COVERED SPACES (589X2) =	1,178 SPACES
GUEST	
ON-SITE PARALLEL SPACES (IN-TRACT) =	152 SPACES
OFF-SITE PARALLEL SPACES (NOKORY STREET) =	53 SPACES
ON-SITE 90 DEGREE SPACES (IN-TRACT) =	54 SPACES
ON-SITE ACCESSIBLE SPACES (IN-TRACT) =	12 SPACES
TOTAL GUEST PARKING =	271 SPACES
TOTAL PARKING PROVIDED =	**1,449 SPACES**

(*17.60.090A.2.C OF NEWARK MUNICIPAL CODE REQUIRES .20X +1)

NOTE
PARKING SPACES ARE SHOWN ON SHEET 1W

LAND USE SUMMARY

LAND USE	AREA (AC)
SINGLE FAMILY LOTS	15.29
MULTI FAMILY LOTS	8.31
PUBLIC STREETS	4.47
PRIVATE STREETS & ALLEYS	5.78
PARKS	2.24
PASEOS/OPEN SPACE	1.64
TRAIL	1.58
WATER QUALITY	1.67
OPEN SPACE	13.55
TOTAL PROJECT AREA	54.53

UNIT SUMMARY

VILLAGE	NUMBER OF UNITS
VILLAGE 5A & 5B – LIA LOFT SPLIT	68
VILLAGE 6 – LIA SFD CLUSTER	70
VILLAGE 7A & 7B – LIA PB	80
VILLAGE 8 – 35 x 55 UA ALLEY	54
VILLAGE 9 – LIA FLATS	90
VILLAGE 10 – 35 x 55 LIA ALLEY	85
VILLAGE 11 – 35 x 50 UA FRONT	132
TOTAL	589

MINIMUM BUILDING SETBACKS

	REQUIRED SINGLE FAMILY DETACHED (ALLEY LOADED)	REQUIRED SINGLE FAMILY ATTACHED (ALLEY LOADED)
LOT SIZE		
WIDTH, ft	30–60	15–35
DEPTH, ft	50–150	50–90
SETBACKS		
FRONT		
PORCH/STOOPS, ft	6	6
BUILDING FACE, ft	8	8
REAR		
MAIN BUILDING, ft	10	10
GARAGE, ft (2)	4	4
SIDE		
MAIN BUILDING, ft	3.25	3.25
MAIN BUILDING AT CORNERS, ft (4)	8.52/5	8.25/5
PORCH/STOOPS AT CORNERS, ft	6	6
GARAGE, ft	3.25	3.25
GARAGE AT CORNERS, ft (4)	8.25/5	8.25/5
MAXIMUM SITE COVERAGE, % (NOT INCLUDING PORCHES) (3)	60	85

NOTES:
1.REQUIRED SETBACKS AREA BASED ON THE TABLE IN SECTION 17.37.080 UNLESS OTHERWISE NOTED.

2. FOR ALL ALLEY-LOADED HOMES, THE SETBACK MAY BE REDUCED TO FOUR FEET TO THE GARAGE DOOR.

3. FRONT SETBACK AND SITE COVERAGE MEASURED TO THE CENTERLINE OF TRAIL AND CENTERLINE OF PASSEO PER SECTION 17.37.080 F.

4. SIDE STREET SETBACK OF 5 FEET PER SECTION 17.37.060 D AND 17.37.080 H.

TITLE SHEET AND SITE PLAN
VESTING TENTATIVE MAP
TRACT 8099
GATEWAY STATION WEST

CITY OF NEWARK ALAMEDA COUNTY CALIFORNIA

0' 60' 180' 240'
SCALE: 1" = 60'
DATE: JUNE 3, 2015

Carlson, Barbee & Gibson, Inc.
CIVIL ENGINEERS • SURVEYORS • PLANNERS
2633 CAMINO RAMON, SUITE 350
SAN RAMON, CALIFORNIA 94583
(925) 866-0322
www.cbandg.com

SHEET NO.
TM-1
OF 8 SHEETS

\\folsomDC\vol4\PROJECTS\D\DAT-ALL\DAT-02_GatewayStationCEQA\Figures\Tech DAT-02 vStudies\Noise DAT-02 01-28-2015 - JH

Source: Carlson, Barbee & Gibson, Inc. 2015

Site Plan

GATEWAY STATION WEST

HELIX Environmental Planning

Figure 3

construction noise, ongoing throughout demolition, grading, and/or construction. These measures include the following:

- A procedure and phone numbers for notifying the City Building Inspection Division staff and Newark Police Department (during regular construction hours and off-hours);
- A sign posted on site pertaining to the permitted construction days and hours and complaint procedures and who to notify in the event of a problem. The sign shall also include a listing of both the City and construction contractor's telephone numbers (during regular construction hours and off-hours);
- The designation of an on-site construction complaint and enforcement manager for the project. The manager shall act as a liaison between the project and its neighbors (including on-site residents). The manager's responsibilities and authority shall include the following:
  - An active role in monitoring project compliance with respect to noise;
  - Ability to reschedule noisy construction activities to reduce effects on surrounding noise sensitive receivers;
  - Site supervision of all potential sources of noise (e.g., material delivery, shouting, debris box pick-up and delivery) for all trades; and,
  - Intervening or discussing mitigation options with contractors.
- Notification of neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of construction activities regarding the details and estimated duration of the activity; and,
- A preconstruction meeting shall be held with the job inspectors and the general contractor/on-site project manager to confirm that noise measures and practices (including construction hours, neighborhood notification, posted signs, etc.) are completed.

2.0 ENVIRONMENTAL SETTING

2.1 NOISE AND SOUND LEVEL DESCRIPTORS AND VIBRATION BASICS

All noise level or sound level values presented herein are expressed in terms of decibels (dB), with A-weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels are expressed by the symbol L_{EQ}, with a specified duration. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dB weighting, and sound levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dB weighting. This is similar to the Day-Night sound level (L_{DN}), which is a 24-hour average with an added 10 dB weighting on the same nighttime hours but no added weighting on the evening hours. Sound levels expressed in CNEL are always based on dBA. These metrics are used to express noise levels for both

measurement and municipal regulations, as well as for land use guidelines and enforcement of noise ordinances.

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound.

In the science of acoustics, the fundamental model is comprised of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions, or atmospheric factors affecting the propagation path to the receiver, determine the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

The amplitude of pressure waves generated by a sound source determines the loudness of that source. A logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for the human ear is about 0 dB, which corresponds to 20 micro-Pascals (mPa).

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions.

Vibration is defined as any oscillatory motion induced in a structure or mechanical device as a direct result of some type of input excitation. Sources of ground-borne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or manmade (explosions, trains, machinery, traffic, construction equipment, etc.). Vibration sources may be transient, steady-state (continuous), or pseudo steady-state. Examples of transient construction vibrations are those that result from blasting with explosives, impact pile driving, demolition, and wrecking balls.

Ambient and source vibration information are expressed in terms of the peak particle velocity (PPV) in inches per second (in/sec). The root mean square (RMS) of a signal is the average of the squared amplitude of the signal in decibels (re 1 micro-inch per second). Because the net average of a vibration signal is zero, the RMS amplitude is used to describe the “smoothed” vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal. The RMS amplitude is always less than the PPV and is always positive. The RMS average is typically calculated over a one-second period.

2.2 NOISE AND VIBRATION SENSITIVE LAND USES

Noise-sensitive land uses (NSLU) are land uses that may be subject to stress and/or interference from excessive noise, such as residential dwellings, transient lodging, dormitories, hospitals, educational facilities, and libraries. Specifically, sensitive noise receptors in the City include residential areas, the National Wildlife Refuge, major parks, Newark Unified School District schools, senior housing, and neighborhood churches (City of Newark 2011a). Industrial and commercial land uses are generally not considered sensitive to noise. There are no existing residential or other NSLU locations adjacent to the Project site. There are residential developments to the north and northeast, at a distance of approximately 1,730 feet or more from the northeastern Project boundary and approximately 740 feet from the Enterprise Drive off-site improvement area).

This analysis includes an assessment of potential Project-added traffic noise impacts to the residences that are located to the northeast of the Project site along Willow Street south of Thornton Avenue, and potential future residences associated with the Dumbarton TOD Specific Plan that would be located along Enterprise Drive west of Willow Street with Specific Plan implementation (City of Newark 2011a). The planned on-site residences (including outdoor use areas) are also considered noise-sensitive receptors.

Land uses in which ground-borne vibration could potentially interfere with operations or equipment, such as research, manufacturing, hospitals, and university research operations (Federal Transit Administration [FTA] 2006) are considered "vibration-sensitive." The degree of sensitivity depends on the specific equipment that would be affected by the ground-borne vibration. Excessive levels of ground-borne vibration of either a regular or an intermittent nature can result in annoyance to residential uses. No vibration-sensitive land uses are located on or within 200 feet of the Project site.

2.3 REGULATORY FRAMEWORK

California Noise Insulation Standards (California Code of Regulations, Title 24)

Title 24 establishes an Interior Noise Standard of 45 CNEL for multiple-unit and hotel/motel structures. Acoustical studies must be prepared for proposed multiple-unit residential and hotel/motel structures within the CNEL noise contours of 60 dBA or greater. The studies must demonstrate that the design of the building will reduce interior noise in habitable rooms to 45 CNEL or lower.

City of Newark General Plan

The City General Plan Noise Element identifies noise and land use compatibility standards for various land uses. These standards are intended to provide compatible land uses throughout the community as related to environmental noise. Table 2-1, *City of Newark Exterior Land Use/Noise Compatibility Guidelines,* summarizes the City's exterior land use-noise compatibility guidelines. Shading in this table represents the maximum noise exposure level considered compatible for each land use category. Single-family residential land uses residential land uses

are considered "normally acceptable" in exterior noise environments of 60 dBA CNEL or less, multi-family residential land uses are considered "normally acceptable" in exterior noise environments of 65 dBA CNEL or less and playgrounds and neighborhood parks are considered "normally acceptable" in exterior noise environments of 70 dBA CNEL or less.

Table 2-1
CITY OF NEWARK EXTERIOR LAND USE/NOISE COMPATIBILITY GUIDELINES

Land Use Category	Annual CNEL (dBA)				
	55	60	65	70	75
Residential – Low Density Single Family, Duplex, and Mobile homes					
Residential – Multiple Family					
Transient Lodging – Motels, Hotels					
Schools, Libraries, Churches, Hospitals, and Nursing Homes					
Auditoriums, Concert Halls, Amphitheaters*					
Sports Arena, Outdoor Spectator Sports*					
Playgrounds, Neighborhood Parks					
Golf Courses, Riding Stables, Water Recreation, Cemeteries					
Offices Buildings, Business, Commercial, and Professional					
Industrial, Manufacturing, Utilities, Agriculture					

Notes: Shading represents the maximum noise exposure level considered normally acceptable for each land use category.
* Land use categories for which "Normally Acceptable" levels were not presented; "Conditionally Acceptable" levels are presented for these land use categories.
Source: City of Newark General Plan Noise Element, 2011 (City of Newark 2011c)

The City of Newark Municipal Code prohibits noisy or otherwise objectionable machinery or equipment used in the conduct of the home occupation, that no radio or television interference is created, and that the conduct of the home occupation shall not create any noise audible beyond the boundaries of the site (excluding parcels with Industrial Park District [MP], Limited Industrial District [ML], and General Industrial District [MG] zoning).

The following goals and implementation policies from the Noise Element are relevant to the proposed Project:

> *Policy NO 1.2.1: The City shall require that all new developments incorporate design elements to minimize adverse noise impacts on surrounding land uses.*
>
> > *Program NO 1.2.1a: Establish design and planning requirements that lessen the impact of noise such as setbacks, earthen berms, building orientation, and landscaping.*

Program NO 1.2.1b: Require multi-family residences and hotels comply with the California Noise Insulation Standards, in the California Administrative Code, Title 25, Chapter 1, Subchapter 1, when they fall within the 60 dB (CNEL or L_{DN}) noise exposure contours.

Program NO 1.2.1c: Establish planning requirements for designers and architects on placement of windows, doors, and bedrooms relative to noise sources.

Policy NO 1.3.4: Control noise that causes discomfort between neighbors.

Program NO 1.3.4c: No person shall be allowed to cause any noise to be emitted past his/her property line in any manner so as to create any noise that would cause the ambient noise level to be increased by more than 6 dB.

Alameda County Noise Ordinance

As there are no noise guidelines related to construction and stationary noise thresholds within the Municipal Code for the City, therefore, guidelines from the Alameda County Noise Ordinance are utilized in this analysis.

The County Municipal Code (Section 6.60.040) includes zoning-specific noise standards for stationary noise sources. Operation of the Project would result in a noise impact if it exceeds the noise limits at the affected land uses listed in Section 2.3. A significant operational noise impact would occur if the maximum operational exterior noise limit for residential uses exceeds 50 dBA L_{EQ} during the daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{EQ} during the nighttime hours of 10:00 p.m. to 7:00 a.m. Further, the noise criteria for multi-family housing should comply with the Noise Insulation Standards of the California Code of Regulations, Part 2, Title 24, which require a noise analysis for multi-family housing whenever exterior noise sources exceed 60 dBA (CNEL) or greater, to demonstrate that the interior noise level has been designed to limit interior noise to 45 dBA (CNEL).

With regard to construction noise, the County Code (Chapter 6.60, Noise) states that construction activities must not violate the hourly limits established in Section 6.60.070(E) of the County Code. That ordinance prohibits construction activity between 7:00 p.m. and 7:00 a.m. Monday through Friday, and between 5:00 p.m. and 8:00 a.m. on Saturday or Sunday.

2.4 EXISTING CONDITIONS

2.4.1 Existing Site Conditions

The Project site is approximately 54.35 total acres in size of which 41 acres are proposed to be developed. The Project site is generally located in a largely industrial area, with open space and residential uses in the vicinity. The surrounding land uses are characterized by existing and former industrial parcels, with nearby business/professional centers and residential lots. To the north of the site is the former FMC Corporation facility and the existing Union Pacific Railroad

corridor, to the east is the former Ashland Chemical Company and Torian facility, to the south is the Plummer Creek Wetland Mitigation Bank, and to the west are the Cargill solar salt basins.

Terrain in the study area is characterized by a series of natural hills, soil stockpile storage areas placed in upland areas, and man-made basins. The surface elevations in the study area range from about 8 - 10 feet above mean sea level (amsl), with the exception of a rock outcrop that extends to approximately 26 feet amsl, and stockpile storage areas that reach 30 to 35 feet amsl. The rock outcrop is located in the southeastern portion of the site, and is comprised of serpentine bedrock that contains chrysotile, a form of naturally occurring asbestos.

2.4.2 Existing Noise Environment

The dominant noise source in the vicinity of the Project site is associated with vehicular traffic on Willow Street, with a minor potential contribution from the railroad lines east of the site.

Traffic and Ambient Noise Measurements

Two 15-minute noise measurements were conducted during the site visit on September 11, 2014. One traffic noise measurement was located along the western side of Willow Street (approximately 1,050 feet south of Enterprise Drive) in the driveway entrance to the SHH/FMC project site (another project within the Dumbarton TOD Specific Plan). Additionally, one ambient noise measurement was taken on site near the western edge of the site that abuts the solar salt basins. During the noise measurement along Willow Street, vehicle counts were made for cars, medium trucks (double-tires/two axles), and heavy trucks (three or more axles).

The measured noise levels and related weather conditions are shown in Table 2-2, *Noise Measurements Conditions and Results*. Traffic counts for the timed measurement and the one-hour equivalent volumes are shown in Table 2-3, *Traffic Counts – Willow Street*. Refer to Appendix A for the site visit field sheets documenting the noise measurements. Currently the Project area is comprised of industrial land uses that generate medium and heavy truck traffic with little to no concurrent residential or commercial traffic.

Table 2-2 NOISE MEASUREMENT CONDITIONS AND RESULTS	
Date	**September 11, 2014**
Conditions	Sunny, north/northeast winds of approximately 8 mph, temperature of approximately 68°F with 83% humidity
Measurement 1: Ambient Measurement	
Time	11:05 a.m. – 11:20 a.m.
Location	Approximately 37°31'7.71"N, 122°3'23.69"W
Measured Noise Level	50.5 dBA L_{EQ}
Notes	Minor aircraft noise may have been captured during the sound measurement, but had no substantial effect on the noise measurement due to the limited duration of aircraft flyovers.
Measurement 2: Traffic Noise Measurement	
Time	11:45 a.m. – 12:00 p.m.
Location	Willow Street south of Enterprise Drive in the driveway entrance to the SHH/FMC project site (~GPS: 37°31'12.22"N, 122° 2'56.65"W)
Measured Noise Level	65.1 dBA L_{EQ}
Notes	Distance to roadway centerline was approximately 50 feet.

Table 2-3
TRAFFIC COUNTS – WILLOW STREET

Roadway	Traffic	Autos	MT[1]	HT[2]
Willow Street	15-minute count	59	7	6
	One-hour Equivalent	236	28	24

[1] Medium Trucks (double tires/two axles)
[2] Heavy Trucks (three or more axles)

Calculated Noise Level

The calculated noise level for the measurement location is shown in Table 2-4. Note that posted traffic speed limits along Willow Street are 45 mph for southbound traffic and 40 mph for northbound traffic. For modeling purposes, all vehicles were assumed to be traveling at 45 mph. Table 2-4 shows the difference between the calculated and measured noise level. According to the Caltrans Technical Noise Supplement, a difference of less than two dB is considered sufficiently accurate and does not require an adjustment to the noise model (Caltrans 2009a). As

shown in Table 2-4, the measured noise level and modeled noise level were both 65.1 dBA L_{EQ}; therefore no correction was necessary.

Table 2-4
CALCULATED VERSUS MEASURED TRAFFIC NOISE LEVELS

Receiver Position	Calculated	Measured	Difference	Correction Factor
Willow Street	65.1 dBA	65.1 dBA	0.0 dBA	0.0 dBA

2.4.3 Existing Transportation Noise Sources

Roadways

Enterprise Drive north of the site is a two-lane roadway that terminates just northeast of the site with a posted 45 mph speed limit. Hickory Street is a currently inaccessible (surrounded by fences) unpaved roadway located immediately to the east of the Project site. Willow Street is a two-lane undivided roadway that runs north/south located to the east of the site; other proposed projects within the Dumbarton TOD Specific Plan lie between the proposed Project and Willow Street. Willow Street terminates at an industrial facility, and has a posted speed limit of 45 mph for southbound traffic and 40 mph for northbound traffic.

Cargill Solar Salt Basins

The Cargill solar salt basins are located immediately west of the proposed Project site. Cargill harvests salt approximately once per year over a 7 to 14 day period; during this time, there are as many as 200 truck trips per day (round-trip), occurring 24 hours per day, transporting salt. These trucks may utilize Cargill access roads that are located immediately adjacent to the western and southern perimeter of the Project site.

Aviation

The nearest airports to the proposed Project site are the Palo Alto general aviation airport located 6 miles southwest of the site and the Hayward Executive Airport located 10 miles to the north. The San Jose International Airport is 13 miles southeast of the Project site.

Railroads

The Union Pacific Railroad/Dumbarton Railway corridor located approximately 560 feet north of the site (at the closest Project boundary) is not currently in use but it is planned to be active in the future in conjunction with the Dumbarton TOD Specific Plan. There is also a passenger railroad line in use approximately one mile east of the site.

2.5 FUTURE NOISE ENVIRONMENT

The area surrounding the Project site is currently undeveloped, but the Dumbarton TOD Specific Plan calls for a mixture of developments in this vicinity. It is reasonable to assume that the area will experience some increases in noise levels associated with increased roadway traffic.

3.0 METHODOLOGY AND SIGNIFICANCE CRITERIA

3.1 METHODOLOGY AND EQUIPMENT

The following equipment was used to measure existing noise levels at the Project site:

- Larson Davis System LD 831 Sound Level Meter
- Larson Davis Model CA250 Calibrator
- Windscreen and tripod for the sound level meter
- Digital camera

The sound level meter was field-calibrated immediately prior to the noise measurements to ensure accuracy. All measurements were made with a meter that conforms to the American National Standards Institute (ANSI) specifications for sound level meters (ANSI SI.4-1983 R2001). All instruments were maintained with National Bureau of Standards traceable calibration per the manufacturers' standards.

Modeling of the outdoor noise environment for this report was accomplished using two computer noise models. The Computer Aided Noise Abatement (CADNA) is a model-based computer program developed by *DataKustik* for predicting noise impacts in a wide variety of conditions. The model assists in the calculation, presentation, assessment, and mitigation of noise exposure. It allows for the input of project information, such as noise source data, barriers, structures, and topography to create a detailed CADNA model and uses the most current calculation standards to predict outdoor noise impacts. The CADNA model includes the existing site topography, existing nearby buildings, and planned on-site structures. The models take into consideration that some of the structures provide noise shielding to other areas of the Project site. The traffic noise prediction generated by CADNA is based on the data and methodology used in the Traffic Noise Model (TNM), the other noise model utilized in this analysis. The TNM was originally released in 1998 by the U.S. Department of Transportation (U.S. DOT) and most recently updated in 2004. The TNM calculates the daytime average Hourly Noise Level (HNL) from three-dimensional model inputs and traffic data.

The one-hour L_{EQ} noise level is calculated utilizing peak-hour traffic; peak-hour traffic volumes may be available in a project-specific traffic report, or can be estimated based on the assumption that 8 to 10 percent of the average daily trips (ADT) would occur during a peak hour. The model-calculated one-hour L_{EQ} noise output is the equivalent to the CNEL (Caltrans 2009a).

Project construction noise was analyzed using the Roadway Construction Noise Model (RCNM; U.S. DOT 2008), which utilizes estimates of sound levels from typical construction equipment.

3.2 ASSUMPTIONS

3.2.1 Construction

Construction would require heavy equipment during mass grading, utility installations, building construction and paving. Construction equipment utilized on site would include but not be limited to: dozers, excavators, graders, trackers, cranes, loaders and backhoes. Project construction is anticipated to occur over 42 months, starting in January 2015, with an anticipated operational date of June 2018. Refer to Table 3-1, *Anticipated Construction Schedule*, for more specific information regarding the schedule of construction activities.

Table 3-1
ANTICIPATED CONSTRUCTION SCHEDULE

Phase	Construction Activity	Construction Period		
		Start	End	Number of Working Days
1	Site Prep	1/1/2015	2/11/2015	30
2	Grading	2/12/2015	5/27/2015	75
3	Building Construction	5/28/2015	3/28/2018	740
4	Architectural Coating	5/28/2016	7/31/2018	555
5	Paving	3/29/2018	6/13/2018	55

Based on the types of soil located on the Project site and the plans to raise the project elevation with compacted fill, pile driving is not anticipated to be necessary for construction. The most likely source of vibration during the Project construction would be a vibratory roller, which may be used to achieve soil compaction as part of the foundation construction, or for the Project streets and driveways.

3.2.2 Operation

Stationary Sources

Specific planning data for the future heating, ventilation, and air conditioning (HVAC) systems is not available at this stage of Project design; however, analysis using a typical to larger-sized residential condenser mounted on ground level pads provides a reasonable basis for analysis. The unit used in this analysis is a Carrier 38HDR060 split system condenser. The manufacturer's noise data is provided below in Table 3-2, *Carrier HDR060 Condenser Noise.*

Table 3-2 CARRIER HDR060 CONDENSER NOISE							
Noise Levels in Decibels[1] (dB) Measured at Octave Frequencies							Overall Noise Level in A-weighted Scale (dBA)[1]
125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	
63.0	61.5	64.0	66.5	66.0	64.5	55.5	72.0

[1] Sound Power Levels (S_{WL})
KHz = kilohertz

General assumptions were made to estimate noise impacts from Project HVAC equipment. For Project multi-family housing units, it is assumed that HVAC equipment would be roof-mounted. For single-family residences, it is assumed that HVAC equipment would be ground-mounted.

Transportation Sources

Traffic

Traffic generation used in the acoustic analysis is based on the Dumbarton TOD Specific Plan EIR (City of Newark 2011a) and the Project-specific transportation evaluation prepared by Fehr & Peers in September 2014 (Fehr & Peers, 2014a). Table 3-3 provides the updated trip generation for the Project.

Table 3-3 PROJECT TRAFFIC GENERATION							
Land Use	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Single-Family (321 DU)	3,056	60	178	241	202	118	321
Multi-family Apartment (268 DU)	1,782	27	109	137	108	58	166
TOTAL	**4,838**	**88**	**287**	**377**	**310**	**177**	**487**
Internalization	435	8	26	34	28	16	44
Net External Project Trips	4,403	80	262	343	282	161	443

Source: Fehr & Peers, January 2015
Note: DU = Dwelling Unit.
As in the Specific Plan EIR, it is assume that 9 percent of the residential trips would be internal to the Specific Plan area.

Off-site traffic peak hour segment volumes for Enterprise Drive and Willow Street were derived from the Dumbarton TOD Specific Plan EIR. The Project's estimated contribution to the trips generated by the Specific Plan is 31 percent for a typical weekday (Fehr & Peers 2015).

Year 2035 Specific Plan buildout (without Project) volumes were calculated by subtracting 31 percent of the overall Year 2035 with Specific Plan (including Project) ADT volumes. These values are reflected in Table 3-4. Table 3-5 includes the assumed traffic distribution and speeds used in the traffic modeling. With implementation of the Specific Plan, the area is expected to be developed with single and multi-family residential with light commercial uses, which would result in a lower overall percentage of truck traffic (particularly heavy trucks) compared to current conditions. The buildout traffic volumes for Hickory Street were included in the update memorandum for the Gateway Station West Transportation Analysis (Fehr & Peers 2015).

For the purposes of this analysis, it is conservatively assumed that Hickory Street would have a speed limit of 35 mph, which is the proposed speed limit for Enterprise Drive west of Willow Street according to Circulation Element of the City General Plan.

Table 3-4
EXISTING AND FUTURE TRAFFIC VOLUMES (PEAK HOUR)

Segment	Existing	Project	Existing + Project	Year 2035 Buildout (without Project)	Year 2035 Buildout + Project
Enterprise Drive					
Hickory Street to Willow Street	0	228	228	550	797
Willow Street					
Enterprise Drive to Thornton Avenue	530	280	799	1,016	1,472
Hickory Street					
Enterprise Drive to Central Avenue	0	443	443	17	460

Notes: Peak hour volumes use either AM or PM, whichever is higher based on the traffic analysis.
Volumes for Enterprise and Willow Street were derived from the Dumbarton TOD Specific Plan EIR.
Volumes for Hickory Street were presented in the update memorandum for the Gateway Station West Transportation Analysis (Fehr & Peers 2015).

Table 3-5
ASSUMED VEHICLE DISTRIBUTION AND SPEEDS

Segment	Cars	Medium Trucks	Heavy Duty Trucks	Speed (mph)
Enterprise Drive	97.0%	2.5%	0.5%	45
Willow Street	95.5%	2.5%	2.0%	45[1]
Hickory Street	95.5%	2.5%	2.0%	35

Notes: Distribution was assumed to be the same for all analyzed scenarios.
[1] For future conditions, Willow Street was modeled with 25 mph speeds due to Mitigation Measure 4.10-4 of the Dumbarton TOD EIR

Note that, for future year conditions, the posted speed limit along Willow Street (between Thornton Avenue and Central Avenue) will change to 25 mph (from 40 mph and 45 mph) as part of the requirement that is included in Mitigation Measure 4.10-4 of the Dumbarton TOD EIR. Modeling for future year 2035 assumed 25 mph traffic speeds for this segment.

Railroad

Detailed projections of future rail usage of the Dumbarton Rail Transit corridor are not currently available. However, for analysis purposes it is assumed that future rail operations would include four freight trains with four engines and 40 cars moving at 40 mph during the nighttime hours. The Dumbarton TOD Specific Plan EIR assumes that the proposed passenger terminal will have 6 stops during the daytime (City of Newark 2011), which leads to the assumption that 6 passenger trains with 6 cars and 1 engine will travel at 40 mph during the daytime.

Cargill Solar Salt Basins

It is assumed salt would be harvested from the Cargill solar salt basins (located immediately west of the proposed Project site) at least once per year for a 7-14 day period. During this time, there would be as many as 200 truck trips per 24-hour day (round-trip), transporting salt. It is assumed that the 200 one-way truck trips (or a total of 400 trips entering and exiting) would be evenly distributed over the 24 hour period; this would result in approximately 18 truck trips every hour. It is assumed that these trucks will utilize Cargill access roads that are located immediately adjacent to the Project western perimeter and southern perimeter.

3.3 SIGNIFICANCE CRITERIA

Based on Appendix G of the State CEQA Guidelines, implementation of the Project would result in a significant adverse impact if it would:

Threshold 1: *Expose persons to or generate noise levels in excess of standards established in the City of Newark General Plan or applicable standards of other agencies.*

Transportation

Relevant noise standards for the proposed Project are those outlined in the Noise Element for the City (General Plan) and Noise Ordinance for the County. The Project would result in a significant noise impact related to this threshold if it results in the exposure of the proposed land uses to noise levels that exceed the limits of the City's Noise Element (see Section 2.3). For single-family residential land uses, the exterior noise limit is 60 L_{DN} or CNEL (City of Newark 2012); for multi-family residential land uses, the exterior noise limit is 65 L_{DN} or CNEL. The interior noise limit for residential uses is 45 L_{DN} or CNEL. For neighborhood parks, like the park located in the northeast corner of the Project site, the noise limit is 70 CNEL.

Stationary

The County Municipal Code (Section 6.60.040) also includes zoning-specific noise standards for stationary noise sources. Operation of the Project would result in a noise impact if it exceeds the noise limits at the affected land uses listed in Section 2.3. A significant operational noise impact would result if the maximum operational exterior noise limit for residential uses exceeds 50 dBA L_{EQ} during the daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{EQ} during the nighttime hours of 10:00 p.m. to 7:00 a.m.

Threshold 2: *Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.*

Substantial permanent increases in ambient noise levels are associated with sources such as traffic, which cannot be controlled by the Municipal Code. A substantial direct or cumulative permanent increase in traffic noise could occur if the resulting ambient noise level meets the following criteria:

- An increase of the existing ambient noise levels by 5 dB or more, where the existing ambient level is less than 60 dB CNEL;
- An increase of the existing ambient noise level by 3 dB or more, where the existing ambient level is 60 to 65 dB CNEL; or
- An increase of the existing ambient noise level by 1.5 dB or more, where the existing ambient level is greater than 65 dB CNEL.

A project would result in a significant noise impact if a permanent increase in ambient noise levels exceeds these criteria, and the resulting noise level exceeds the City's applicable exterior standard at a noise-sensitive use.

In order for a project's effects to be cumulatively considerable: (1) a noise level must exceed the applicable exterior noise level limit at a noise-sensitive use; and (2) a significant portion of the noise increase must be the result of the project, using the following criterion:

- The "cumulative plus project" condition results in a 1 dBA increase in noise over the "cumulative no project" noise level.

A significant impact would also occur if a project is inconsistent with policies within the City's Noise Element that apply to minimizing noise exposure to sensitive land uses (refer to Section 2.2).

Threshold 3: *Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.*

The City Municipal Code is silent regarding construction noise standards or limitations. Therefore, consistent with the Dumbarton TOD Specific Plan EIR, the County Code (Chapter 6.60, Noise) was utilized in this analysis (City of Newark 2011a). Construction activity

would be considered significant if it violates the limits established in Section 6.60.070(E) of the County Code. The ordinance prohibits construction activity between 7:00 p.m. and 7:00 a.m. Monday through Friday, and between 5:00 p.m. and 8:00 a.m. on Saturday or Sunday.

Regarding construction noise limits, in the absence of other standards, it is assumed that a significant construction noise impact would result if the use of any tools, power machinery or equipment causes noise in excess of 75 dBA (8-hour average) between the hours of 7:00 a.m. and 7:00 p.m. and that the noise disturbs the comfort and repose of any person residing or working in the vicinity.

Threshold 4: *Expose persons to or generation of excessive ground-borne vibration or ground-borne noise levels.*

With respect to ground-borne vibration from construction activities, the FTA has adopted guidelines/recommendations to limit ground-borne vibration based on the age and/or condition of the structures that are located in close proximity to construction activity. According to the FTA, ground-borne vibration level of 0.2 inch-per-second PPV should be considered as the damage threshold criterion for structures deemed "fragile" (FTA 2006). Consistent with the Dumbarton TOD Specific Plan EIR, this analysis has assumed a conservative threshold of 0.2-inch-per-second PPV (City of Newark 2011a). Construction activities within 200 feet and pile driving within 600 feet of a vibration sensitive use would be potentially disruptive to vibration-sensitive operations (Caltrans 2013).

Threshold 5: *For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public use airport or private airstrip, expose people residing or working in the project area to excessive noise.*

Aircraft noise levels would be considered excessive if they exceed the noise compatibility guidelines in the City General Plan Noise Element or in an applicable airport land use plan.

4.0 IMPACTS

4.1 ISSUE 1: ON-SITE NOISE LEVELS IN EXCESS OF STANDARDS

Would the project expose persons to or generate noise levels in excess of standards established in the City of Newark General Plan or applicable standards of other agencies?

4.1.1 Impact Analysis

4.1.1.1 *Transportation Noise*

Exterior Residential Traffic Noise Levels

Transportation noise generated in the Project vicinity is primarily from vehicular traffic noise; other off-site noise sources have a negligible contribution to ambient noise levels. There is a

potential for the proposed residential uses to have land use-noise compatibility issues resulting from traffic noise for residences located along Hickory Street. Park uses with a full or partial view of Hickory Street may also experience excessive noise levels.

Noise receiver locations were placed along the periphery of the proposed residential property lines, where either a balcony or yard may be located; these receivers were generally located between 55 and 65 feet from the centerline of the proposed Hickory Street alignment. A receiver was also identified for the park located in the northeast corner of the Project site.

These receiver points, Park (P-) 1, Multi-Family (MF-) 1 through MF-4 and Single-Family (SF-) 1 through SF-6, were numbered based on type of receiver, and from north to south along Hickory Street. Receiver locations are shown on Figure 4, *Receiver Locations*. Table 4-1 shows the calculated future traffic noise levels at the park receiver and at the proposed residential building facades at a first-story level (the second-story level of the buildings would have similar noise exposure). As stated in Section 3.3, the exterior noise limit is 60 CNEL for single-family residential land uses and 65 CNEL for multi-family residential land uses; the interior noise limit for residential uses is 45 CNEL. For neighborhood parks, like the Project park located in the northeast corner of the site (P-1), the noise limit is 70 CNEL.

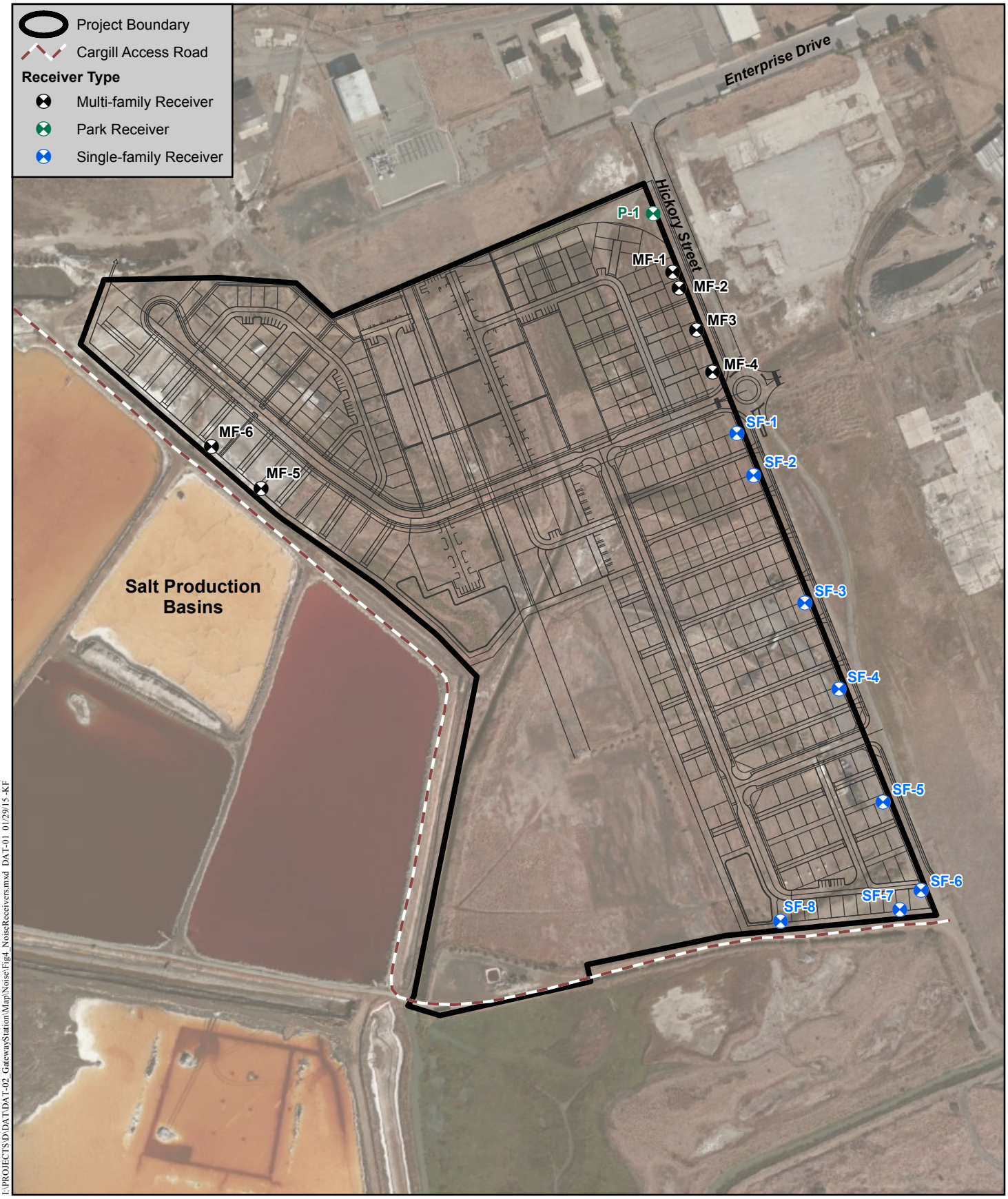
Table 4-1
2035 BUILDOUT TRAFFIC NOISE LEVELS FOR ON-SITE RECEIVER LOCATIONS

Receiver Name	Applicable Threshold (CNEL)	CNEL at Receiver[1]	Significant Exterior Noise Impact?
P-1	70	61	No
MF-1	65	60	No
MF-2	65	60	No
MF-3	65	60	No
MF-4	65	60	No
SF-1	60	60	No
SF-2	60	60	No
SF-3	60	60	No
SF-4	60	60	No
SF-5[2]	60	60	No
SF-6	60	59	No

Notes: Noise levels listed are for ground-level receivers. See Figure 4 for receiver locations. Traffic levels are based on projected 2035 traffic levels for Hickory Street.

[1] Noise levels rounded to nearest decibel per Caltrans guidelines (Caltrans 2009a).

[2] The second story balcony level for SF-5 was modeled to be 64.3 CNEL at a height of 15 feet.



I:\PROJECTS\D\DAT\DAT-02_GatewayStation\Map\Noise\Fig4_NoiseReceivers.mxd DAT-01 01/29/15 -KF

Map Date: 01-29-2015

Receiver Locations

GATEWAY STATION WEST

HELIX Environmental Planning

0 350 Feet

Figure 4

As demonstrated in Table 4-1, noise levels for the park (P-1) would be below thresholds (70 CNEL) for Year 2035 conditions, as would outdoor use areas for the multi-family residences (below the 65 CNEL limit). Exterior noise levels for single-family residences were all modeled to be approximately 60 CNEL or less; therefore, noise impacts to Project single-family residences would also be less than significant.

Second- and third-story balconies would experience similar noise levels (within 0.5-1.0 dBA) as the ground floor exterior use space. As the first-story single family residential receivers would not experience noise levels in excess of 60 CNEL, second- and third-story single-family residential balconies (that have a full or partial view of Hickory Street) would also not be expected to experience noise levels in excess of thresholds; impacts to single-family residential balconies would be less than significant.

Interior Residential Traffic Noise Levels

Exterior to interior analysis assumes a minimum 15 CNEL reduction from the outside to the inside of a structure, assuming standard building construction methods. Therefore, interior noise levels (which are required to be 45 CNEL or less) for residential land uses are assumed to be compatible with an exterior noise level up to 60 CNEL. As shown above in Table 4-1, all residential receivers (both multi- and single-family) were modeled to have exterior noise levels of 60 CNEL or lower; based on the estimated exterior noise levels at the façades of the residences, interior noise levels would not be expected to exceed the interior noise standard of 45 CNEL. Impacts related to interior residential noise levels would be less than significant.

Railroad Noise

Trains have the potential to produce noise levels in excess of the normally acceptable land use compatibility standards for residential uses. Typically, the 65 dBA CNEL noise contour falls within 500 feet or less from the centerline of tracks that experience a mix of freight and commuter rail operations. Noise levels may be further reduced as intervening topography and structures serve to shield noise or function as noise berms and walls. The actual distance to the 65 dBA CNEL can only be determined on a case-by-case basis, taking local obstructions, barriers/reflectors, and detailed site plans into account.

The Federal Railroad Administration (FRA) railroad noise modeling estimate for the future rail use within the Dumbarton transit corridor of 6 daytime and 4 nighttime passenger trains at a distance of 560 feet with no intervening structures (worst-case) is 38 CNEL. This noise level is below thresholds for all exterior use areas proposed on-site (including the most stringent of 60 CNEL for single-family residences), and would not lead to interior noise levels in excess of the 45 CNEL threshold. Additionally, it is below the measured ambient noise level (from the September 11, 2014 site visit) of 50.5 dBA L_{EQ}. The rail noise would therefore not be audible above the ambient noise levels, and impacts would be less than significant.

Material Transport Truck Noise from Solar Salt Basins

Noise from annual material transport from the solar salt basins could potentially affect proposed residential uses along access roads. The access roads are located immediately west of and south of the Project boundary, and in close proximity to 12 proposed multi-family residential buildings in the northwest portion of the Project site and 11 single-family residences in the southwest portion of the Project site. Assuming 18 truck trips per hour over a 24-hour period, the worst-case noise level for the multi-family residences in the western portion of the site (without accounting for the proposed wall/fence along the access roads) was modeled to be 57.4 CNEL; for the single-family residences located in the southern portion of the site, the worst-case noise level was 55.9 CNEL. Refer to Table 4-2 for modeled noise levels related to these access road truck trips at single- and multi-family receptors located near the access roads.

Table 4-2
SALT HARVEST TRANSPORT NOISE LEVELS

Receiver Number	Receiving Land Use Type	Noise Level (CNEL)
SF-7	Single-Family	54.8
SF-8	Single-Family	55.9
MF-5	Multi-Family	57.4
MF-6	Multi-Family	57.2

As the truck trips associated with the infrequent salt harvest events would not generate noise levels in excess of the 65 CNEL multi-family or 60 CNEL single-family thresholds, impacts would be less than significant. Refer to Figure 4 for the receiver locations of residences assessed for potential noise impacts related to these truck trips.

4.1.1.2 *Stationary Noise (Residential HVAC Units)*

The operation of residential HVAC units could potentially result in noise disturbances to adjacent residences.

As noted in Section 3.2, specific planning information related to HVAC placement is not available at this time. For Project multi-family housing units, it is assumed that HVAC equipment would be roof-mounted. For the three-story multi-family buildings, it is assumed that the roof would be approximately 35 feet high (10 feet per story plus an additional 5 feet for the roofing material). With the incorporation of a standard 4-foot parapet wall, roof-mounted HVAC units would generate noise levels of approximately 18 dBA L_{EQ} for first-story receivers; an adjacent third-story residential receiver would experience noise levels of approximately 21 dBA L_{EQ}. As these noise levels are less than 45 dBA L_{EQ}, roof-mounted HVAC units (with the incorporation of a standard 4-foot parapet wall) would not create noise levels in excess of the

nighttime thresholds at nearby residences. Impacts from roof-mounted HVAC units would therefore be less than significant.

For single-family residences, it is assumed that HVAC equipment could be ground-mounted; ground-mounted HVAC equipment would have the potential to generate noise levels in excess of thresholds depending upon the proximity of the equipment to nearby NSLUs.

The County Noise Ordinance states that exterior noise levels are compatible with operational exterior noise limit for residential uses of 50 dBA L_{EQ} during the daytime hours of 7:00 a.m. to 10:00 p.m. and 45 dBA L_{EQ} during the nighttime hours of 10:00 p.m. to 7:00 a.m.

Based on estimated equipment noise levels, provided that ground-mounted HVAC equipment is located at least 25 feet away from adjacent residential property lines, noise levels would be the most restrictive nighttime noise level of 45 dBA L_{EQ}; if ground-mounted HVAC equipment is located closer than 25 feet from adjacent residential property lines, impacts would be potentially significant.

4.1.2 Mitigation Measures

To ensure that residential noise levels are within acceptable noise levels, the following mitigation measure is required:

Noi-1 HVAC Condenser Noise Attenuation. For residences located within 25 feet of ground mounted HVAC equipment, attenuation of exterior HVAC noise to levels to 45 dBA L_{EQ} (for usable outdoor space) shall be ensured prior to issuance of certificates of occupancy. For single-family attached or multi-family development, potential noise control measures to achieve the performance standard for outdoor usable space include, but are not limited to: noise control barriers around the HVAC units and/or the outdoor usable space, and/or installing roof-mounted units with a standard parapet wall.

4.1.3 Significance of Impacts After Mitigation

Implementation Noi-1 would ensure that noise impacts related to HVAC equipment would be reduced to below the 45 CNEL exterior threshold for adjacent residential properties.

4.2 ISSUE 2: PERMANENT INCREASE IN AMBIENT NOISE

Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

4.2.1 Impact Analysis

The proposed Project would generate 4,403 external Project trips (Fehr & Peers 2015). Refer to Table 4-3, *Direct Project Traffic Noise Impacts at 75-foot Representative Distance*, for the traffic noise levels along street segments surrounding the Project for the Existing and Existing plus Project conditions, and for the analysis of direct Project impacts.

Table 4-3 DIRECT PROJECT TRAFFIC NOISE IMPACTS AT 75-FOOT REPRESENTATIVE DISTANCE (CNEL)				
Roadway Segment	**Existing**	**Existing + Project**	**Change**	**Impact?**
Willow Street				
Enterprise Dr. to Thornton Ave.	63.2	64.9	+1.7	No
Enterprise Drive				
Hickory St. to Willow St.	50.5[1]	59.0	+8.5	No[2]

Direct impacts are assessed when:

- An increase of the existing ambient noise levels by 5 dB or more, where the ambient level is less than 60 dB CNEL;
- An increase of the existing ambient noise level by 3 dB or more, where the ambient level is 60 to 65 dB CNEL; or
- An increase of the existing ambient noise level by 1.5 dB or more, where the ambient level is greater than 65 dB CNEL.

[1] As no existing traffic volume for this segment was available, the traffic noise measurement from the Project site visit was utilized for existing noise levels on this segment.

[2] Although a change over 5 dB occurs no impacts are assessed because total noise levels are below the 60 CNEL threshold.

As demonstrated in Table 4-3, the Existing plus Project traffic noise level generated along Willow Street from Enterprise Drive to Thornton Avenue would increase traffic noise levels by approximately 1.7 dBA. Since the existing levels were between 60 and 65 dBA, the threshold for a significant impact for this scenario is a 3 dBA increase; therefore, the change from existing traffic noise levels to existing plus Project traffic noise levels on this segment of Willow Street is less than significant.

The on-site ambient noise measurement (50.5 dBA LEQ) is used as the Existing (no Project) baseline noise level for Enterprise Drive where there are currently no residential receptors and no reported or projected traffic volumes. Existing plus Project noise levels for this segment were modeled to be approximately 59.0 CNEL. For this segment, the difference between Existing (ambient measurement) and Existing plus Project noise levels is approximately 8.5 dBA. As stated in Section 3.3, when the baseline noise level is less than 60 dBA, an increase in noise of 5 dBA or more is considered to be a significant impact. However, similar to the way that impacts are assessed in the Dumbarton TOD EIR, although the increase is greater than 5 dBA, the resultant noise level is below the City's residential standard of 60 CNEL, which is within the acceptable exterior noise levels for residential uses. Therefore, all Project-added traffic noise impacts are considered less than significant.

4.2.2 Mitigation Measures

Because impacts related to Issue 2 would be less than significant, no mitigation is required.

4.2.3 Significance of Impacts After Mitigation

Direct impacts related to traffic noise would be less than significant.

4.3 ISSUE 3: TEMPORARY INCREASE IN AMBIENT NOISE

Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

4.3.1 Impact Analysis

Construction of the Project would generate elevated noise levels that may disrupt nearby noise sensitive receptors. The magnitude of the impact would depend on the type of construction activity, equipment, duration of each construction phase, distance between the noise source and receiver, and the presence of any intervening structures.

Project construction would entail the use of equipment throughout the site for the full term of construction. Construction activities would be roughly divided into six phases. These phases may contain some overlap depending upon location and timing. The phases would include the following:

1. Demolition
2. Grading (including materials import/export)
3. Foundation excavation
4. Utilities excavation
5. Foundation pour
6. Building construction

Most construction equipment does not operate at full power (maximum noise) for a full hour. The Federal Highway Administration (FHWA) guidelines analyze most equipment at an assumed 40-percent hourly operating time.

The buildings associated with the existing pistol range and dog training area would be removed as a part of Project construction. The structures to be demolished, located in the southern area of the Project site, are located well over 2,000 feet from the nearest residences (located east of the Project site at the intersection of Enterprise Drive and Aleppo Drive); further, industrial uses are located between these facilities and the nearest residence, which would provide additional noise shielding. These existing on-site facilities are relatively small and would be easily demolished and removed with a loader and dump trucks. Demolition is not anticipated to be a substantial source of noise for Project construction.

Other potential noise impacts to off-site uses could occur during site preparation when a dozer, excavator, and a loader would be utilized to over-excavate, backfill, and compact the site to prepare the site for the Project's installation of utilities and building foundation.

The FHWA Roadway Construction Noise Model (RCNM) Version 1.0 (U.S. DOT 2008) lists the noise level of an excavator as 85 dBA at 50 feet. Excavation will occur throughout much of the site. The closest existing residential use to the Project site to where excavation may occur is located approximately 1,730 feet away along Willow Street just south of Thornton Avenue. The closest existing residence (at the corner of Aleppo Drive and Hickory Street) from the Enterprise Drive ROW off-site improvement area is located approximately 740 feet away.

An excavator operating at 740 feet from the nearest existing off-site residential property line (to the off-site improvement area) would result in a noise level of 53 dBA L_{EQ} (hourly), not taking into consideration shielding provided by intervening structures (see Appendix B for model output). If a dozer, excavator and a loader were all operational at the same time, noise levels at the nearest residence (740 feet away) would be 58 dBA L_{EQ} (hourly).

These noise levels are lower than the standard 75 dBA L_{EQ} construction noise limits for residentially zoned property, and thus, no significant impact would occur. Further, as described in Section 1.6, the Project would implement a number of construction best management practices that would reduce construction noise to the maximum extent feasible.

Additionally, in line with the County Noise Ordinance, construction activities at the Project site would be restricted to the hours of 7:00 a .m. to 7:00 p.m., Monday through Friday, and between 8:00 a.m. to 5:00 p.m. on Saturdays.

4.3.2 Mitigation Measures

Because impacts related to Issue 3 would be less than significant, no mitigation is required.

4.3.3 Significance of Impacts After Mitigation

Impacts related to construction noise would be less than significant.

4.4 ISSUE 4: EXCESSIVE GROUND-BORNE VIBRATION

Would the project expose persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

4.4.1 Impact Analysis

There is no current off-site vibration source within a reasonable impact distance (typically 250 feet), including the railroad, that would affect proposed uses within the Project site. Therefore, the vibration analysis is limited to construction-related impacts to off-site land uses.

The main concern associated with ground-borne construction vibration is annoyance; however, vibration-sensitive instruments and operations (such as those found in hospitals and laboratories) can be disrupted at much lower levels than would typically affect other uses. In extreme cases, the vibration can cause damage to buildings, particularly those that are old or otherwise fragile. No vibration-sensitive land uses are located within 200 feet of Project site. Although residences

are not typically considered vibration-sensitive, they could be adversely affected by excessive construction vibration. The nearest off-site residence is located over 740 feet away from the off-site improvement area.

No pile driving is anticipated to be necessary as part of project construction; the loudest source of potential vibration from Project construction would be the potential use of a vibratory roller, that may be used to achieve soil compaction as part of the foundation construction (and possibly for on-site driveways at a later time). The vibration threshold utilized in the Dumbarton TOD Specific Plan EIR assumed a conservative threshold of 0.2 inch-per-second PPV, as discussed in Section 3.3 above. A vibratory roller creates approximately 0.210 inch-per-second PPV at 25 feet, according to the Transportation and Construction Vibration Guidance Manual (Caltrans 2013). As all construction equipment would be located at distances of over 740 feet to the nearest existing residence, vibration impacts would be less than significant.

4.4.2 Mitigation Measures

Because impacts related to Issue 4 would be less than significant, no mitigation is required.

4.4.3 Significance of Impacts After Mitigation

Impacts related to ground-borne vibration would be less than significant.

4.5 ISSUE 5: AIRPORT NOISE

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

4.5.1 Impact Analysis

The nearest airports are the Palo Alto general aviation airport located 6 miles southwest of the site and the Hayward Executive Airport located 10 miles to the north. The San Jose International Airport is 13 miles southeast of the Project site. The Project site is located outside of the 65 CNEL noise contour for all airports. At these distances, no effect related to airport noise would occur at the Project site, and impacts would be less than significant.

4.5.2 Mitigation Measures

Because impacts related to Issue 5 would be less than significant, no mitigation is required.

4.5.3 Significance of Impacts After Mitigation

Impacts related to noise from public use airports and private airstrips would be less than significant.

5.0 CUMULATIVE IMPACTS

5.1 CUMULATIVE IMPACT ANALYSIS

5.1.1 Exceedance of Noise Standards

The implementation of cumulative development projects would have the potential to increase ambient noise by increasing traffic and human activity throughout the surrounding area and from new operational noise sources. Future regional growth to be developed within the Project vicinity would result in increases in traffic that would cumulatively increase traffic noise. The potential noise impacts that would result from cumulative projects and regional growth are included in the Specific Plan buildout (2035) scenario.

Noise levels at the proposed locations of residences and parks as presented in Section 4.1.1.1 were based on Year 2035 Specific Plan buildout traffic volumes, which includes cumulative projects. The Project would not be expected to expose residences to noise levels in excess of City standards and would not be responsible for a cumulatively considerable contribution to a cumulative impact. Further, all new development within the Dumbarton Specific Plan would need to comply with Mitigation Measure 4.10-3 if the projects in question are within 600 feet of the Dumbarton rail corridor, and would need to comply with the same County Noise Ordinance and City Noise Element standards prior to the issuance of building permits.

5.1.2 Permanent Increases in Noise Levels

Cumulative impacts are assessed by comparing the Existing (no Project) conditions to the Year 2035 buildout with Project conditions. Refer to Table 5-1, *Cumulative Traffic Noise Impacts*, for the cumulative impact analysis. As shown in Table 5-1, for Willow Street from Enterprise Drive to Thornton Drive, traffic noise levels in the Year 2035 buildout (with Project) scenario would be slightly reduced (by 1.6 dBA) compared to existing conditions. This is because of the assumption that based on implementation of Mitigation Measure 4.10-4 from the Dumbarton EIR, posted speed levels will be reduced from 45 mph to 25 mph. Even though there will be more cars traveling on this segment, no cumulative noise impact would occur because of this reduction in automobile speeds.

Enterprise Drive from Hickory Street to Willow Street would experience a 13.6 dBA increase (from 50.5 CNEL to 64.1 CNEL) in traffic noise levels from Existing (no Project) to Year 2035 buildout (with Project) conditions; note that ambient on-site measurement was used as the Existing (no Project) noise level because existing traffic levels along this segment are negligible. As this increase is greater than 5 dBA, a significant cumulative impact is assessed for this segment. Additionally, modeling demonstrated that the Project would contribute a 1.6 dBA increase to this 13.6 dBA change; because the Project contributes more than 1 dBA to the cumulative impact, it would have a cumulatively considerable contribution to a cumulative impact on this street segment.

Table 5-1
CUMULATIVE TRAFFIC NOISE IMPACTS AT 75-FOOT REPRESENTATIVE DISTANCE (CNEL)

Roadway Segment	Existing No Project[1]	2035 With Specific Plan (without Project)	2035 With Specific Plan (with Project)	Cumulative + Project Change from Existing	Significant Cumulative Impact?	Project Contribution to Cumulative	Significant Contribution to a Significant Cumulative Impact?
Willow Street							
Enterprise Dr. to Thornton Ave.	63.2	61.0	61.6	-1.6	No	+0.6	No
Enterprise Drive							
Hickory St. to Willow St.	50.5[2]	62.5	64.1	+13.6	Yes	+1.6	Yes

Cumulative impacts are assessed when:

- An increase of the existing ambient noise levels by 5 dB or more, where the ambient level is less than 60 dB CNEL;
- An increase of the existing ambient noise level by 3 dB or more, where the ambient level is 60 to 65 dB CNEL; or
- An increase of the existing ambient noise level by 1.5 dB or more, where the ambient level is greater than 65 dB CNEL.
- A cumulatively considerable contribution to a cumulative impact is assessed when the "Cumulative Plus Project" causes a 1 dBA increase in noise over the "Cumulative No Project" noise level. A significant impact would result only if both the combined and incremental effects criteria have been exceeded and the resulting noise level exceeds the applicable exterior standard at a noise sensitive use.

[1] Existing conditions modeling assume the current speed limit of 45 mph along Willow Street; Year 2035 modeling for Willow Street assumed the future speed limit of 25 mph (hence the reduction in traffic noise even with an increase

[2] As no existing traffic volume for this segment was available, the traffic noise measurement from the Project site visit was utilized for existing noise levels on this segment.

5.1.3 Construction Noise

Construction noise impacts are localized because they are limited to the construction site where construction equipment is operating. As discussed in Section 4.3.1, if a dozer, excavator and a loader were all operational at the same time, noise levels at the nearest residence (740 feet away) would be 58 dBA L_{EQ} (hourly). Future cumulative projects would be subject to the County's construction noise ordinance, which prohibits construction activity between 7:00 p.m. and 7:00 a.m. Monday through Friday, and between 5:00 p.m. and 8:00 a.m. on Saturday or Sunday. Additionally, future projects implemented within the TOD Specific Plan would be required to implement Mitigation Measures 4.10-1a and 4.10-1b from the Program EIR, which would reduce construction noise to a less than significant level. Implementation of Project design features described in Section 1.5 and compliance with the County ordinance and policies in the City Noise Element would reduce impacts to a less than significant level. Therefore, cumulative impacts would be less than significant.

5.1.4 Vibration

Vibration impacts are localized and not all construction activities for cumulative projects would occur at the same time or at the same location. Consistent with the Dumbarton TOD Specific Plan EIR, the Project vibration analysis has assumed a conservative threshold of 0.2-inch-per-second PPV (City of Newark 2011a); based on this threshold, the proposed Project would not result in an impact associated with construction vibration. According to the FTA, ground-borne vibration level of 0.2 inch-per-second PPV should be considered as damage threshold criterion for structures deemed "fragile" (FTA 2006). Cumulative projects within the Dumbarton TOD Specific Plan would need to comply with these limits for vibration impacts. Additionally, future projects implemented within the TOD Specific Plan would be required to implement Mitigation Measures 4.10-2 from the Program EIR if pile driving is required, which would reduce vibration impacts to a less than significant level. Therefore, a cumulative ground-borne vibration impact would not occur.

5.1.5 Airport Noise

No additional aviation uses are planned to be introduced in the immediate vicinity of the Project site. In addition, the Project does not propose any new air traffic. No NSLUs would be exposed to excessive noise levels from aviation as a result of the proposed Project. Therefore, a cumulative impact related to aviation would not occur.

5.2 MITIGATION MEASURES

The following mitigation measure shall be implemented to reduce cumulative traffic noise levels along Enterprise Drive from Hickory Street to Willow Street.

Noi-2 Reduce Posted Speed Levels Along Enterprise Drive. Prior to the issuance of building permits, the Project applicant shall coordinate with the City's Public Works Director to change the posted speed limit along Enterprise Drive (between Hickory Street and Willow Street) to 25

miles per hour. Implementation of this measure shall be indicated on all Project plans and specifications.

Noi-3 Site-Specific Noise Analysis for Proposed Uses along Enterprise Drive. Prior to the approval of building permits for residences located within 75 feet of the roadway centerline of Enterprise Drive between Hickory Street and Willow Street, a site-specific acoustic analysis shall be conducted to ensure exterior and interior sound levels are equal to or less than the applicable allowable limits (60 CNEL for single-family exterior, 65 CNEL for multi-family exterior, 45 CNEL for residential interior).

5.3 SIGNIFICANCE AFTER MITIGATION

Mitigation Measure Noi-2 would require the posted speed level along Enterprise Drive (between Hickory Street and Willow Street) to be reduced to 25 miles per hour. Modeling results for the Year 2035 scenario demonstrate that implementation of this measure would reduce exterior noise levels to within City standards, as shown in Table 5-2, *Mitigated Cumulative Exterior Traffic Noise Levels at 75-foot Representative Distance*. With implementation of Mitigation Measure Noi-3, proposed uses along Enterprise Drive within 75 feet of the roadway centerline would not be exposed to interior and exterior noise levels in excess of thresholds. Cumulative impacts would be less than significant.

Table 5-2
MITIGATED CUMULATIVE EXTERIOR TRAFFIC NOISE LEVELS AT 75-FOOT REPRESENTATIVE DISTANCE (CNEL)

Roadway Segment	Existing No Project	Mitigated 2035 With Specific Plan (without Project)	Mitigated 2035 With Specific Plan (with Project)	Cumulative + Project Change from Existing	Significant Cumulative Impact?	Project Contribution to Cumulative	Significant Contribution?
Enterprise Drive							
Hickory St. to Willow St.	50.5	56.3	57.8	+7.3	No[1]	+1.5	No[1]

Cumulative impacts are assessed when:

- An increase of the existing ambient noise levels by 5 dB or more, where the ambient level is less than 60 dB CNEL;
- An increase of the existing ambient noise level by 3 dB or more, where the ambient level is 60 to 65 dB CNEL; or
- An increase of the existing ambient noise level by 1.5 dB or more, where the ambient level is greater than 65 dB CNEL.
- A cumulatively considerable contribution to a cumulative impact is assessed when the "Cumulative Plus Project" causes a 1 dBA increase in noise over the "Cumulative No Project" noise level. A significant impact would result only if both the combined and incremental effects criteria have been exceeded and the resulting noise level exceeds the applicable exterior standard at a noise sensitive use.

[1] Although a change over 5 dB CNEL occurs and the Project contributes over 1 dBA to this change, there is no cumulative impact because total noise levels are below the 60 CNEL threshold; no impacts are assessed.

6.0 LIST OF PREPARERS

Elizabeth Scott	Acoustic Analyst
Charles Terry	Senior Acoustic Specialist
Joanne M. Dramko, AICP, GISP	Quality Assurance Reviewer

7.0 REFERENCES

California Building Code

2001. Based on the 1997 Uniform Building Code, Appendix Chapter 12, Division II - Sound Transmission Control, Section 1208 - *Sound Transmission Control*.

California Building Code

2001. Based on the 1997 Uniform Building Code, Chapter 12, Section 1203.3 - Ventilation.

California Noise Insulation Standards

2001. Effective 11/01/02, based on 1997 Uniform Building Code, California Code of Regulations, Title 24.

California Department of Transportation

2013 Transportation and Construction Vibration Guidance Manual. September.

2009a. Technical Noise Supplement. October. Sacramento, CA: Environmental Program, Noise, Air Quality, and Hazardous Waste Management Office. Sacramento, CA. Available at: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete2009RedlineScreenProcess.pdf. Accessed November 2014l

2009b. Traffic Noise Model. Technical Noise Supplement (TENs) Caltrans, California Department of Transportation.

2004. Traffic Noise Model. Transportation and Construction-Induced Vibration Guidance Manual, Environmental Program, Noise, Vibration, and Hazardous Waste Management Office. June 2004.

City of Newark.

2013a. Draft General Plan. Available at: http://www.newark.org/images/uploads/comdev/pdfs/GeneralPlan/General%20Plan%20Draft%202013.pdf . Accessed November 2014.

2013b. General Plan Tune Up Draft Program EIR. Available at: http://www.newark.org/images/uploads/comdev/pdfs/GeneralPlan/NewarkGP_DEIR_PublicReview.pdf. Accessed November 2014.

2013c. General Plan Tune Up Final Program EIR. Available at: http://www.newark.org/images/uploads/comdev/pdfs/GeneralPlan/102813/FPTuneup.pdf Accessed November 2014.

2013d, Updated. City of Newark Municipal Code. Available at: https://library.municode.com/index.aspx?clientId=16521. Accessed November 2014

City of Newark. (cont.)
2011a. Dumbarton TOD Specific Plan Final EIR. Available at: http://www.newark.org/images/uploads/comdev/pdfs/DumbartonTOD/Dumbarton-TOD-FEIR.pdf. Accessed November 2014.

2011b. Dumbarton TOD Specific Plan Draft EIR. Available at: http://www.newark.org/images/uploads/comdev/pdfs/DumbartonTOD/Dumbarton-TOD-DEIR.pdf. Accessed November 2014.

2010. Dumbarton TOD Specific Plan. Available at: http://www.newark.org/images/uploads/comdev/pdfs/DumbartonTOD/Final%20DumbartonTOD_SpecificPlan.pdf. Accessed November 2014.

2011c. General Plan Tune Up Noise Element Background Report. Available at: http://www.newark.org/images/uploads/comdev/pdfs/CAlPoly/BackgroundReport_FINAL/Final_12_Noise_Background_Report_06232012.pdf. Accessed November 2014.

Fehr & Peers.
2015. Update Memorandum for the Gateway Station West Transportation Analysis. January 26.

2014a. Gateway Station West Transportation Evaluation. September 23.

2014b. Personal communication between Mollie Pelon of Fehr & Peers, and Elizabeth Scott of HELIX. October 13 and 14.

Harris, Cyril M.
1998. *Handbook of Acoustical Measurements and Noise Control*, 3rd Edition, Acoustical Society of America, 1998.

Heeden, Robert A.
1978. Compendium of Materials for Noise Control, U.S. Department of Health, Education and Welfare, National Institute for Occupational Safety and Health. November.

Irvine, Leland K., Richards, Roy L.
1998. Acoustics and Noise Control Handbook for Architects and Builders, Kreiger Publishing Company.

NBS Building Sciences Series 77
1976. Acoustical and Thermal Performance on Exterior Residential Walls, U.S. Department of Commerce/National Bureau of Standards. November.

Western Electro-Acoustic Laboratory, Inc.
1985. 1711 Sixteenth Street, Santa Monica, California 90404, 213-80-9268, Sound Transmission Loss Vs. Glazing Type, Window Size and Air Filtration. The research

described in this report was prepared for the California Association of Window Manufacturers, 823 North Harbor Boulevard, Suite E, Fullerton, California 92632, 714-525-7088. January.

U.S. Department of Transportation (USDOT)

2012. High-Speed Ground Transportation Noise and Vibration Impact Assessment. September. Federal Railroad Administration (FRA). Available at: http://www.fra.dot.gov/eLib/Details/L04090

2008. Federal Highway Administration (FHWA). Roadway Construction Noise Model.

2006a. Federal Highway Administration (FHWA). Roadway Construction Noise Model User's Guide, Final Report. January. Available at: http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf.

2006b. Transit Noise and Vibration Impact Assessment. May. Federal Transit Administration (FTA). Available at: http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf .

\\\

\

Appendix A

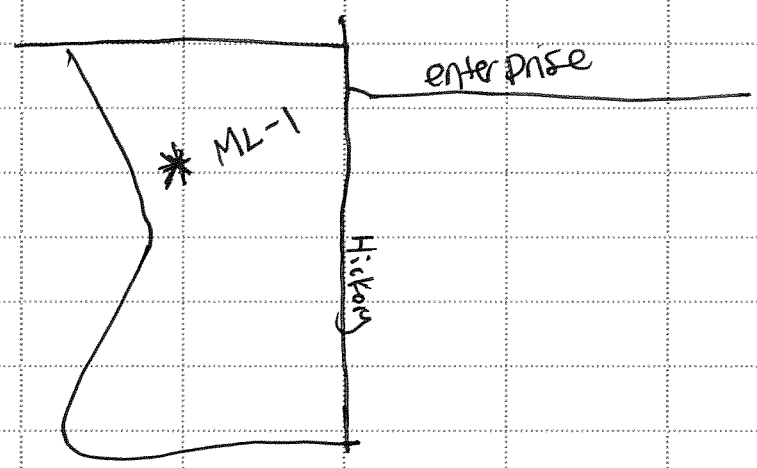
SITE VISIT SURVEY SHEETS

Site Survey

Job # Gateway (west)	Project Name: DAT-02	
Date: 9/11/14	Site #: ML-1 (ambient)	Engineer: Liz Scott
Address: 37°31'6.89" N, 122° 3'22.29" W (approximate)		
Meter: LD 720	Serial #:	Calibrator: LD CA250 / Serial #: 2520

Notes: Very quiet. Almost no birds. Some planes

Sketch:



Temperature: 68°F	Wind Speed: 8 mph NNE	Humidity: 83%
Start of Measurement: 11:05	End of Measurement: 11:20	50.5 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)
NA	NA	NA
on-site ambient		

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

Gateway Station West – Noise Measurement Location ML-1

Site Survey

Job # Gateway	Project Name: DAT-02	
Date: 9/11/14	Site #: ML-2 (traffic Noise)	Engineer: Liz Scott
Address: 37° 31'12.21"N, 122° 2'56.70"W (approximate)		
Meter: LD 720	Serial #:	Calibrator: LD CA250 — Serial #:

Notes: 50 feet from centerline (26 feet from first lane)
— HT & car Truck pulled in next to me increased noise level @ 6:00 minutes in — Plane @ ~7:30 — Plane @ 12:55

Sketch:

Temperature: 68	Wind Speed: 8 NNE	Humidity: 83%
Start of Measurement: 11:45	End of Measurement: 12:06	65.1 dBA L_{EQ}

Cars (tally per 5 cars)	Medium Trucks (MT)	Heavy Trucks (HT)

Noise Measurement for Information Only

No Through Roadways

No Calibration Analysis Will Be Provided

Gateway Station West – Noise Measurement Location ML-2

Appendix B

CONSTRUCTION NOISE MODEL RESULTS

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 6/10/2015
Case Description: Gateway

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Receptor 2	Residential	50	45	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	740	0
Dozer	No	40		81.7	740	0
Front End Loader	No	40		79.1	740	0

Results

	Calculated (dBA)		Noise Limits (dBA)					
			Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	57.3	53.3	N/A	75	N/A	N/A	N/A	N/A
Dozer	58.3	54.3	N/A	75	N/A	N/A	N/A	N/A
Front End Loader	55.7	51.7	N/A	75	N/A	N/A	N/A	N/A
Total	58.3	58	N/A	75	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.