

# APPENDICES

Appendix A

## City of Vallejo Correspondence

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Planning Division • 555 Santa Clara Street • Vallejo • CA • 94590 • 707.648.4326

November 21, 2018

Via email ([cwolfe@recology.com](mailto:cwolfe@recology.com))

Recology  
Attn: Christine Wolfe  
50 California Street, 24<sup>th</sup> Fl.  
San Francisco, CA 94111-9796

**Subject: Traffic Volume Increase - Recology Vallejo, 2021 Broadway St.**

To Whom It May Concern:

The Planning Division has received your request for a modification of Use Permit #87-27 and Use Permit #12-0009 to increase the allowable vehicles per day at Recology's Vallejo facility at 2021 Broadway Street from 299 to 360, with the calculation of vehicles per day based on a rolling 7-day average. The Planning Division has recently approved the following modifications:

On November 28, 2017 (see attached letter), Planning staff granted Recology Vallejo the following operational increases:

- Tonnage increase: 300 tons per day (tpd) to 600 tpd
- Vehicle increase: 199 vehicles per day (vpd) to 299 vpd
- Increase in hours for receipt of organic waste: 5:00am – 5:00pm, M-F to 5:00am – 7:00pm, M-Sat (to be consistent with the Franchise Agreement)

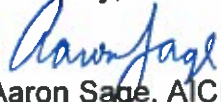
On April 10, 2018 (see attached letter), Planning staff granted Recology Vallejo the following operational increase:

- Increase operations to seven days a week (no change in operational hours) for the purpose of receipt only on Sundays for transfer loads.

Planning staff, Public Works, and the Traffic Engineer have reviewed the current request and the attached traffic study, and have determined that the additional 61 vehicles per day are consistent with the 1987 Use Permit and Negative Declaration and there will be no significant environmental impacts. The following modification to UP #87-27 and UP #12-0009 is hereby approved:

- Vehicle increase: 299 vehicles per day (vpd) to 360 vpd (7-day rolling average)

Sincerely,

  
Aaron Sage, AICP  
Principal Planner

cc(via email): Tom Phillip, Recology Vallejo



Appendix B

# Noise Study

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***RECOLOGY VALLEJO UPDATED SOLID WASTE  
FACILITY PERMIT (SWFP) PROJECT  
NOISE ASSESSMENT  
VALLEJO, CALIFORNIA***

**April 6, 2018**

◆ ◆ ◆

**Prepared for:**

**Chryss Meier  
GHD**

**Prepared by:**

**Paul Donovan**

***ILLINGWORTH & RODKIN, INC.***  
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I&R Job No.: 18-014



## INTRODUCTION

The Recology Vallejo facility is an existing transfer station located at 2021 Broadway Street in Vallejo, California. This facility receives green and food waste, and operates under a Solid Waste Facility Permit (SWFP) that allows a maximum of 300 tons per day (tpd) and a maximum average of 199 vehicles per day (vpd). The transfer station is also permitted to accept commingled recyclables. The SWFP limits the hours of receipt of organic waste material to between 5:00 a.m. and 5:00 p.m. Monday through Friday. The SWFP applies to the entire 9.36-acre property. Figure 1 shows the regional location of the facility, and Figure 2 shows the site of the facility and the surrounding community. Recology proposes a revision to the SWFP (the project) to increase the allowable incoming tonnage to a maximum of 600 tpd and maximum traffic volume to an average of 299 vpd. The increased throughput would be accommodated by modifying the operations at the site, increasing the hours of receipt of material to between 5:00 a.m. and 7:00 p.m. Monday through Sunday, and, if necessary, adding a second work shift, as detailed in Section 1.3. No new buildings or facility alterations would be required.

This report evaluates the project's potential to result in significant noise impacts with respect to applicable California Environmental Quality Act (CEQA) guidelines. The report is divided into three sections: 1) the Setting Section provides a brief description of the fundamentals of environmental noise, summarizes applicable regulatory criteria, and discusses the results of the ambient noise monitoring survey completed to document existing noise conditions; and 2) the Impacts and Mitigation Measures Section describes the significance criteria used to evaluate project impacts upon sensitive receivers, provides a discussion of each project impact, and presents measures, where necessary, to mitigate the identified impacts to a less-than-significant level.

## SETTING

### Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its *loudness*. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (*frequency*) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its



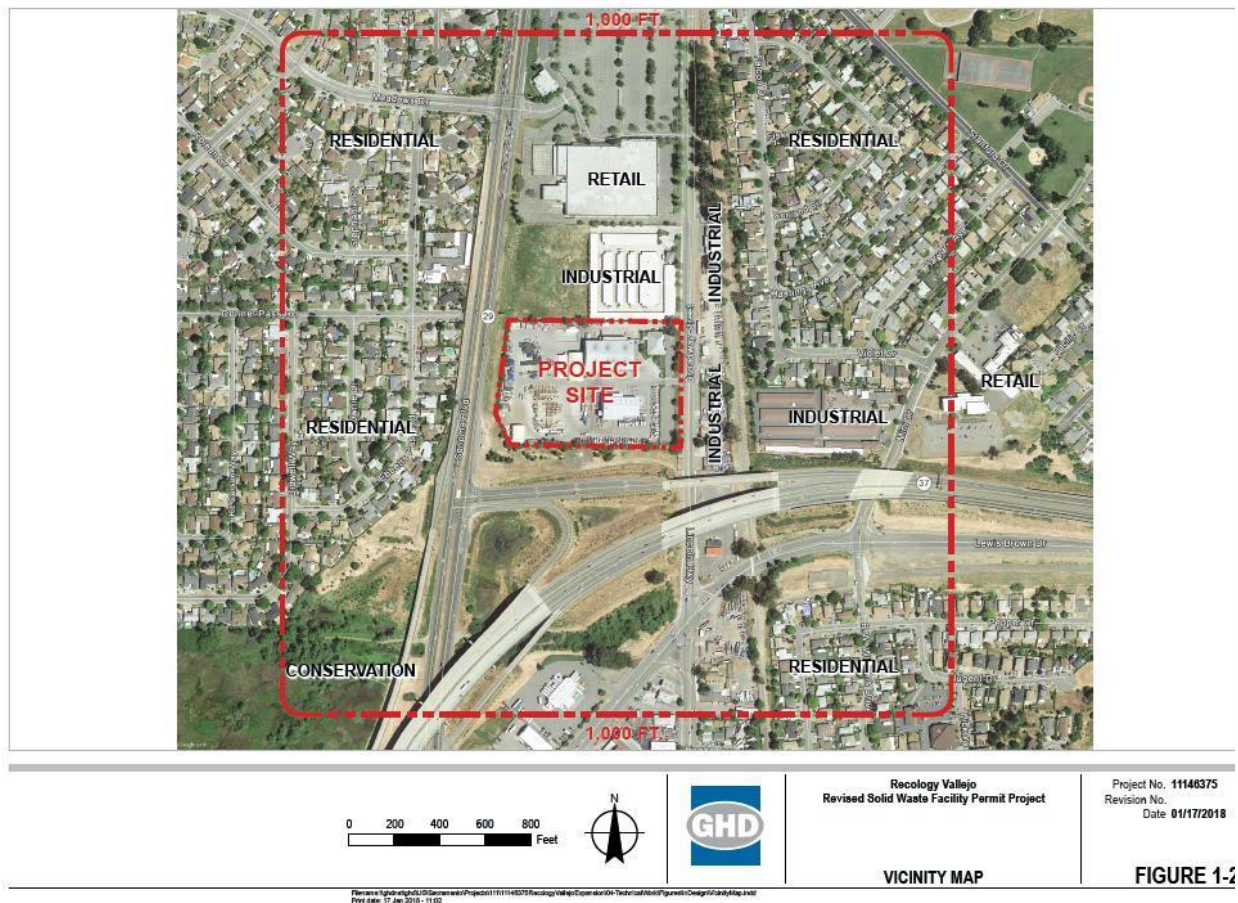


Figure 2: Project Site and Surrounding Community

intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level (dBA)*. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This *energy-equivalent sound/noise descriptor* is called  $L_{eq}$ . The most common averaging period is hourly, but  $L_{eq}$  can describe any series of noise events of arbitrary duration.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

*Table 1: Definition of Acoustical Terms Used in this Report*

<b>Term</b>	<b>Definition</b>
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20 micro Pascals.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e. g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, $L_{eq}$	The average A-weighted noise level during the measurement period.
$L_{max}$ , $L_{min}$	The maximum and minimum A-weighted noise level during the measurement period.
$L_{01}$ , $L_{10}$ , $L_{50}$ , $L_{90}$	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, $L_{dn}$ or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

Table 2: Typical Noise Levels in the Environment

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110 dBA	Rock band
Jet fly-over at 1,000 feet		
	100 dBA	
Gas lawn mower at 3 feet		
	90 dBA	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80 dBA	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	70 dBA	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60 dBA	
		Large business office
Quiet urban daytime	50 dBA	Dishwasher in next room
Quiet urban nighttime	40 dBA	Theater, large conference room
Quiet suburban nighttime		
	30 dBA	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20 dBA	
		Broadcast/recording studio
	10 dBA	
	0 dBA	

Source: Technical Noise Supplement (TeNS), California Department of Transportation, September 2013.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level (CNEL)* is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise



levels. The *Day/Night Average Sound Level* (DNL or  $L_{dn}$ ) is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

## **Regulatory Background**

The State of California and the City of Vallejo have established regulatory criteria that are applicable in this assessment. The State CEQA Guidelines are used to assess the potential significance of impacts pursuant to local General Plan policies, Municipal Code standards, or the applicable standards of other agencies. A summary of the applicable regulatory criteria is provided below.

***State CEQA Guidelines.*** The CEQA contains guidelines to evaluate the significance of effects of environmental noise attributable to a proposed project. Under CEQA, noise impacts would be considered significant if the project would result in:

- (a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- (b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- (c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- (d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- (e) For a project located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, if the project would expose people residing or working in the project area to excessive noise levels;
- (f) For a project within the vicinity of a private airstrip, if the project would expose people residing or working in the project area to excessive noise levels.

Pursuant to recent court decisions, the impacts of site constraints such as exposure of the proposed project to excessive levels of noise and vibration are not included in the Impacts and Mitigation Section of this report. Checklist items (a), regarding the compatibility of the project with noise and vibration levels at the site, are discussed in the General Plan Consistency section of the report. Checklist item (b) is not applicable in this assessment. Checklist items (a) and (c) are applicable in the assessment of potential impacts resulting from the proposed project at off-site receptors. Checklist items (e) and (f) are not applicable to this project because the project is not located within an airport land use plan, is not within two miles of an airport, and is not in the vicinity of a private air strip.

CEQA does not define what noise level increase would be considered substantial. Typically, an increase in the CNEL noise level resulting from the project at noise sensitive land uses of 3 dBA or greater would be considered a significant impact when projected noise levels would exceed those considered acceptable for the affected land use. An increase of 5 dBA CNEL or greater would be considered a significant impact when projected noise levels would remain within those considered acceptable for the affected land use.

***City of Vallejo General Plan 2040.*** The Vallejo General Plan 2040 provides the following relevant policies and actions to control noise in the City of Vallejo that would apply to the proposed project:

**POLICY NBE-5.13: Noise Control.** Ensure that noise does not affect quality of life in the community.

*Action NBE-5.13A:* Continue to require that new noise-producing uses are located sufficiently far away from noise-sensitive receptors and/or include adequate noise mitigation, such as screening, barriers, sound enclosures, noise insulation, and/or restrictions on hours of operation.

*Action NBE-5.13B:* Update City regulations to require that parking, loading, and shipping facilities and all associated mechanical equipment be located and designed to minimize potential noise and vibration impacts on residential neighborhoods.

*Action NBE-5.13C:* Update City regulations to restrict the allowable hours to between 7:00 a.m. and 7:00 p.m. on weekdays for construction, demolition, maintenance, and loading/unloading activities that may impact noise-sensitive land uses.

**POLICY NBE-5.15: Noise Compatibility Standards.** Apply the General Plan noise and land use compatibility standards to all new residential, commercial, and mixed-use development and redevelopment.

*Action NBE-5.15E:* When approving new development, limit project-related noise increases to the following for permanent stationary and transportation-related noise sources:

- No more than 10 dB in non-residential areas;
- No more than 5 dB in residential areas where the with-project noise level is less than the maximum “normally acceptable” level in the Noise and Land Use Compatibility figure (Table NBE-1 of the General Plan); and
- No more than 3 dB where the with-project noise level exceeds the “normally acceptable” level in Noise and Land Use Compatibility figure.

***City of Vallejo Noise Ordinance.*** The Vallejo Municipal Code establishes noise performance standards for noise sources and receptors in Vallejo. Section 7.84.010 generally prohibits loud unnecessary noises, but does not provide quantifiable noise level limits. Section 7.84.020 defines a “noise disturbance” as any sound which (1) endangers or injures the safety or health of humans

or animals; (2) annoys or disturbs a reasonable person of normal sensitiveness; or (3) endangers or injures personal or real property. Section 12.40.070 addresses excavating, grading and filling related to construction, however, the project does not involve any construction activities.







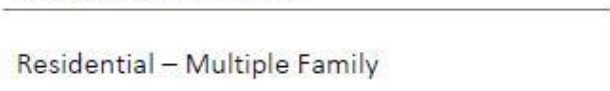











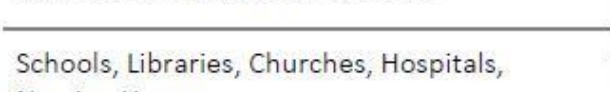








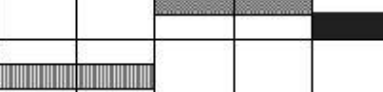









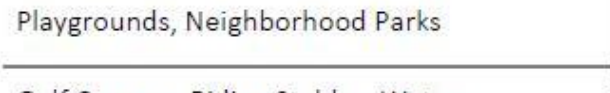











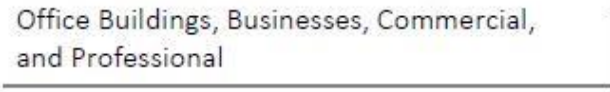





Chapter 16.72 establishes noise performance standards for land use generated noise. When sound is received at a rural residence the maximum allowable level is 55 dBA. The maximum allowable level is 60 dBA  $L_{eq}^{[1]}$  at low, medium, and high density residential districts. Correction factors are applied for time of day that the noise is generated and the character of the noise. If noise is only generated during the daytime (7:00 am to 10:00 pm) the allowable limit would be raised 5 dBA to 65 dBA  $L_{eq}$ . If the noise source is impulsive such as hammering or screeching, the allowable level would be reduced 5 dBA. Sounds from transportation equipment used exclusively in the movement of goods and people to and from a given premises are exempted from the code.


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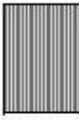
[1] Section 16.72.060 – Noise level measurement. D. Measured Sound Levels. The measurement of sound level limits shall be the average sound level for a period of one hour.





# TABLE NBE-1 California Land Use Compatibility for Community Noise Environments

Land Uses	CNEL (dBA)					
	55	60	65	70	75	80
Residential – Low Density Single-Family, Duplex, Mobile Homes						
Residential – Multiple Family						
Transient Lodging, Motels, Hotels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheaters						
Sports Arena, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						
Office Buildings, Businesses, Commercial, and Professional						
Industrial, Manufacturing, Utilities, Agricultural						

 **Normally Acceptable:**  
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

 **Conditionally Acceptable:**  
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

 **Normally Unacceptable:**  
New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

 **Clearly Unacceptable:**  
New construction or development generally should not be undertaken.

Source: Governor's Office of Planning and Research, General Plan Guidelines, November 2003.

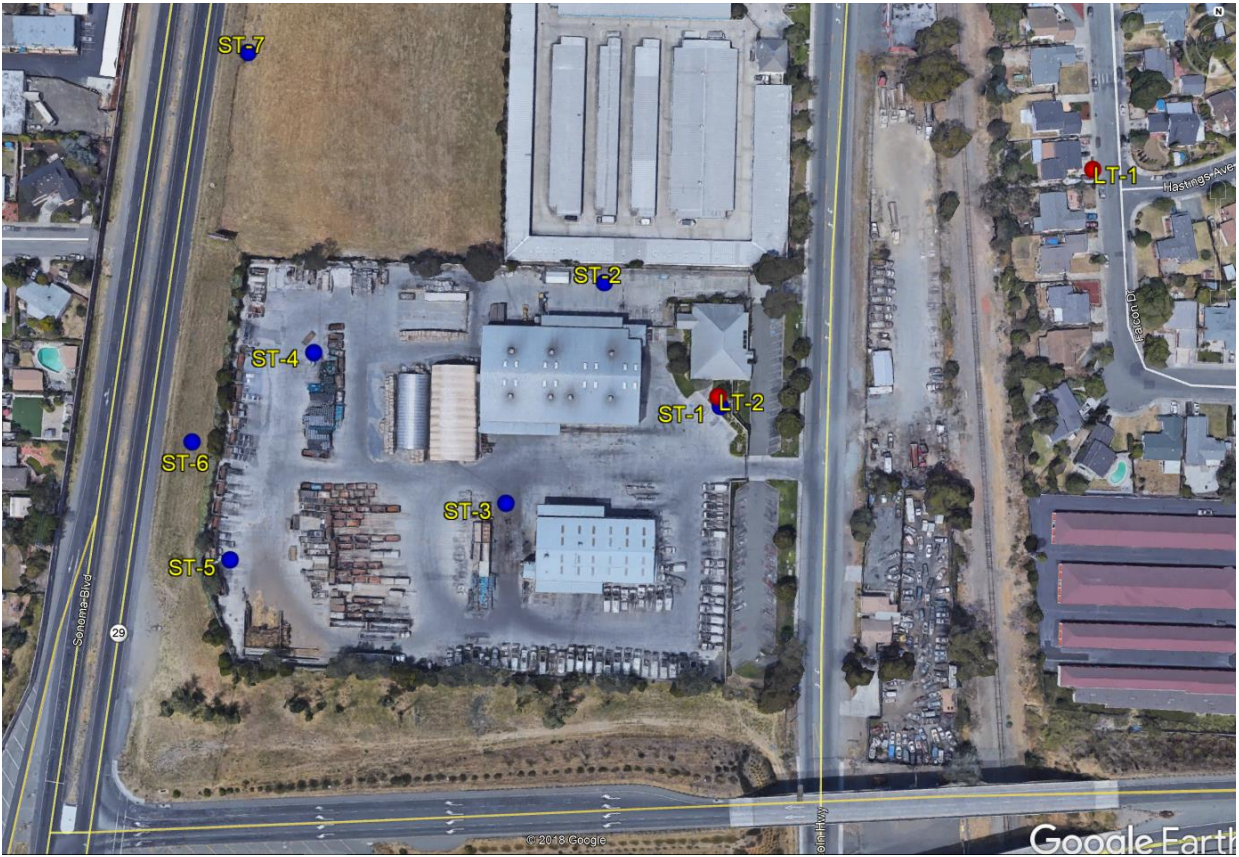
## Existing Noise Environment

The 9.36-acre project site is bounded by State Route (SR) 29 on the west, SR 37 ramps on the south, and Broadway Street on the east (see Figure 2). North of the site are other industrial and commercial facilities. To the east of the entrance of Recology Vallejo, the closest residences are approximately 420 feet away. In between the site and the residences and to the east of Broadway, there are commercial/industrial uses. To the west of the western perimeter of the site, the closest residences are 220 feet away, with SR 29 in between. These residences are shielded from SR 29 and the project site by existing sound walls estimated to be about 12 feet tall. SR 29 has a traffic volume of 53,000 Annual Average Daily Traffic (AADT) in the section adjacent to the Recology facility and a posted speed limit of 50 mph. Broadway Street has an AADT of 8,100 and speed limit of 35 mph. From the City of Vallejo General Plan 2040 DEIR Update report,<sup>1</sup> the dominant noise source at the project site and in the surrounding area would be SR 37, and at a distance of 100 feet from the centerline of SR 37, the noise level is about 79 dBA  $L_{dn}$  under existing conditions and would be about 80 dBA  $L_{dn}$  by the year 2040. Additionally, SR 29 currently generates noise levels of 74 dBA  $L_{dn}$ , and would continue to generate a noise level of 74 dBA  $L_{dn}$  by the year 2040, as measured at a distance of 50 feet from the centerline of the roadway. Broadway Street was not included in the DEIR report.

A noise monitoring survey was performed to quantify and characterize ambient noise levels at the site and in the project vicinity between Wednesday, February 7, 2018 and Friday, February 9, 2017. The monitoring survey included two long-term noise measurements (LT-1 and LT-2) and seven short-term measurements (ST-1 through ST-7), as shown in Figure 3. The noise environment at the site and at the nearby land uses results primarily from vehicular traffic along SR 29 and SR 37, with Broadway Street being a secondary noise source.

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<sup>1</sup> PlaceWorks, *Propel Vallejo General Plan 2040 and Sonoma Boulevard Specific Plan Environmental Impact Report*, October 2016.



*Figure 3: Locations of long-term (LT) and short-term measurement sites*

Long-term noise measurement location LT-1 was made adjacent to the intersection of Falcon Drive and Hastings Avenue about 590 feet away from the entrance to the Recology facility. Hourly average noise levels at this location ranged from 56 to 67 dBA  $L_{eq}$ , with an average of 56 dBA  $L_{eq}$  during the day, and from 51 to 67 dBA  $L_{eq}$ , with an average of 57 dBA  $L_{eq}$  at night. The daily trend in noise levels at LT-1 is shown in Figure 4. The  $L_{dn}$  on the first day was 65 dBA and 66 dBA on the second day. Long-term noise measurement LT-2 was made on the Recology site near the entrance and the facility offices. This site was chosen in order to determine if the noise produced at the facility could be associated with that at LT-1. Hourly average noise levels at this LT-2



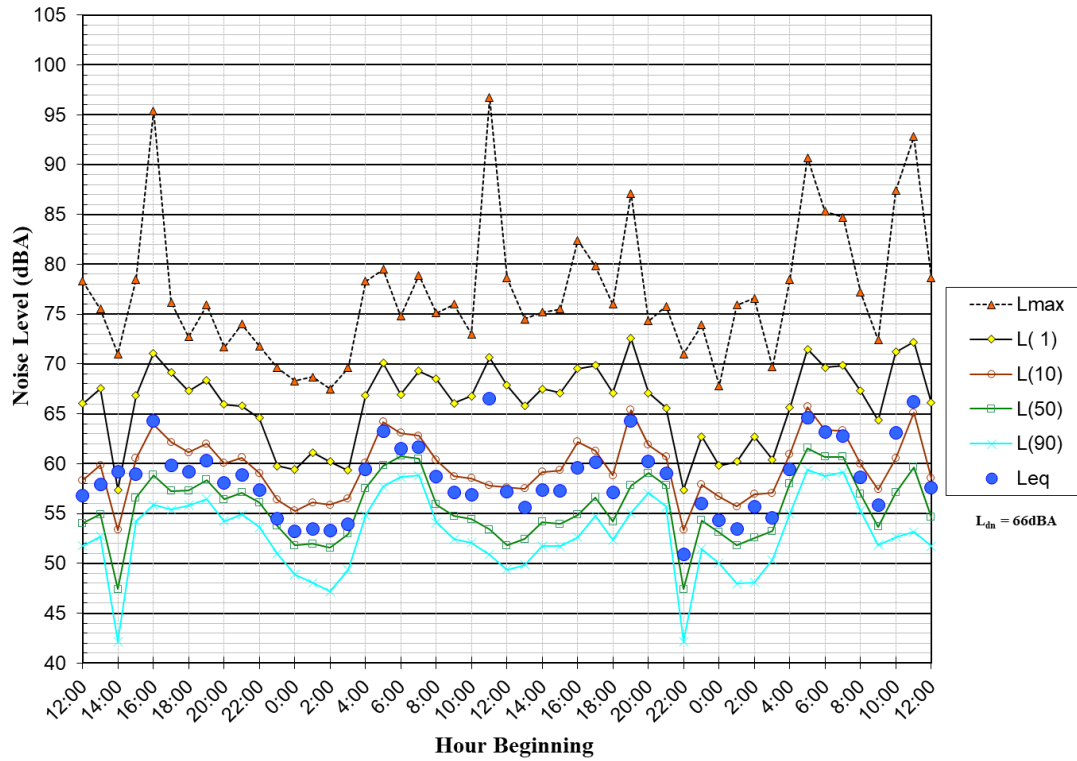


Figure 4: Noise levels measured at LT-1 in the residential area to the east

ranged from 51 to 69 dBA  $L_{eq}$ , with an average of 64 dBA  $L_{eq}$  during the day, and from 51 to 69 dBA  $L_{eq}$ , with an average of 60 dBA  $L_{eq}$  at night. The daily trend in noise levels at LT-2 is shown in Figure 5. The  $L_{dn}$  was 70 dBA on both days. The results at residential location of LT-1 indicate a diurnal pattern of traffic noise for the  $L_{eq}$ ,  $L_{10}$ ,  $L_{50}$ , and  $L_{90}$  values, where the higher levels occur during the times of morning and evening commuting. During the daytime hours, the  $L_{max}$  and  $L_1$  levels are likely determined by short, specific events that are particularly evident in the  $L_{max}$  values. The noise levels for LT-2 on the Recology site show a different pattern with the  $L_{eq}$ ,  $L_{10}$ ,  $L_{50}$ , and  $L_{90}$  that reflect the operation of the facility in which all waste receipt and sort line operations generally occur between 5:00 a.m. and 5:00 p.m., five days per week, Monday thru Friday. In the evening hours after 5:00 p.m., the levels drop some, but are consistent with the permitted 24-hour operation. Comparing Figures 4 and 5, it is apparent that there is little, if any, correlation of the residential received noise to the noise produced on the Recology site. This is confirmed by the plot of Figure 6 which shows the  $L_{eq}$  values for LT-1 plotted versus those of LT-2. If there were a relationship between these noises, the linear regression through the data points would indicate a slope of nearly 1-to-1 and a coefficient of determination ( $R^2$ ) in the range of 0.9 to 1.0.

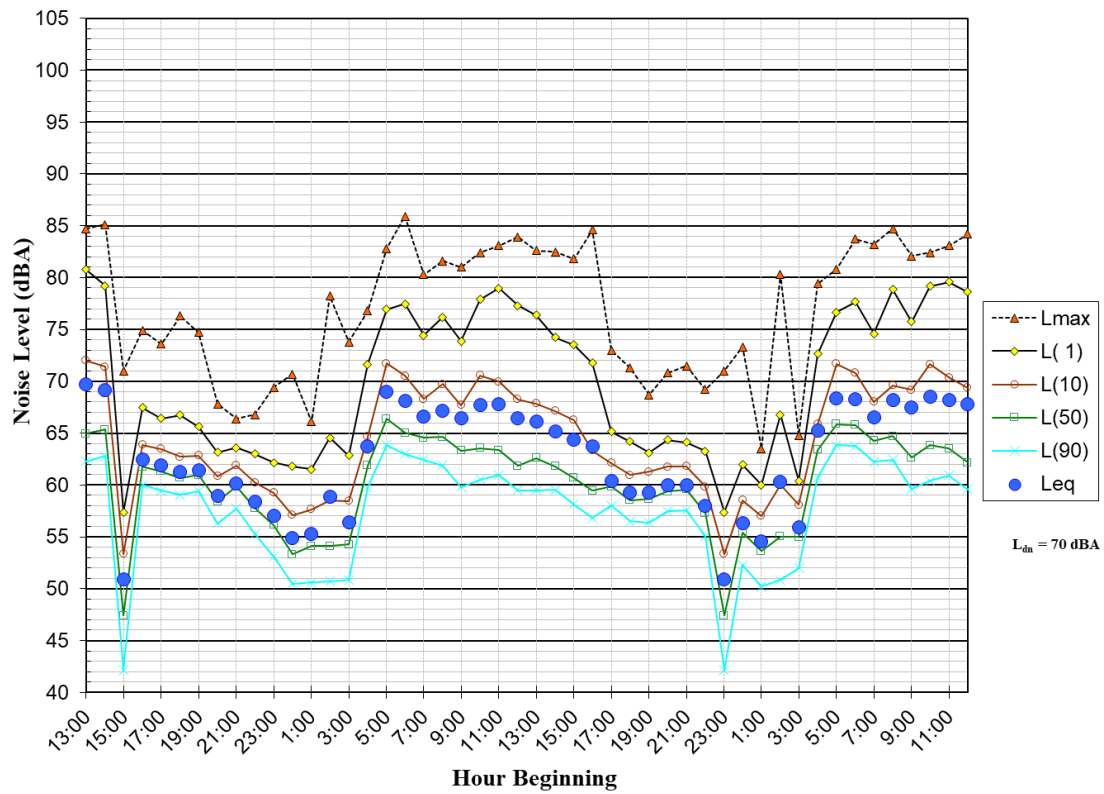


Figure 5: Noise levels measured at LT-2 on the Recology Vallejo site

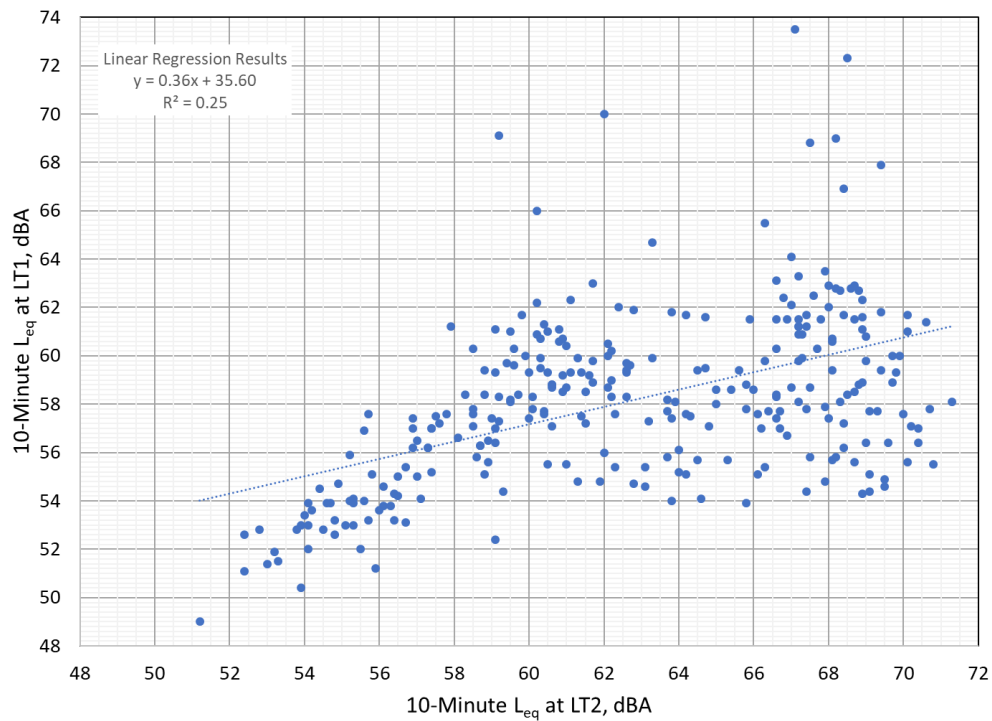


Figure 6: Linear regression of LT-1 and LT-2  $L_{eq}$  values

Five of the seven short-term noise measurements (ST1-ST5) were made within the Recology facility are shown in Figure 7. The levels and measurement notes for each of these locations are provided in Table 3. The highest  $L_{eq}$  values (74.1 dBA) were measured at ST-3 opposite the

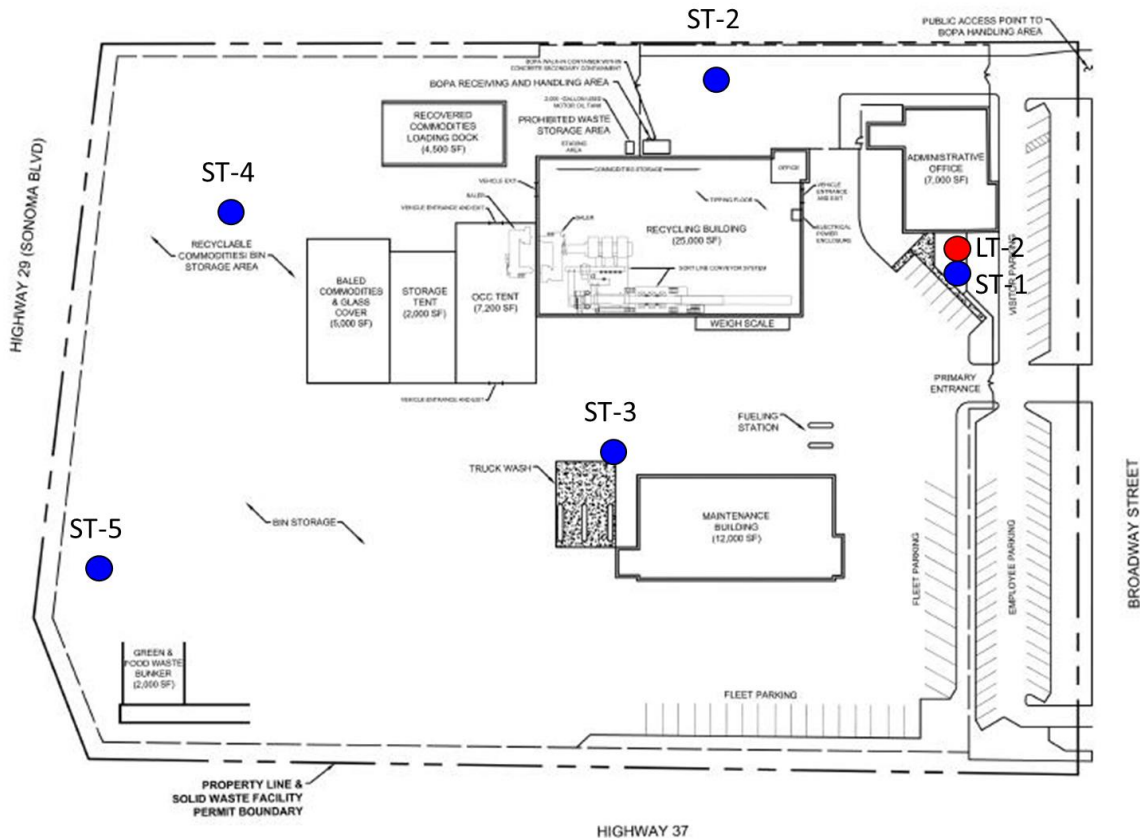


Figure 7: Location of short-term noise measurement on Recology Vallejo site

Recycling Building on the south side. On the north side, ST-2, the levels were lower (69.8 dBA). Of all the operations active at the time of measurements, the dominant noise-producing activities were those associated with this building. This is confirmed in Figure 8, which plots the  $L_{eq}$  values at each of the five ST locations with the levels at LT-2 at the corresponding times. This figure also indicates that although the highest local noise levels were associated with Recycling Building, at the eastern border of the site toward the residences to the east, the levels were by about 7 dB lower.

Two ST measurements were made along SR 29 with ST-6 being alongside the Recology facility and ST-7 being north of it. The  $L_{eq}$  at ST-6 averaged 70.3 dBA and ST-7 was 67.6 dBA. The higher levels at ST-6 were not attributed to the Recology facility, but rather to the closer proximity to SR 37. Based on the ST measurements on the western side of the facility, which averaged about 62 dBA, it is unlikely that the levels at ST-6 were influenced by noise from the facility as the LT-2 levels were constant throughout the entire ST measurement period.

Table 3: Noise levels measured at short-term (ST) locations

Observations	Noise Level, dBA					
	$L_{eq}$	$L_{max}$	$L_1$	$L_{10}$	$L_{50}$	$L_{90}$
<b>ST-1</b> – Trucks were 1 in and 4 out at 67 to 69 dBA, loader backup alarm 82, fork lift backup 63 dBA, loud truck leaving 75 dBA	67.1	81.5	78.5	68.7	63.1	60.5
<b>ST-2</b> – Sorting machine running w/bay doors open, backup beepers 70-72 dBA, 1 front-end loader operating in Recycling Building	69.8	78.7	74.6	71.6	69.2	67.5
<b>ST-3</b> – Constant noise from Recycling Building machine with bay doors open 74-75 dBA, 57 dBA with machine off, other noises audible but not measurable	74.1	76.1	75.6	74.7	74.1	73.1
<b>ST-4</b> – Little immediate activity, backup beepers 72-74 dBA, forklift at 50ft 64 dBA, after measurements – truck unloading bin at 50ft 71 dBA at idle, bin motor 78-83 dBA	61.5	75.0	72.3	63.9	55.9	53.5
<b>ST-5</b> – Little activity, before measurements loader at food waste bin 80-88 dBA	62.2	73.7	68.8	64.8	60.9	58.0

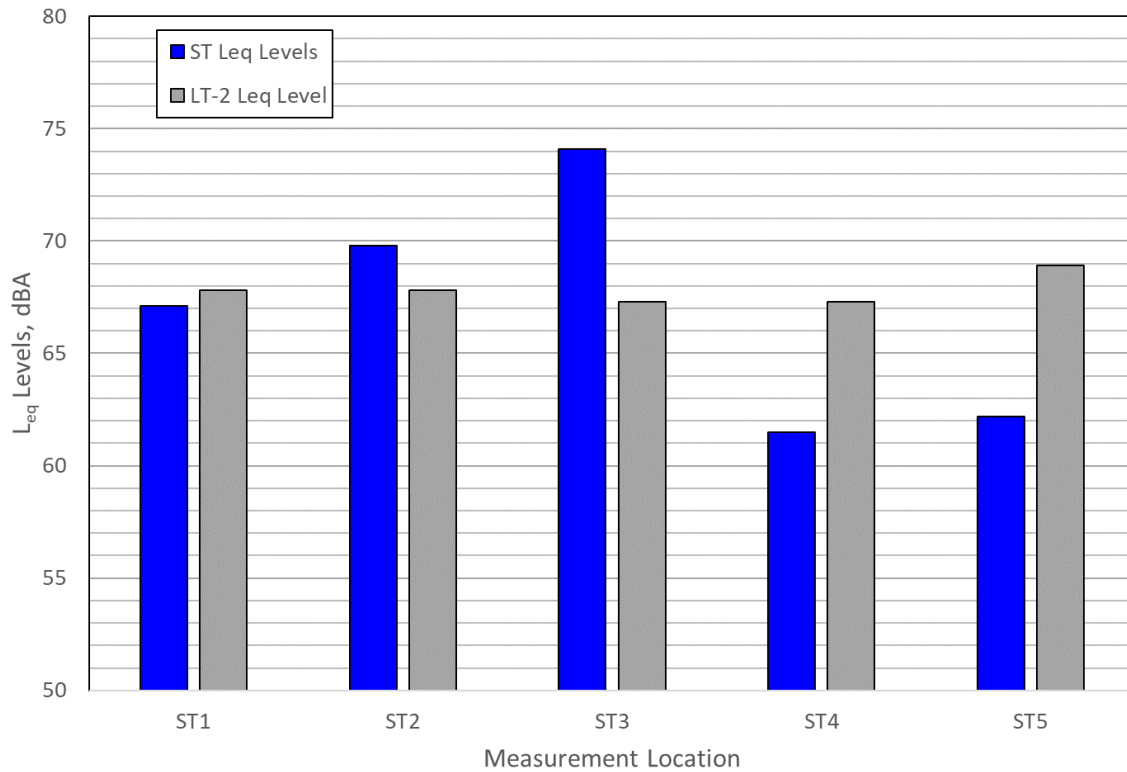


Figure 8: Comparison of 10-minute  $L_{eq}$  levels at short-term measurement location on the project with 10-minute  $L_{eq}$  levels from LT-2 at the corresponding time

## NOISE IMPACTS AND MITIGATION MEASURES

The Recology facility is surrounded by other industrial/commercial uses or by state highways that are significant sources of noise. The closest residences are to the west of the site with SR 29 intervening and an existing sound wall shielding the residences from the traffic noise. The other residences in the vicinity are to the east of the facility with Broadway Street and commercial uses in between. The Noise Level Performance Standards of the City of Vallejo specify that the maximum allowable noise in non-rural residential districts is an hourly  $L_{eq}$  of 60 dBA except between hours 7:00 a.m. to 10:00 p.m. when the maximum allowable is 65 dBA. For land use compatibility, the City of Vallejo General Plan has a goal of 60 dBA  $L_{dn}$ , but will allow 65 dBA  $L_{dn}$  at the discretion of the City. In residential areas where the  $L_{dn}$  exceeds 60 dBA, increases in the ambient noise level are limited to 3 dBA. The  $L_{dn}$  at the residences to the east of the project exceed 60 dBA. From the long-term measurements, there is no apparent correlation between the noise generated at the Recology facility and that measured in the residential areas.

### Significance Criteria

The following criteria were used to evaluate the significance of environmental noise resulting from the project:

- A significant impact would be identified if the project generated sustained increases in noise of 10 dBA or more in non-residential areas, 5 dBA or more in residential areas where with-project noise levels are less than 60 dBA  $L_{dn}$ , or 3 dBA or more in residential areas where with-project noise levels exceed 60 dBA  $L_{dn}$ .

**Impact:**      **Noise Levels Increase by More Than 3 dB.** Upon project implementation, the operations of the Recology Vallejo facility will not increase noise levels by more than 3 dBA. **This is a less-than-significant impact.**

Under the proposed project, a maximum average of 299 vehicles per day (vpd) would be increased from the existing condition of 199vpd, the maximum amount of incoming recyclable and organic materials would be increased to 600 tons per day (tpd) from the existing condition of 300 tpd, and an increase in hours of receipt of materials would be increased by two hours in the evening, from 5:00 a.m. to 5:00 p.m. to 5:00 a.m. to 7:00 p.m., Monday through Sunday. The increase from 300 tpd to 600 tpd is a 100% increase in throughput. From the 2013 traffic study, a throughput of 300 tpd generates 180 total truck trips per day, which includes 20 AM peak hour trips and 14 PM peak hour trips. However, based on the existing trips estimated by Recology Vallejo, the total daily truck trips between Monday and Wednesday is 119 (less than 180), on Thursdays and Fridays is 199 (greater than 180), and on the weekends is 80 (less than 180). The project proposes to increase to 600 tpd, which would double the number of truck trips. Therefore, the proposed project is expected to generate 180 additional truck trips per day, with 20 AM peak hour trips and 14 PM peak hour trips. Recology Vallejo does not anticipate any change in the number of drivers or office employees with the proposed project.

From an overall, high level point-of-view, doubling the throughput and therefore doubling the truck trips would produce a maximum 3 dBA increase in noise level during the hours of operation.



However, existing noise sources produced by the Recycling Building operations and by traffic noise along roadways in the vicinity of the project site, which contribute to the existing noise environment, may not result in an increase with the added truck trips. To calculate the noise level increase due to the increase in truck trips, an acoustical model of the roadways surrounding the project site was created using the Federal Highway Administration's (FHWA) Traffic Noise Model, version 2.5 (TNM). To model the existing peak hour traffic scenario in TNM, the existing peak hour traffic volumes along Broadway Street and SR 29, which were included in the 2013 traffic study, were used for the surrounding roadways. The existing peak hour truck trips determined for this project, which were 12 heavy trucks during the peak AM hour and 8 heavy trucks during the peak PM hour, plus an additional 5 trucks for other commercial and industrial uses in the area consisted of the total assumed heavy truck traffic along Broadway Street during the peak hour. Conservatively, the medium truck traffic was assumed to be about 1% along Broadway Street. Based on Caltrans truck percentages along this stretch of SR 29, medium and heavy truck traffic were assumed to be 3% each. For both roadways, the posted speed limit of 35 and 50 mph for Broadway Street and SR 29, respectively, were used in the TNM model. With the project, the 20 AM peak hour trips and 14 PM peak hour trips were added to the truck volumes in the model.

Noise levels at receptors placed 50 feet east of the centerline of Broadway Street and at LT-1 increased by 1 to 2 dBA during the peak AM and PM hours. A less than 1 dBA increase was calculated at the receptor locations at ST-6 and ST-7 shown in Figure 3, as well as a receptor positioned 75 feet west of the centerline of SR 29 where the backyards of residences are located. The monitoring results shown in Figures 4 and 5 indicate that the peak hour of both long-term measurements was equivalent to the day-night average noise level at these locations. Therefore, the day-night average noise level increase along Broadway Street would be 1 to 2 dBA  $L_{dn}$  and along SR 29 would be less than 1 dBA  $L_{dn}$ .

To estimate the increase in noise level due the increase in hours of operation, the data from Figure 5 was used. During the February 8, 2018 operations, the hourly  $L_{eq}$  varied in level from 5:00 a.m. through 5:00 p.m., with the levels decreasing toward the end of that time period. The average hourly  $L_{eq}$  over that time period was 66.9 dBA. Assuming that the higher levels during the earlier part of the day are more typical of higher recycling material throughput, the  $L_{eq}$  of 68.1 dBA was used to represent full or near capacity conditions. If this level is assigned to all of the hours from 5:00 a.m. to 7:00 p.m. (the proposed new operating hours), the average hourly  $L_{eq}$  becomes 68.4 dBA, representing a 1.5 dBA increase over the existing 66.9 dBA. On a 24-hour basis, this would increase the  $L_{dn}$  from 70.0 dBA to 70.4 dBA, a 0.4 dBA increase.

The proposed project could generate 180 more truck trips per day. At LT-2, this would be equivalent to 360 more in and out truck pass-by events. During the peak hour operation, 20 trucks per hour during the peak AM hour or 40 pass-by events per hour would occur. Currently, weekday daily trips consist of 119 trucks. That would be 12 trucks during the peak AM hour. During the existing 12 hours of operation, 24 pass-by events per hour occur. Consistent with the noise levels noted for truck pass-bys at ST-1 and other references, the maximum pass-by level of a heavy truck is 75 dBA at 50 feet or about 73 dBA at the distance of ST-1 and LT-2 from the site exit. A single, low speed truck pass-by entering or leaving the facility at a speed of 20 to 25 mph would produce a single event level of about 74 dBA over a period of about 10 seconds. At 24 truck pass-bys per

hour, the existing  $L_{eq}$  would be 63 dBA in the absence of any other noise. At the proposed rate of 40 truck pass-bys per hour, the  $L_{eq}$  would be 64 dBA. This would be a 1 dBA increase. These estimated truck hourly  $L_{eq}$  are less than the corresponding operations levels so that the actual increase in level due to increased truck traffic would be less than 1 dBA.

This analysis was performed in and around the immediate vicinity of the Recology facility. As noted previously, there appears to be no correlation between the LT measurements made at the facility and those at the nearest residences. At these residences, there should be no increase in the  $L_{dn}$  or hourly  $L_{eq}$  values.

**Mitigation Measure: None Required**

Appendix C

## Transportation Memorandum

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## TECHNICAL MEMORANDUM

November 26, 2018

To: County of Solano

From: Chryss Meier

Tel: 916.514.4442

Reviewed: Matt Wargula, PE, TE

Subject: Recology Vallejo Revised Solid Waste Facility Permit Project  
IS/ND Transportation/Traffic

Job no.: 11146375

### 1. Background and Purpose

#### Background

The Recology Vallejo facility (Facility) is an existing transfer station and processing facility that is permitted to receive commingled recyclables and organic materials, including green waste and food waste. The Facility is located at 2021 Broadway Street, Vallejo, CA. The Facility operates under a Solid Waste Facility Permit (SWFP) that allows the Facility to receive a maximum of 300 tons of mixed recyclables and organic materials per day (tpd) and a maximum average of 199 vehicles per day (vpd). The SWFP limits the hours of receipt of recyclables and organic waste material to between 5:00 AM and 5:00 PM Monday through Friday.

The most recent SWFP was issued in 2014 and increased the allowable incoming materials at the Facility from the previous maximum of 177 tpd to the current 300 tpd and to allow the collection of food waste. The County of Solano Department of Resource Management, in their role as the CalRecycle Local Enforcement Agency (LEA), prepared and approved an Initial Study/Mitigated Negative Declaration in conjunction with the SWFP (County of Solano 2014).

In addition to the SWFP, the Facility currently operates under a conditional use permit (CUP) with the City of Vallejo for processing recyclable materials. The City of Vallejo granted the CUP for the existing Facility in August of 1987. An Environmental Assessment was prepared in May of 1987 for the Facility (which consolidated operations formerly located at several other sites in Vallejo), prior to the issuance of the CUP (EIP 1987). In 2012, the City of Vallejo issued a CUP to the Facility allowing the collection of green waste. In 2013, the City approved an amendment to the green waste collection CUP to allow food waste collection at the Facility. In 2018, the City of Vallejo issued a modification to both the 1987 CUP and 2012 CUP to permit transfer loads to be received at the facility Monday-Sunday (City of Vallejo 2018).

Recology Vallejo proposes the Revised SWFP Project (project) to increase the allowable incoming tonnage to a maximum of 600 tpd and traffic volume to 360 vehicles per day on a 7-day rolling average. The proposed project would also increase the hours of receipt of material to 5:00 AM - 7:00 PM, Monday through Sunday. The increased throughput would be accommodated by modifying the operations at the site, increasing the hours of receipt, and, if necessary, adding a second work shift.

Recology Vallejo requested a review of the project by the City of Vallejo to identify if any permit approvals would be required by the City. The City determined that the proposed project is consistent with the existing CUP and no additional approvals are required (City of Vallejo 2017a). Therefore, the County of Solano Department of Resource Management, in their role as the LEA, is considered the CEQA lead agency for the project. Because the project is physically located within the City of Vallejo, the County has given consideration to the City's Traffic Impact Analysis/Study Guidelines and the City's recently certified



General Plan 2040 and Sonoma Boulevard Specific Plan EIR. In addition, the County has given consideration to the City's use permit modification letter, which states that Planning staff, Public Works, and the Traffic Engineer have reviewed the request, and determined that the increased operations will not significantly impact the city's street network (City of Vallejo 2018).

## **Purpose**

In support of the preparation of an Initial Study/Negative Declaration (IS/ND) for the Project, this Technical Memorandum summarizes a review of potential transportation/traffic impacts for the project.

## **2. Existing Conditions**

### **Applicable Plans and Previous Studies**

The following is a summary of the applicable plans and previously completed studies which were reviewed in the preparation of this memorandum:

- Propel Vallejo General Plan 2040 (City of Vallejo 2017b)
- General Plan 2040 and Sonoma Boulevard Specific Plan EIR (City of Vallejo 2017c)
- 2013 Recology Vallejo Traffic Study (PHA Transportation Consultants 2013)
- 2012 Solano Countywide Bicycle Transportation Plan (STA 2012)

### **Propel Vallejo General Plan 2040**

The Propel Vallejo General Plan 2040 (General Plan) includes a Mobility, Transportation, and Connectivity Element that provides roadway classifications, goals and policies that pertain to the project. The hierarchy of the functional classifications in the City consist of freeways, two-lane highways, principal arterials/state routes, arterials, collectors, and locals, defined as follows:

- Freeways provide mobility between Vallejo and regional destinations. Freeways are linked to the City's network via ramps, are fully access controlled, and are divided highways with at least two lanes per direction. Freeway capacities depend primarily on the number of through lanes and the presence of auxiliary lanes (lanes connecting an on-ramp to the downstream off-ramps).
- Two-Lane Highways provide mobility between Vallejo and regional destinations. The only two-lane highway in the General Plan area is State Route (SR) 37 just west of the Mare Island interchange. This facility has level terrain, a raised divider, and limited access.
- Principal Arterials/State Routes provide the highest level of mobility for traffic within the City after freeways and link freeways to other arterials, collectors, and local streets. Principal arterial streets typically have four travel lanes and are generally higher-speed roadways, with ½- to 1-mile signalized intersection spacing.
- Arterial Streets provide mobility for high traffic volumes between parts of the city, linking collectors to principal arterial streets and freeways. These roadways are typically lower-speed and have lower volumes than principal arterials, and provide two to four lanes, and sometimes six lanes. Arterials typically provide more property access points than principal arterials, but are still more restricted than collectors or local streets.
- Collector Streets provide connectivity within the city, linking local roads to arterials. Collectors, along with local streets, provide the highest level of access from private property driveways. Collectors typically have lower speeds than arterials, and more closely spaced intersections than arterials.



- Local Roadways provide direct access to property, and typically have higher intersection spacing and lower speeds than other roadway classes.

Furthermore, the General Plan provides the first step towards establishing a Complete Streets Overlay Network according to typologies that consider the context of and prioritize travel modes for each street. The General Plan suggests the following preliminary definitions to guide the development of Vallejo's complete street typologies:

- **Neighborhood Corridor** – Neighborhood Corridor streets serve the transportation needs of the mix of uses within the linear corridor defined by the street. While vehicular circulation, including longer trips through the corridor, are accommodated, pedestrian and bicycle circulation are prioritized in order to make the corridor a vital public place with thriving businesses that serve the needs of the surrounding neighborhoods.
- **Transit Street** – Transit Streets are those that serve the primary public transit routes. Signal pre-emption for transit vehicles and high-quality bus stops are provided on transit streets, and bus-only lanes may be provided where appropriate. Other travel modes, including pedestrians, bicycles and automobiles, are accommodated, but if there are conflicts in providing space for these modes, transit has the priority. Of the competing modes, the pedestrian mode is most important, since almost all transit trips begin and end with a walking trip.
- **Sonoma Boulevard** – Designated as State Route 29 and owned and operated by Caltrans, Sonoma Boulevard is a key north-south connector in Vallejo that connects I-80 to SR 37 and points north in Solano and Napa counties. While vehicular (auto, bus, and truck) modes have traditionally been the priority on State Routes, Caltrans has adopted a Complete Streets program that mandates a balanced modal approach to planning for all state routes, and the Sonoma Boulevard Specific Plan identifies a variety of development features to support non-vehicle travel along the corridor between Curtola Parkway and Redwood Street.
- **Bike Priority Streets** – Bike Priority Streets are those that provide key connections for bicyclists within the citywide bicycle network. Bike Priority Streets typically provide Class II facilities (bicycle lanes) or Class IV facilities (separated/buffered bikeways). Separated bikeways may be located on-street, but they add distance between the bicyclist and the motorized vehicle traffic. The separation may include grade separation, physical barriers, or on-street parking.
- **Truck Routes** – While virtually all streets in the city may be used by trucks for direct delivery to a property on that street, Truck Routes are the roadways designated by the City for truck travel between the truck origin and the roadway on which the destination is located. All travel modes are generally accommodated on a truck route, but where conflicts exist, truck movements are given priority.

The General Plan identifies proposed/planned San Francisco Bay Trail and Napa Valley Vine Trail regional trail improvements along Broadway Street.

**San Francisco Bay Trail.** The San Francisco Bay Trail is envisioned as a 500-mile trail that will link the shoreline of all nine Bay Area counties and connect with the Napa Valley Vine Trail, Bay Area Ridge Trail, and San Francisco Bay Area Water Trail. Some segments of the Bay Trail are completed in Vallejo.

**Napa Valley Vine Trail.** The Napa Valley Vine Trail is a 47-mile trail from the Vallejo Ferry to Calistoga, linking Vallejoans, Bay Area residents, and San Francisco visitors with



recreation and tourism in wine country. Two possible alignments between American Canyon and Vallejo are currently under study.

The following goals and policies pertain to the project:

- Policy MTC-2.5. Street Classification System. Maintain a street classification system that establishes user mode priorities and associated performance standards for each type of street.
  - Action MTC-2.5A Establish performance standards for each street type that include adequate emergency vehicle use.
  - Action MTC-2.5B Set vehicle Level of Service of E or better as an advisory standard to be considered along with, but not to override, metrics for pedestrian, bicycle, transit, and emergency access performance, with the prioritization of metrics to be determined by the street type and context.

Finally, the General Plan provides the following Level of Service (LOS) definitions:

**LOS A** Free Flow or Insignificant Delays: Operations with very low delay. Most vehicles do not stop at all.

**LOS B** Stable Operation or Minimal Delays: An occasional approach phase is fully utilized. Some drivers feel restricted.

**LOS C** Stable Operation or Acceptable Delays: Drivers begin having to wait through more than one red signal. Most drivers feel somewhat restricted.

**LOS D** Approaching Unstable or Tolerable Delays: Drivers may have to wait through more than one red signal. Queues may develop, but dissipate rapidly, without excessive delays.

**LOS E** Unstable Operation or Significant Delays: Vehicles may wait through several signal cycles. Long queues form upstream from intersection.

**LOS F** Forced Flow or Excessive Delays: Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

#### **General Plan 2040 and Sonoma Boulevard Specific Plan EIR**

The General Plan 2040 and Sonoma Boulevard Specific Plan EIR addresses the environmental effects associated with adoption and implementation of both the General Plan 2040 and Sonoma Boulevard Specific Plan, referred by the EIR together as the “proposed Project”. The EIR was prepared pursuant to the requirements of CEQA and the State CEQA Guidelines. The City of Vallejo, as the Lead Agency, has reviewed and revised as necessary all submitted drafts, technical studies, and reports to reflect its own independent judgment, including reliance on applicable City technical personnel and review of all technical reports. The Final EIR, composed of the Response to Comments, Revisions to the Draft EIR, and the Draft EIR, was certified by the City of Vallejo on August 29, 2017, when the General Plan 2040 was adopted.

The Transportation and Traffic chapter of the Draft EIR identified the following threshold of significance for vehicle traffic impacts:

#### **a) Vehicle Traffic:**

- i) Proposed General Plan: A significant impact would occur for vehicle traffic if either of the following occur:





(1) The level of service (LOS) of the segment degrades from LOS D or better under Existing Conditions to LOS E or LOS F under 2040 With Project conditions, and the 2040 With Project v/c ratio is at least 0.01 higher than the 2040 No Project v/c ratio; or

(2) For segments where the LOS is already E or F under existing conditions, the traffic volume increases in the 2040 With Project case, and the 2040 With Project v/c ratio is at least 0.01 higher than the 2040 No Project v/c ratio.

The Draft EIR growth information for Area 2 (the area northeast of SR 37/SR 29), is shown in Table 1.

**Table 1: General Plan EIR Trip and Growth Data for Area 2**

Metric	Existing Trips	2040 Trips	
	2015	2040 No Project	2040 General Plan
Trips by Sub Area	36,300	39,000	39,600
Growth by Sub-Area	36,300	2,700	3,300
Percent Growth in Total Trips	--	7%	9%

Source: City of Vallejo 2017c.

The EIR found that the roadway segment of SR 29 between Mini Drive and Meadows drive operates at LOS D under existing conditions, and would continue to operate at LOS D at 2040 with or without the proposed General Plan 2040. The EIR found that all studied non-freeway facilities are projected to operate at a LOS D or better under the 2040 General Plan scenario except for the following:

- The Road diet portion of SR 29 (Sonoma Boulevard) between Curtola Parkway and Nebraska Street would operate at a LOS E (V/C ratio of 0.98)

#### **Solano Countywide Bicycle Transportation Plan – 2012**

The Solano Transportation Authority's (STA) Countywide Bicycle Transportation Plan serves as a guide to planning and engineering professionals in Solano County's jurisdictions, with the purpose to encourage the development of a unified bicycle system throughout Solano County. STA defines Class 1, Class 2, and Class 3 bicycle facilities as follows:

- Class 1 Bikeway (Bike Path) - Off-street bike paths are facilities for use exclusively by bicycles and pedestrians, with minimal cross-flow by motor vehicles. They are often located in a separate right of way.
- Class 2 Bikeway (Bike Lane) - Bike lanes are areas within paved streets that are identified with striping, stencils, and signs for preferential (semi-exclusive) bicycle use.
- Class 3 Bikeway (Bike Route) - Class III bikeways are on-street routes intended to provide continuity to the bikeway system. Bike routes are designated by signs or permanent markings and are shared by motorists. Many bike routes provide shoulders that can be used by bicycles or pedestrians.

#### **2013 Recology Vallejo Traffic Study**

The 2013 Recology Vallejo Traffic Study (2013 Study), prepared by PHA Transportation Consultants, evaluated the incremental traffic impact that would come from the update of the Facility's Solid Waste Facility Permit that allowed an increase in receipt from the previously-approved 160 tons per day to 300 tons per day of recyclables and organics. At the time of the study, the Facility had 106 employees, including truck drivers, sort line workers, maintenance workers, and administrative and clerical workers. The 2013 Study evaluated existing conditions and with-project conditions of the following intersections:



1. Broadway Street/Lewis Brown Drive
2. SR 29 (Sonoma Boulevard)/SR 37 on-off ramps
3. SR 29 (Sonoma Boulevard)/Mini Drive
4. Broadway Street/Mini Drive-shopping center driveway

PHA collected driveway traffic counts for a seven-day period in late August 2013, and found the Facility generated 323 total vehicle trips on a daily basis, which includes 17 AM and 18 PM peak hour trips. The 2013 Study found that in 2012, the Facility processed approximately 177 tons of materials per day. The then-proposed project was to increase throughput to 300 tons per day, which is a 70 percent increase in throughput. PHA calculated the proposed new trips by equating the proposed 70 percent increase in tonnage to a 70 percent increase in truck trips. Consistent with the City of Vallejo's Traffic Impact Analysis/Study Guidelines (Traffic Guidelines) a 2.5 Passenger Car Equivalent (PCE) factor was applied to the new truck trips to estimate the proposed PCE. The proposed project was estimated to add 74 daily truck trips, including 8 AM and 3 PM peak hour trips, as summarized in Table 2.

**Table 2: 2013 Traffic Study Estimated Trip Generation and Distribution**

Conditions	Hours of Service								
	AM Peak			PM Peak			Daily		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Current-all traffic	7	10	17	4	14	18	162	162	324
Current-truck only	6	6	12	4	4	8	53	53	106
Proposed (2014) truck Only	4	4	8	3	3	6	37	37	74
Proposed (2014) Passenger Car Equivalents (PCE)	10	10	20	8	8	16	93	93	185

Source: PHA 2013. Table 5

As shown in the table above, Facility operations at 300 tons per day was estimated to generate approximately 180 truck trips per day (106 existing plus 74 proposed). The 2013 Study found that with the estimated increase of trips, LOS at project-affected intersections would remain operating at LOS A through LOS C, as shown in Table 3 on the next page. The City of Vallejo's Traffic Guidelines state that the City of Vallejo considers intersection LOS A through D acceptable and requires mitigation for intersections operating with LOS below D. Solano Transportation Authority- the County Congestion Management Agency (CMA) considers LOS A through E acceptable.

The City of Vallejo defines a significant traffic impact based on any of the following changes in the volume to capacity (V/C) ratios occur between the "without project" and the "with project" conditions:

1. When a project raises the V/C ratio for an intersection operating at LOS C by > 4%, or 0.04,
2. When a project raises the V/C ratio for an intersection operating at LOS D by > 2% or 0.02,
3. When a project raises the V/C ratio for an intersection operating at LOS E and F by > 1% or 0.01.

Based on the City's significant impact definitions, the then-proposed project (a request to receive up to a total of 300 tons per day of recyclable and organic materials) would not create unacceptable traffic



conditions or significant impact at any of the study intersections. As such, the 2013 Study found that no project mitigation was recommended.

Concerning site access and on-site circulation, the PHA conducted traffic operation analyses for the site access driveways as part of the study. The 2013 Study found that the driveways operate at good LOS conditions with no vehicle queues and would operate at similar LOS conditions with the additional project traffic. In addition, there are no horizontal or vertical curves on Broadway Street near the Facility and no sight restrictions at any of the access driveways. Finally, the 2013 Study found that the Facility site plan would provide adequate on-site circulation.



## TECHNICAL MEMORANDUM

**Table 3: 2013 Traffic Study Traffic Operation (LOS) Analyses – 2013 Project Conditions**

Study Intersections (Signalized)		Existing (2013) Conditions						Existing + Project (300 tons total)					
		AM Peak			PM Peak			AM Peak			PM Peak		
		V/C <sup>1</sup>	Delay <sub>2</sub>	LOS <sub>3</sub>	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
1	Lewis Brown/Broadway St.	0.491	15.3	B	0.529	15.5	B	0.494	17.9	B	0.532	17.9	B
2	Sonoma Bl (SR29)/SR 37 Ramps	0.555	12.9	B	0.589	13.0	B	0.557	17.2	B	0.589	17.2	B
3	Sonoma Bl (SR29)/Mini Dr.	0.759	26.3	C	0.847	26.6	C	0.763	29.2	C	0.847	29.6	C
4	Broadway St./Mini Dr.	0.508	14.2	B	0.484	14.4	B	0.515	18.0	B	0.492	18.2	B
Site Access (Non-signalized)													
5	North Driveway/Broadway	0.326			0.347			0.326			0.349		
	Left and right turn from drwy		12.4	B		12.6	B		14.2	B		15.1	C
	Left turn from Broadway		8.0	A		8.0	A		8.3	A		8.3	A
	Right turn from Broadway		0.0	A		0.0	A		0.0	A		0.0	A
6	Center Driveway/Broadway	0.325			0.355			0.325			0.362		
	Left and right turn from drwy		12.5	B		12.8	B		14.3	B		15.0	C
	Left turn from Broadway		8.0	A		8.1	A		8.4	A		8.4	A
	Right turn from Broadway		0.0	A		0.0	A		0.0	A		0.0	A
7	South Driveway/Broadway	0.327			0.355			0.327			0.361		
	Left and right turn from drwy		12.8	A		12.8	A		13.6	B		14.1	B
	Left turn from Broadway		0.0	A		0.0	A		0.0	A		0.0	A
	Right turn from Broadway		0.0	A		0.0	A		0.0	A		0.0	A

<sup>1</sup> Volume-Capacity ratio or ICU in the SYNCHRO traffic Model.

<sup>2</sup> Delay- average vehicle delays at the intersection measured in seconds.

<sup>3</sup> LOS – Level of Service

Source: PHA 2013. Table 6



## TECHNICAL MEMORANDUM

### Project Area and Street Network

For the purposes of this memorandum, the project study area is the same as the study area analyzed in the 2013 Recology Vallejo Traffic Study. The project area and project vicinity is shown on Figure 1. The area includes the local transportation network, which consist of Broadway Street, State Route 29, Lewis Brown Drive and Mini Drive.

*Broadway Street* is classified as a Collector between Mini Drive to the north and Lewis Brown Drive to the south. Broadway Street in the immediate vicinity and south of Lewis Brown Drive is classified as an Arterial. The segment near the Recology Vallejo Facility has one traffic lane in each direction plus a center two-way left-turn lane. Near the shopping center north of the facility, the street has two southbound lanes and one northbound lane. North of the shopping center, the street transitions into two traffic lanes with one in each direction. All site generated traffic would use Broadway Street to access the Facility. The posted speed limit on Broadway Street is 35 miles per hour (mph). An existing Class 3 bike route is located on Broadway Street. Pedestrian facilities, such as sidewalks, are limited in the area. There are pedestrian sidewalks along the project site frontage and the shopping area along the west side of Broadway Street.

*Mini Drive* is a semi-circular collector street running in the east-west orientation and then north-south orientation connecting SR 29 in the northeast and Lewis Brown Drive to the south. It is mostly a two lane street but the section between Broadway and SR 29 in the north has four traffic lanes with two in each direction. According to the project traffic distribution analysis conducted for the 2013 Recology Vallejo Traffic Study, a considerable amount of site generated traffic would use SR 29 in conjunction with Mini Drive and Broadway Street to access the Facility. The posted speed limit on Mini Drive varies between 25 mph and 30 mph. There are limited/narrow pedestrian sidewalks along Mini Drive.

*State Route 29* is a major north-south highway providing access north to American Canyon and Napa Valley Area and south to Curtola Parkway-Interstate 780. It also connects with SR 37 providing access to and from US Highway 101 in Marin County. The roadway in vicinity of the project site is a four-lane street. The posted speed limit on SR 29 in the vicinity of the project site is 50 mph. Much of the site generated traffic would use SR 29 in conjunction with Mini Drive, Lewis Brown Drive and Broadway Street to access the project site. There are no pedestrian sidewalks on SR 29 within the study area.

*Lewis Brown Drive* is a four-lane collector street in the vicinity of Broadway Street, and a Principal Arterial adjacent to SR 29 with a center dual left-turn lane between SR 29 and Broadway Street, providing access to and from SR 29 and SR 37. East of Mini Drive/B.W. Williams Drive, the street transitions into two traffic lanes with one in each direction. The posted speed limit along the four-lane section of the street is 35 mph. The 2013 Recology Vallejo Traffic Study estimated that site-generated traffic traveling to and from the south was to likely use Lewis Brown drive in conjunction with SR 29 and Broadway Street to access the project site. An existing Class 3 bike route is located on Lewis Brown Drive. There are no pedestrian sidewalks on Lewis Brown Drive within the study area.

### Public Transit

Solano County Transit (SolTrans) provides local and express bus service to the Solano County cities of Vallejo, Benicia, and Fairfield, with express bus service connecting to the Contra Costa County communities of El Cerrito, Pleasant Hill, Walnut Creek, and regional connections to BART. Seven local fixed routes serve Vallejo, four limited service routes operate during school in-service dates within Vallejo and Benicia, and five intercity routes connect to surrounding areas. Route 1 provides direct transit



services through the study area via SR 29, Mini Drive and Broadway Street at 30-minute intervals. The transit route, service areas and operating schedules are shown in Table 3.

**Table 3: SCT Link Transit Route Schedules**

Route	Service Area	Hours of Service					
		Monday to Friday		Saturday		Sunday	
		Begin	End	Begin	End	Begin	End
Route 1 (Broadway)	City of Vallejo	5:30 AM	7:30 PM	6:45 AM	7:00 PM	8:30 AM	7:30 PM

Source: SolTrans (<http://www.soltransride.com>)

### 3. Project Trip Generation

#### Project Description

The proposed project would revise the existing SWFP to allow for the following:

- A maximum of 600 tpd of incoming recyclable and organic materials.
- A maximum 360 vehicles per day on a 7-day rolling average.
- Increase the hours of receipt of material to 5:00 AM - 7:00 PM, Monday through Sunday.

If necessary, a second work shift of approximately 23 employees could be added to accommodate the increased throughput. The proposed project does not include any physical modification of any existing facilities, demolition of existing facilities, construction of new facilities, or other construction activity. For the purposes of preparing the trip generation for the project, 23 employees were used.

#### Existing Trip Generation

This section describes the methods and analysis conducted in selecting trip generation rates for the project. The City's Traffic Impact Assessment Guidelines provides the following:

*Some unique types of development or uses may not have rates/formulas published by ITE. In this case, a trip generation study may be conducted at a similar existing facility in order to determine acceptable trip generation rates to be used in the study.*

The existing, or "baseline", trip generation of the Facility was estimated by Recology Vallejo. The trip generation of the Facility has fluctuated over the past year due to recent increased variability in the commodities market. Specifically, new international policy setting stringent material quality standards has restricted the shipment of some recycling commodities overseas since Fall 2017. These restrictions have had no effect on the receipt of recyclables by the Facility, but have decreased the rate at which processed recyclables are removed from the Facility. As a result, the average daily trip levels since Fall 2017 have decreased below recent and historic baseline levels. Therefore, the existing average daily trip rates provided by Recology Vallejo are for the Summer 2017 season, which more closely characterizes regular receipt and shipment of recyclables by the Facility. Table 4 shows the vehicle types and trips generated for the Facility during the weekday, weekend, AM peak hour and PM peak hour. As shown in the table, the peak hours of vehicle trip generation for the Facility (peak hour of generator) do not coincide with the peak hours of local roadways (peak hour of adjacent street traffic).



**Table 4: Existing Conditions (Estimated)**

Vehicle Class	Total Daily Average Vehicle Trips			Vehicle Trips Per Hour			
				Recology Peak		Roadway Peak	
	Mon-Wed	Thurs-Fri	Sat-Sun	AM 9:30 AM – 12 PM	PM 12 PM – 3 PM	AM 7 AM – 9 AM	PM 4 PM – 6 PM
Light Duty (autos and pickups)	0	80	80	34	38	6	0
Medium Duty Truck	9	9	0	5	4	0	0
Heavy-Duty Truck	110	110	0	31	59	12	8
Total Trips	119	199	80	70	101	18	8

As shown in the table above, the existing conditions include 119 truck trips per day during the week. This level of trip generation is less than the 180 total truck trips analyzed in the 2013 Study. In addition, the existing 199 average vehicle trips on Thursday and Friday is less than the 324 average daily trips estimated to occur at an operational maximum of 300 tpd in the 2013 Study.

### Project Trip Generation

This section describes the methods and analysis conducted in selecting trip generation rates for the project. The City's Traffic Impact Assessment Guidelines provides the following:

*Some unique types of development or uses may not have rates/formulas published by ITE. In this case, a trip generation study may be conducted at a similar existing facility in order to determine acceptable trip generation rates to be used in the study.*

As stated in the 2013 Study, there are no available trip rates from the ITE manual for the project. Consistent with the 2013 Study, the trip generation for the proposed project is estimated based on the current capacity load, truck trips, and projected tonnage increase. The 2013 Study found that at a 300 ton per day operation, the Facility would generate 180 total truck trips on a daily basis, which includes 20 AM and 14 PM peak hour trips. The proposed project is to increase the maximum throughput to 600 tons per day, which is a 100 percent increase above the existing permitting cap. The proposed new trips are calculated by equating the proposed 100 percent increase in tonnage to a 100 percent increase in truck trips. The proposed project is estimated to add 180 daily truck trips, including 20 AM and 14 PM peak hour trips, as summarized in Table 5. The AM and PM peak trip distribution is consistent with the 2013 Study. The total estimated vehicle trips that would occur with the project (existing plus project) is provided in Table 5.

Recology Vallejo currently supports an estimated 97 employees at the project site, which is fewer than the 106 employees identified in the 2013 Study. Recology estimates that there would be no change in the number of drivers or office employees with the project. The Facility currently uses 2 shifts during the weekday, and has one employee onsite during the weekend. Each shift is comprised of 23 employees. Recology estimates that the project may result in an increase of 1 additional shift during the weekday and weekend. Therefore, the number of employees onsite would increase by 23 per day during the week and during the weekend.



**Table 5: Project Trip Generation**

Parameter	AM Peak			PM Peak			Daily		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Light-Duty (autos and pickups)	0	0	0	23	0	23	23	23	46
Proposed Truck-Only	10	10	20	7	7	14	90	90	180
Total Project Trips	10	10	20	30	7	37	113	113	226

1 Source: PHA 2013.

**Table 6: Total Site Vehicles Per Day Estimate**

Parameter	Portion of the Week			7-Day Rolling Average
	Mon-Wed	Th-Fri	Sat-Sun	
Existing Trips	119	199	80	130.7
Proposed Trips	226	226	226	226.0
Total Site Trips	345	425	306	356.7
Total Site Vehicles Per Day	172.5	212.5	153	178.4

## 4. Conclusions

As stated in Section 1 of this memorandum, the City reviewed the project at Recology's request. The City's Planning staff, Public Works, and Traffic Engineer reviewed the request and determined that the increased operations would not significantly impact the city's street network.

The existing street network in the vicinity of the project was found by the 2013 Study to operate acceptably at a projected Facility operation of 300 tons per day. The City of Vallejo found that the street network in the vicinity of the project would operate acceptably with the projected city-wide growth under the 2040 General Plan.

The project is not located in the vicinity of any key intersection that currently operates at a LOS D or worse. The project is consistent with the General Plan designation and zoning of the site, and would not require a General Plan or Zoning Amendment. Therefore, the project would not intensify the usage, density, or traffic generation of the site above the level currently allowed by zoning codes. The project's proposed fleet mix is similar to the existing fleet mix. Based on the existing operations of roadway segments and intersection within the vicinity of the project, it is not expected that the level of service will change or operate unacceptably. It is not expected that the project will impact an intersection or roadway segment already identified as operating unacceptably below a LOS D, is not expected to create a hazard to public safety or substantially change the off-site transportation or connections to it. Additionally, the City of Vallejo has determined that the increase in operations that would occur under the project would not significant impact the city's street network (Vallejo 2018).





Based on this discussion, there is no identified need for a detailed traffic study and there are no significant transportation impacts from the project.

## **5. References**

City of Vallejo. 2017a. Use Permit Compliance Confirmation – Recology Vallejo Letter. November 28.

City of Vallejo. 2017b. Propel Vallejo General Plan 2040. August 29.

City of Vallejo. 2017c. General Plan 2040 and Sonoma Boulevard Specific Plan Final EIR. Certified August 29.

City of Vallejo. 2018. Traffic Volume Increase – Recology Vallejo Letter. November 21.

County of Solano. 2014. Recology Vallejo Solid Waste Facility Permit (SWFP) Initial Study/Mitigated Negative Declaration. April.

PHA Transportation Consultants. 2013. Recology Vallejo Traffic Study. November.

Recology. 2018. Vallejo – Vehicle Parameters\_Recology 2.12.18. Email.

Solano Transportation Authority. 2012. Solano Countywide Bicycle Transportation Plan.

## **6. Attachments**

- Figure 1