Queen Kaahumanu Highway Phase 2 MOA

Closeout Memo Stipulation 8– NOISE STUDY

May 6, 2020

Stipulation 8 - of the MOA executed on March 17, 2015 reads:

NOISE STUDY. The HDOT conducted a noise impact study in March 2014 to determine if the roadway improvements planned has the potential for impacting the activities within the National Park. The study was conducted in accordance with 23 CFR 774. The final report is pending. The findings will be made available to consulting parties in this MOA.

BACKGROUND

As stated in the stipulation, the noise impact study was conducted in 2014 prior to the MOA execution. The stipulation references regulation 23 CFR 774 (click here). This regulation implements Section 4(f) requirements on federaly funded highway projects. The noise study was initiated to address 23CFR774 requirements and to determine if a constructive use of a Section 4(f) property occurs.

- Per 23 CFR 774.15(a), "A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished."
- 23 CFR 774.15(f)(3) defines certain situation in which a "constructive use" does not occur, specifically when projected traffic noise levels are in exceedance of the FHWA noise abatement criteria due to existing high noise levels, but the increase in the projected noise levels if the project were constructed (i.e., "Build" condition) is 3 dBA or less when compared to projected noise levels if the project were not constructed (i.e., "No Build" condition).
- The FHWA regulation 23 CFR 772 contains highway traffic noise abatement criteria (NAC) for seven land use activity categories and assigns corresponding maximum hourly equivalent sound levels for traffic noise exposure [Reference 2, 3]. The NAC for all seven categories are listed in Figure 1. The Kaloko-Honokohau National Historical Park would fall under Category C, defined for parks, trails, recreation areas, or Section 4(f) sites, and has a corresponding maximum exterior hourly equivalent sound level (Leq(h)) of 67dBA.

COMPLETION OF STIPULATION

The Environmental Noise Study Queen Kaahumanu Highway Widening Phase 2 in the vicinity of Kaloko-Honokohau National Historic Park (click here) was finalized in December 2014 and included in Appendix F of the May 2015 Individual 4(f) Evaluation. It was made available to the consulting parties by posting on the project sharesite on 4/8/17 and consulting parties were notified via email of the posting. Paper copies were made available at the November 23, 2019 CP meeting. The noise study measured existing traffic noise at three locations within Kaloko-Honokohau National Historic Park and predicted traffic noise for 20 years in the future with and without the project using the Federal Highway Administration Traffic Noise Model. The conclusions can be found here. In summary, future traffic noise projections were found to be less than the noise abatement criteria of greater than 67 dBA for parks. The increase in projected traffic noise levels due to the project is less than 1 dB. A 3 dB change or less in noise level is not considered to be significant. Stipulation 8 is complete.

D. L. ADAMS ASSOCIATES
acoustics | performing arts | technology

970 N. Kalaheo Ave.
Suite A311
Kailua, HI 96734
www.dlaa.com
808.254.3318

Environmental Noise Study
Queen Kaahumanu Highway Widening Phase 2
in the vicinity of Kaloko-Honokohau National Historic Park
North Kona, Island of Hawaii, Hawaii

December 2014

Prepared by:
D.L. Adams Associates, Ltd.
970 N. Kalaheo Avenue, Suite A-311
Kailua, Hawaii 96734
DLAA Project No. 14-04

Prepared for:
R.M. Towill Corporation
2024 North King Street, Suite 200
Honolulu, HI 96819

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1.2 While various local and federal agencies have established guidelines and standards for assessing environmental noise impacts, this noise study was initiated to address FHWA 23 CFR 774 requirements and help to determine if a constructive use of a Section 4(f) property occurs.

1.3 The project area is currently exposed to varying daytime ambient noise levels, depending on the proximity to Queen Kaahumanu Highway. The trails that intersect the highway, e.g., Kings Trail, Ala Hue Hue, and Ala Kahako, are exposed to noise levels around 65 dBA at a distance of 150 feet from the highway. However, many of the noise sensitive sites within the park are sufficiently far from the highway that traffic noise is not a dominant noise source. The ambient noise environment at these sites is highly dependent on natural noise sources such as wind, surf, birds, and insects. Noises specific to the park such as park ranger ATVs, cultural activities at the Hale Hookipa Visitor Center or the Na Leo Kahiko Cultural Center, and hikers are also audible throughout the park. Generally, the site is very quiet where the noise levels range from 35 to 59 dBA.

1.4 Atmospheric conditions specific to the island of Hawaii shift daytime on-shore wind patterns to higher speed off shore wind at night. Because of these atmospheric conditions, man-made noises from Queen Kaahumanu Highway, the light industrial area, and the quarry are audible at off peak hours and nighttime hours as far away as 2000 feet from the highway. Aircraft flyovers were also audible due to the proximity of the site to the airport.

1.5 Existing and future noise levels were predicted using the Federal Highway Administration Traffic Noise Model (TNM 2.5) using the procedures outlined in the FHWA and HDOT Noise Policy and Abatement Guidelines. Traffic noise was calculated at three noise sensitive receptor locations, Hale Hookipa Visitor Center, Ala Hue Hue Trail, and Na Leo Kahiko Cultural Center. Future traffic noise levels at all three locations are expected to be below the FHWA Noise Abatement Criteria of 67 dBA. Furthermore, the increase in traffic noise due to the widening of Queen Kaahumanu Highway is less than 1 dB at all receiver locations.

2.0 PROJECT OVERVIEW

The Queen Kaahumanu Highway Widening Project includes design and construction services to widen Queen Kaahumanu from the existing two (2) lanes into a four (4) lane divided highway. Other work consists of, but is not limited to the design and construction of: new pavements and pavement markings; the drainage systems; sidewalks; the traffic signal systems and traffic signs; guardrails and landscape plantings; the highway lighting plus the relocation and installation of utilities.

The project corridor is approximately 4.5 miles long and is located in the North Kona District of the County of Hawaii. Phase 2 begins at approximately 1150 feet south of Kealakehe Parkway and extends to approximately 1700 feet north of Keahole Airport Road. However, this noise study focuses on the traffic noise impacts from the highway widening project to the Kaloko-Honokohau National Historical Park. While various local and federal agencies have established guidelines and standards for assessing environmental noise impacts, this noise study was initiated to address FHWA 23 CFR 774 requirements and help to determine if a constructive use of a Section 4(f) property occurs.

3.0 NOISE STANDARDS

While various local and federal agencies have established guidelines and standards for assessing environmental noise impacts, this noise study was initiated to determine whether a constructive use occurs within the Kaloko-Honokohau National Historical Park as a result of the proposed project, as defined by the FHWA regulation 23 CFR 774 [Reference 1]. A constructive use may occur when a transportation project does not physically incorporate land, but substantially impairs the historic features of a Section 4(f) property that qualify the resource for protection (23 CFR 774.15). Applicable regulations governing Section 4(f) resources and environmental noise impacts are as described in Section 3.1 below. A brief description of common acoustic terminology used in these guidelines and standards is presented in Appendix A.

3.1 U.S. Federal Highway Administration (FHWA) 23 CFR 774

Per 23 CFR 774.15(a), “A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished.”

23 CFR 774.15(f)(3) defines certain situation in which a “constructive use” does not occur, specifically when projected traffic noise levels are in exceedance of the FHWA noise abatement criteria due to existing high noise levels, but the increase in the projected noise levels if the project were constructed (i.e., “Build” condition) is 3 dBA or less when compared to projected noise levels if the project were not constructed (i.e., “No Build” condition). Refer to Section 3.2 and Figure 1 below for further explanation of the noise abatement criteria as it relates to the Kaloko-Honokohau National Historical Park.

3.2 U.S. Federal Highway Administration (FHWA) 23 CFR 772

The FHWA regulation 23 CFR 772 contains highway traffic noise abatement criteria (NAC) for seven land use activity categories and assigns corresponding maximum hourly equivalent sound levels for traffic noise exposure [Reference 2, 3]. The NAC for all seven categories are listed in Figure 1. The Kaloko-Honokohau National Historical Park would fall under Category C, defined for parks, trails, recreation areas, or Section 4(f) sites, and has a corresponding maximum exterior hourly equivalent sound level ($L_{eq(h)}$) of 67dBA.

4.0 EXISTING ACOUSTICAL ENVIRONMENT

Two types of noise measurements were conducted to assess the existing acoustical environment in the vicinity of the project location. The first noise measurement type consisted of continuous long-term ambient noise level measurements. The second type of noise measurement was short-term and included traffic counts. The purpose of the short-term noise measurements and corresponding traffic counts is to calibrate a traffic noise prediction model. The field measurements were conducted in general accordance with guidelines from the FHWA [Reference 4].

The methodology, location, and results for each of the measurements are described below and the measurement locations are illustrated in Figure 2. Photographs of the measurements locations are provided in Appendix B.

4.1 Long Term Noise Measurements

Continuous long-term ambient noise level measurements were conducted to assess the existing acoustical environment of Kaloko-Honokohau National Historic Park. Long-term measurements (taken continuously over the course of multiple days) offer a baseline for establishing existing ambient noise levels in the area and are used for estimating future noise levels by adding the ambient levels to other noise levels generated from the proposed project.

4.1.1 Long-Term Noise Measurement Procedure

Long term noise level measurements were conducted in three locations within the boundaries of the Kaloko-Honokohau National Historic Park. The measurement period was from January 15, 2014 to February 10, 2015. In accordance with National Park Service protocol, continuous, 1 second equivalent sound levels ($L_{eq(s)}$) were recorded for approximately 27 days at each location. Hourly equivalent sound levels ($L_{eq(h)}$) were also recorded. The measurements were taken using three Larson-Davis, Model 831, Type 1 integrating sound level meters together with Larson-Davis, Model 377B20 Type 1 Microphones. Calibration was checked before and after the measurements with a Larson-Davis Model CAL200 calibrator. This equipment satisfies the ANSI S1.4-1983 specification and has been certified by the manufacturer within the recommended 2-year calibration period. In addition to sound levels, wind speed and direction data and sound recordings were collected for the entire period. The microphones and anemometers were mounted on tripods, approximately 6 feet above grade. Windscreens covered the microphones during the entire measurement period. The sound level meters and recorders were secured in weather-resistant cases.

4.1.2 Long-Term Noise Measurement Locations

Location A: The sound level meter was located near the Hale Hookipa Visitor Center, approximately 900 feet west of the center line of Queen Kaahumanu Highway. Dominant noise sources included vehicular traffic from the highway. Secondary noise sources included aircraft flyovers, birds, and wind.

Location B: The sound level meter was located near the center of the park adjacent to the Ala Hue Hue Trail. This location was just over 2000 feet west of the highway.

Location C: The sound level meter was located near the Na Leo Kahiko Cultural Center at the north end of the project site, approximately 3700 feet west of the highway.

4.1.3 Long-Term Noise Measurement Results

The measured hourly equivalent sound levels ($L_{eq(h)}$) and 90 percent exceedance level ($L_{90(h)}$) are graphically presented in Figures 3, 4 and 5 for each location. The graphs show the period from January 15, 2014 to January 21, 2014 which is a representative week during the total measurement period of 27 days.

The ambient noise environment at the Kaloko-Honokohau National Historic Park is relatively dynamic and highly dependent on environmental noise sources such as wind, surf, birds, and insects. Atmospheric conditions specific to the island of Hawaii shift daytime on-shore wind patterns to higher speed off shore wind at night. This creates a counterintuitive phenomenon where noise levels increase throughout the night and drop off in the morning.

Because of these atmospheric conditions, man-made noises from Queen Kaahumanu Highway, the light industrial area, and the quarry were audible at off peak hours and as far away as Location B (over 2000 feet from the highway). Aircraft flyovers were audible throughout the site due to the close proximity to Kona International Airport. Noises specific to the site such as park ranger ATVs, cultural activities at the Hale Hookipa Visitor Center or the Cultural Center, minor construction at the Kaloko fishpond, and trail users were audible at all measurement locations but did not significantly contribute to the hourly averaged sound levels.

Generally, the site is very quiet where the noise levels range from 35 to 59 dBA. The day-night level (L_{dn}) which was averaged over the entire measurement period was generally 55 dBA throughout the site. The range of $L_{eq(h)}$ during the day (7:00 AM to 10:00 PM) and during the night (10:00 PM to 7:00 AM) and average L_{dn} is summarized for each location in Table 1 below.

Table 1. Summary of Noise Measurement Results (dBA)

	Daytime	**Nighttime**	**Average**
Measurement Location	**$L_{eq(h)}$ Range**	**$L_{eq(h)}$ Range**	**L_{dn}**
A – Hale Hookipa Visitor Center	35-57	39-54	55
B – Ala Hue Hue Trail	35-57	38-56	55
C – Na Leo Kahiko Cultural Center	35-59	38-56	54

4.2 Short Term Noise Measurements

An approximate 30-minute equivalent sound level was measured at one location (D) during the AM and PM peak traffic hours. The sound level meter was located on the east side of Queen Kaahumanu Highway near the Allied Quarry Road intersection, approximately 80 feet from the center line. Vehicular traffic counts and traffic mix were documented during the measurement period. The noise measurements were taken using a Larson-Davis Laboratories, Model 831, Type-1 integrating sound level meter together with a Larson-Davis, Model 377B20 Type 1 Microphone. This equipment satisfies the ANSI S1.4-1983 specification and has been certified by the manufacturer within the recommended 2-year calibration period. Both the sound level meter and the calibrator have been certified by the manufacturer within the recommended calibration period. As with the long term measurements, the microphone and sound level meter were mounted on a tripod and a windscreen covered the microphone.

5.0 POTENTIAL NOISE IMPACTS

5.1 Highway Traffic Noise Analysis

5.1.1 Traffic Noise Model Overview

Existing and future (2035) noise levels were predicted using the Federal Highway Administration Traffic Noise Model (TNM) [Reference 5]. Typical input parameters include traffic volumes and speeds, conceptual alignment design, receptor locations, and terrain features. Peak hour traffic volumes and posted roadway speeds were provided by the Traffic Consultant [Reference 6] and are summarized in Appendix C. The alignment design was provided for the existing Queen Kaahumanu highway and the proposed widened highway. Traffic was modeled on the centerlines of the existing northbound and southbound travel lanes for the existing condition. For the future condition, lane by lane volume data was not available from the Traffic Consultant. Therefore, the center of the two northbound travel lanes and the center of the two southbound travel lanes were used to model traffic. Roadway shoulders and medians were not modeled.

For the purposes of this noise analysis, the terrain was assumed to be gently sloping with no significant shielding features so topographical contours were not included in the model, which would be considered a worst-case condition. In addition, the terrain surrounding the project corridor was assumed to be hard (i.e., acoustically reflective) since much of the land is lava rock with minimal vegetative ground cover. An average pavement type was used, per FHWA requirements for highway noise analysis. Sound levels predicted at the receptor locations were calculated at approximately 5 feet above ground to represent the areas where frequent human activity occurs.

A base model of the existing roadway conditions was developed using the existing roadway alignments for Queen Kaahumanu Highway and the traffic volumes and mix data that was collected at measurement location D (described in Section 4.2 above). The TNM model predicted sound levels at the short term measurement location D and these levels were compared to the measurement results. This comparison allows for the TNM model to be “validated”, thus verifying the accuracy of noise model. A difference of 3 decibels or less between the monitored and modeled level is considered acceptable. It was found that the difference between the model and the noise measurements was less than 3 dB, so the model was considered valid.

Following the validation of the existing conditions noise model, the same methodology was applied in the development of TNM models for the existing (2014) condition, the future (2035) “No Build” condition and the future (2035) “Build” condition. These conditions were modeled for peak hour AM and PM traffic using the volumes provided by the Traffic Consultant.

5.1.2 Noise Receptor Locations

A majority of the noise sensitive sites within Kaloko-Honokohau National Historic Park are located a substantial distance (more than 400 feet) from the roadway. These sites include the Hale Hookipa Visitor Center, Na Leo Kahiko Cultural Center, fishponds, wetlands, beaches, Heiau, restrooms, shoreline trails, etc. Due to uncertainties in the TNM prediction software regarding terrain, it is impractical to model traffic noise at large distances from the roadway. In fact, TNM results have not been sufficiently validated for distances greater than 600 feet for soft ground and 900 feet for hard ground. In addition, the model does not have provisions for dealing with the effects of meteorology. With increasing distances, meteorological conditions have an increasing effect on noise levels due to atmospheric refraction.

Wind can have a significant effect at 200 to 400 feet, and the effects of temperature gradients can be dominant at greater distances. The TNM prediction model is accurate only for neutral atmospheric conditions, i.e. no wind and no temperature gradients.

Despite the limitations of the TNM model at large distances from the roadway, the intent of this analysis is to identify potentially impacted receptors within the park, per FHWA Noise Analysis and Abatement Guidelines [Reference 3]. Therefore, traffic noise was calculated using the methodology described above at the three receptor locations identified in Section 4.1.2, the Hale Hookipa Visitor Center, Ala Hue Hue Trail, and the Na Leo Kahiko Cultural Center.

5.1.3 Traffic Noise Analysis Results and Conclusions

The predicted traffic noise levels at the three noise receptor locations are presented in Table 2 below. The future change in noise level both with and without the project and the change in noise level due to the project are also shown below. The noise levels are expressed in A-weighted decibels (dBA).

Table 2. Summary of Existing and Future Traffic Noise Projections (dBA)

Row ID	Noise Receptor	(A) Hale Hookipa Visitor Center		(B) Ala Hue Hue Trail		(C) Na Leo Kahiko Cultural Center	
		AM	PM	AM	PM	AM	PM
(x)	Existing (2014)	54.1	54.8	47.8	48.3	43.5	44.1
(y)	Future No Build (2035)	56.5	57.4	50.2	50.9	45.9	46.6
(z)	Future Build (2035)	56.8	57.6	50.3	51.0	46.0	46.7
(y-x)	Future increase without project	2.4	2.6	2.4	2.6	2.4	2.5
(z-x)	Future increase with project	2.7	2.8	2.5	2.7	2.5	2.6
(z-y)	**Future increase due to project**	**0.3**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**
	Distance to future highway EOP	805 feet		1905 feet		3605 feet	

Based on the results of the traffic noise analysis, traffic noise levels at all three receptor locations are expected to be below the FHWA noise abatement criteria for Category C land uses. Category C, defined for parks, picnic areas, recreation areas, trails, trail crossings, and Section 4(f) sites, has a corresponding maximum exterior hourly equivalent sound level ($L_{eq(h)}$) of 67dBA.

Traffic noise levels are expected to increase in the future by 2.5 dB even without the project due to the projected regional growth and traffic demand on Queen Kaahumanu Highway. This demand is expected regardless of whether the highway is widened. Therefore, the increase in projected traffic noise levels *due to the project* (i.e., comparison of the build condition to no build condition) is less than 1 dB at all three noise receptor locations. A 3 dB change or less in noise level is not considered to be significant.

REFERENCES

1. *Department of Transportation, Federal Highway Administration Title 23, Part 774 – Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f))*, Revised at 73 FR 13395, March 12, 2008.

2. *Department of Transportation, Federal Highway Administration Title 23, Part 772 - Procedures for Abatement of Highway Traffic Noise*, 75 FR 39834, July 13, 2010.

3. *Highway Traffic Noise: Analysis and Abatement Guidance*, U.S. Department of Transportation, Federal Highways Administration, December 2011.

4. *Measurement of Highway-Related Noise*, U.S. Department of Transportation, Federal Highways Administration, May 1996.

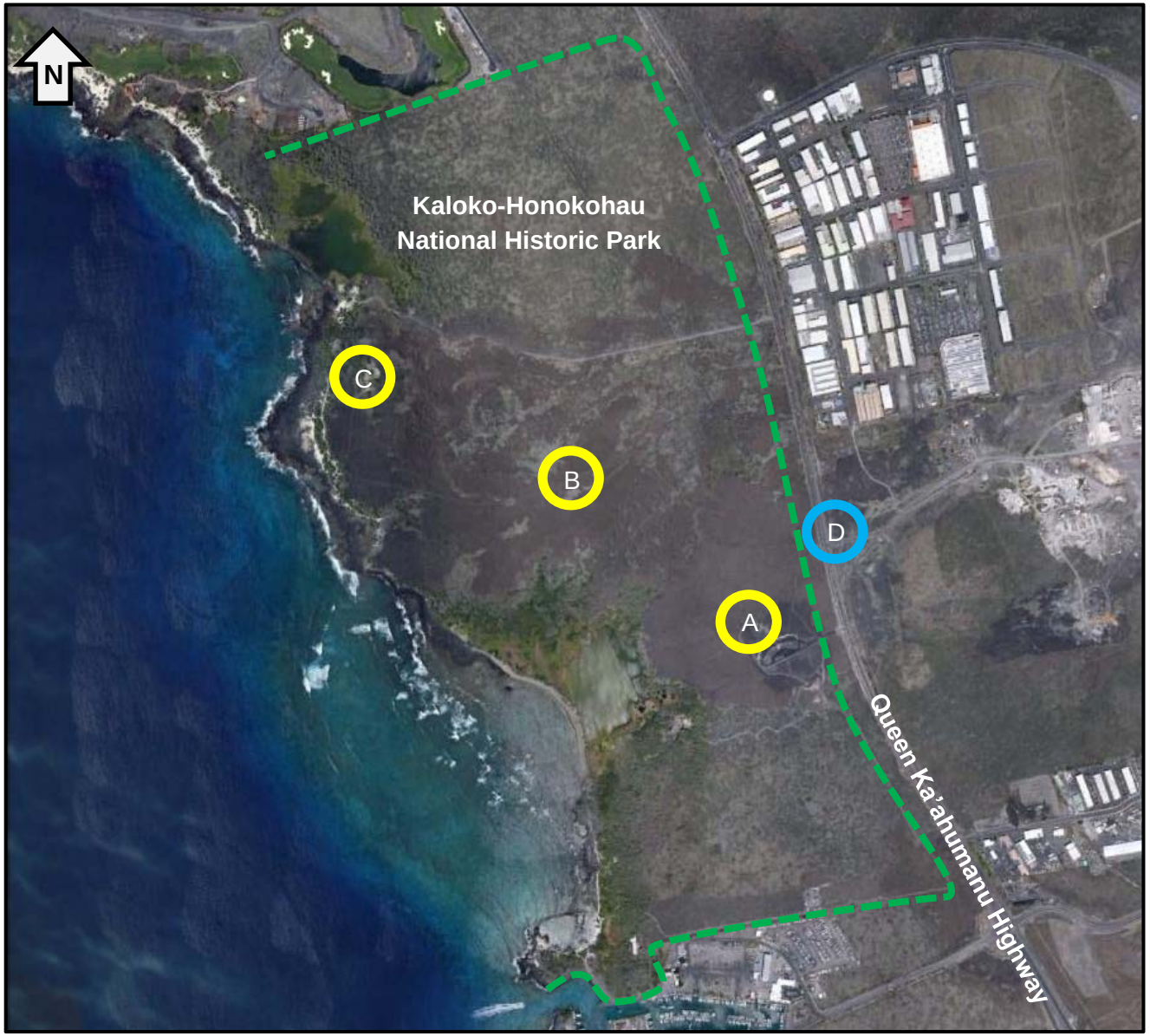
5. *Federal Highway Administrations Traffic Noise Model*, Version 2.5, U.S. Department of Transportation, February 2004.

6. *Traffic Study - Queen Kaahumanu Highway Widening Kealakehe Parkway to Keahole Airport Road,* Parsons Brinkerhoff, August 2014

FEDERAL HIGHWAY ADMINISTRATION NOISE ABATEMENT CRITERIA FOR HIGHWAY NOISE

ACTIVITY CATEGORY	ACTIVITY CATEGORY DESCRIPTION	HOURLY EQUIVALENT SOUND LEVEL L_{eq}
A	LANDS ON WHICH SERENITY AND QUIET ARE OF EXTRAORDINARY SIGNIFICANCE AND SERVE AN IMPORTANT PUBLIC NEED AND WHERE THE PRESERVATION OF THOSE QUALITIES IS ESSENTIAL IF THE AREA IS TO CONTINUE TO SERVE ITS INTENDED PURPOSE.	57 dBA (EXTERIOR)
B	RESIDENTIAL	67 dBA (EXTERIOR)
C	ACTIVE SPORT AREAS, AMPHITHEATERS, AUDITORIUMS, CAMPGROUNDS, CEMETERIES, DAY CARE CENTERS, HOSPITALS, LIBRARIES, MEDICAL FACILITIES, PARKS, PICNIC AREAS, PLACES OF WORSHIP, PLAYGROUNDS, PUBLIC MEETING ROOMS, PUBLIC OR NONPROFIT INSTITUTIONAL STRUCTURES, RADIO STUDIOS, RECORDING STUDIOS, RECREATION AREAS, SECTION 4(F) SITES, SCHOOLS, TELEVISION STUDIOS, TRAILS, AND TRAIL CROSSINGS	67 dBA (EXTERIOR)
D	AUDITORIUMS, DAY CARE CENTERS, HOSPITALS, LIBRARIES, MEDICAL FACILITIES, PLACES OF WORSHIP, PUBLIC MEETING ROOMS, PUBLIC OR NONPROFIT INSTITUTIONAL STRUCTURES, RADIO STUDIOS, RECORDING STUDIOS, SCHOOLS, AND TELEVISION STUDIOS .	52 dBA (INTERIOR)
E	HOTELS, MOTELS, OFFICES, RESTAURANTS/BARS, AND OTHER DEVELOPED LANDS, PROPERTIES OR ACTIVITIES NOT INCLUDED IN A-D OR F.	72 dBA (EXTERIOR)
F	AGRICULTURE, AIRPORTS, BUS YARDS, EMERGENCY SERVICES, INDUSTRIAL, LOGGING, MAINTENANCE FACILITIES, MANUFACTURING, MINING, RAIL YARDS, RETAIL FACILITIES, SHIPYARDS, UTILITIES (WATER RESOURCES, WATER TREATMENT, ELECTRICAL), AND WAREHOUSING	N/A
G	UNDEVELOPED LANDS THAT ARE NOT PREMITTED	N/A

Park Boundary and Noise Measurement Locations



Legend

Short Term Noise Measurement Location

Long Term Noise Measurement Location

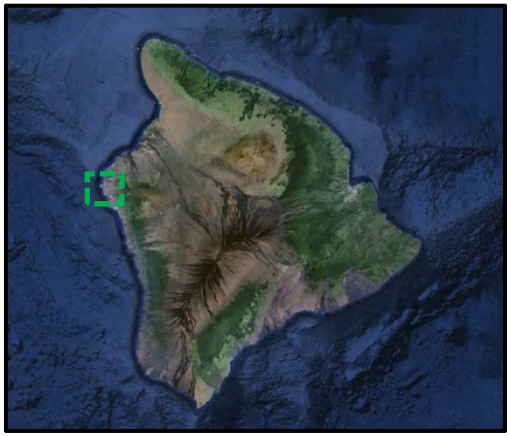
Park Boundary

A Hale Ho'okipa Visitor Center
(800 ft west of Queen Ka'ahumanu Hwy)

B Ala Hu'e Hu'e Trail
(2000 ft west of Queen Ka'ahumanu Hwy)

C Na Leo Kahiko Cultural Center
(500 ft east of shoreline)

D 80 ft east of Queen Ka'ahumanu Hwy



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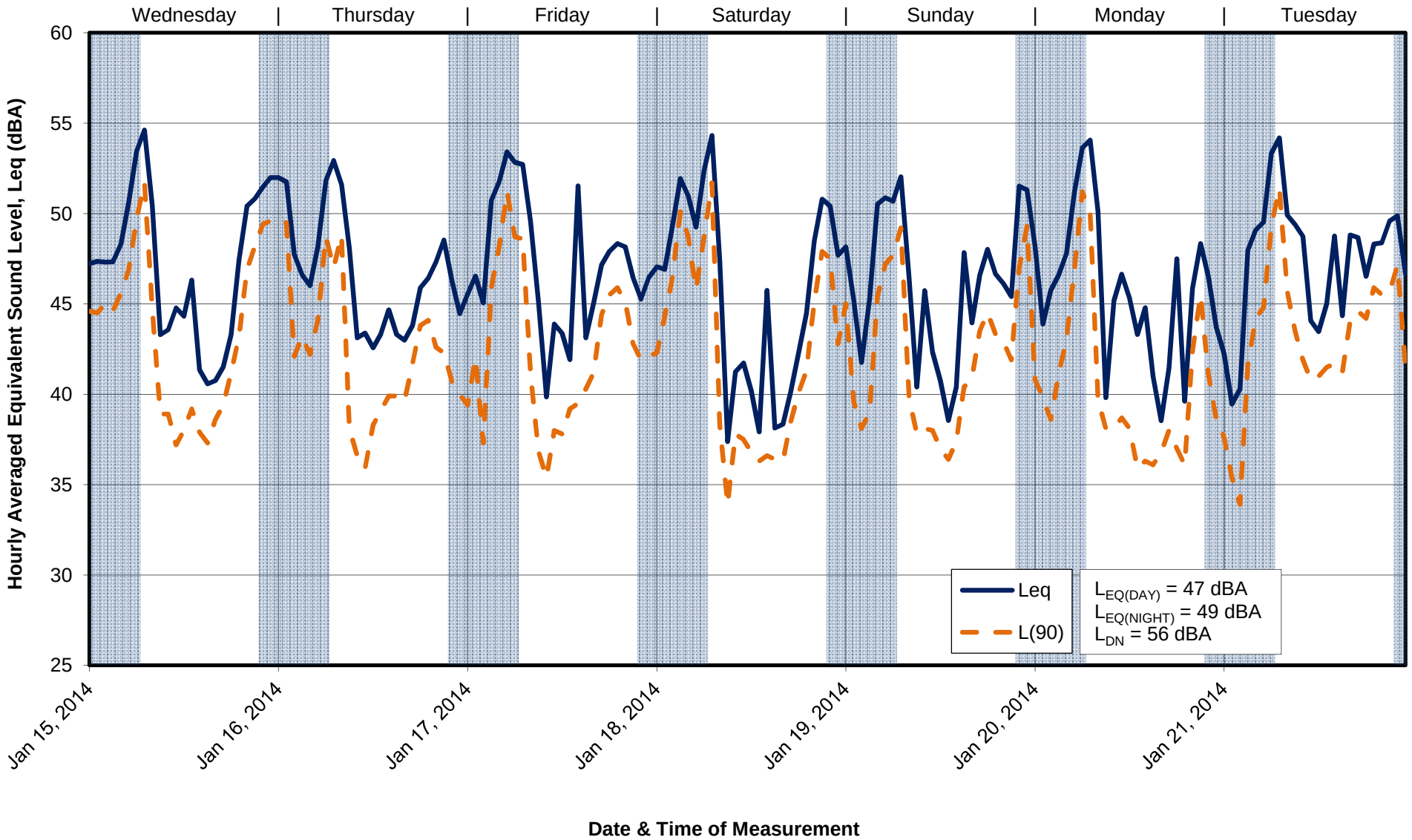
PROJECT:		
Queen Ka'ahumanu Highway Widening Phase 2		
PROJECT NO: 14-04	DATE: December 2014	FIGURE: 2

Long Term Noise Measurement Data - Location A



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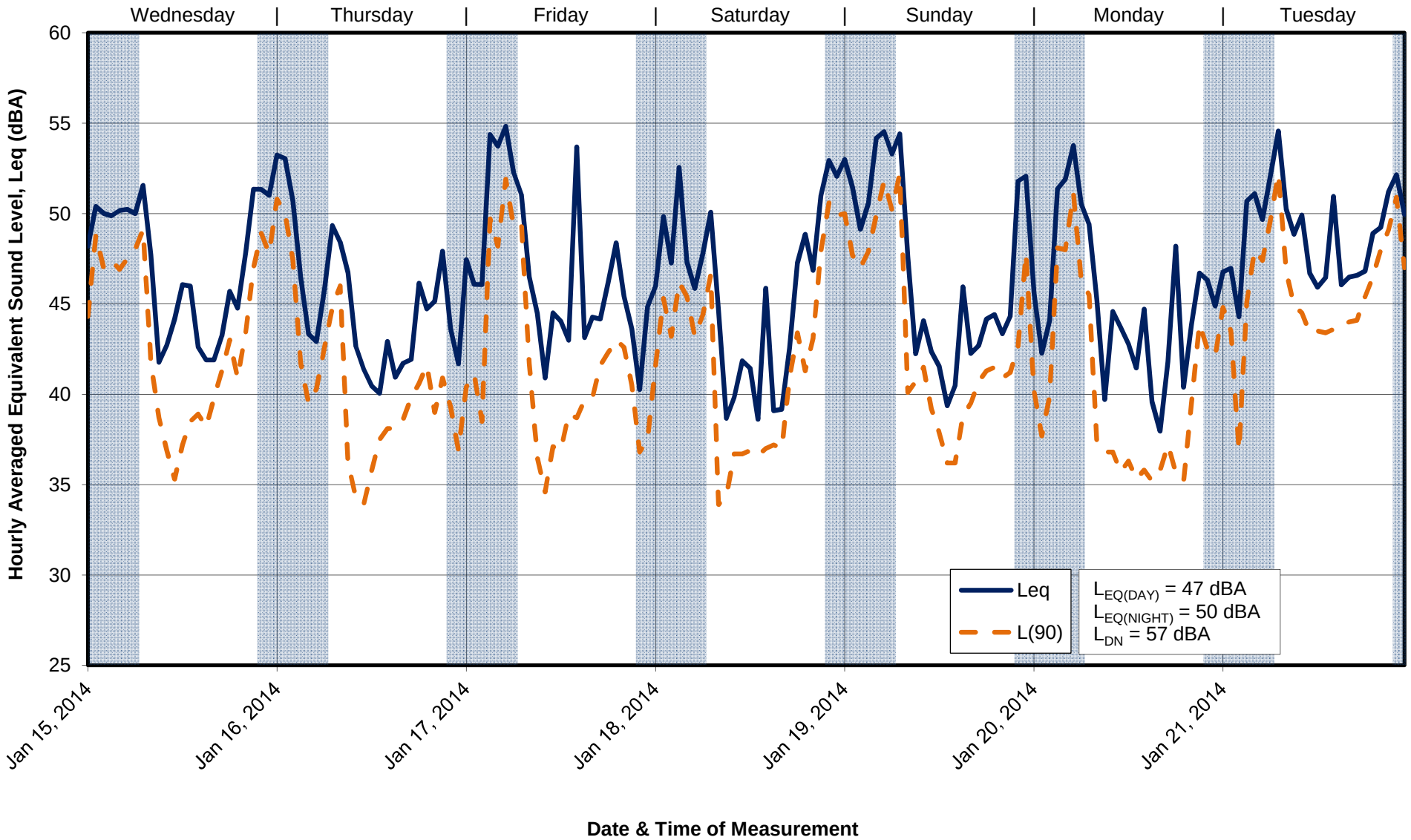
	PROJECT NO: 14-04	DATE: December 2014	FIGURE: 3

Long Term Noise Measurement Data - Location B



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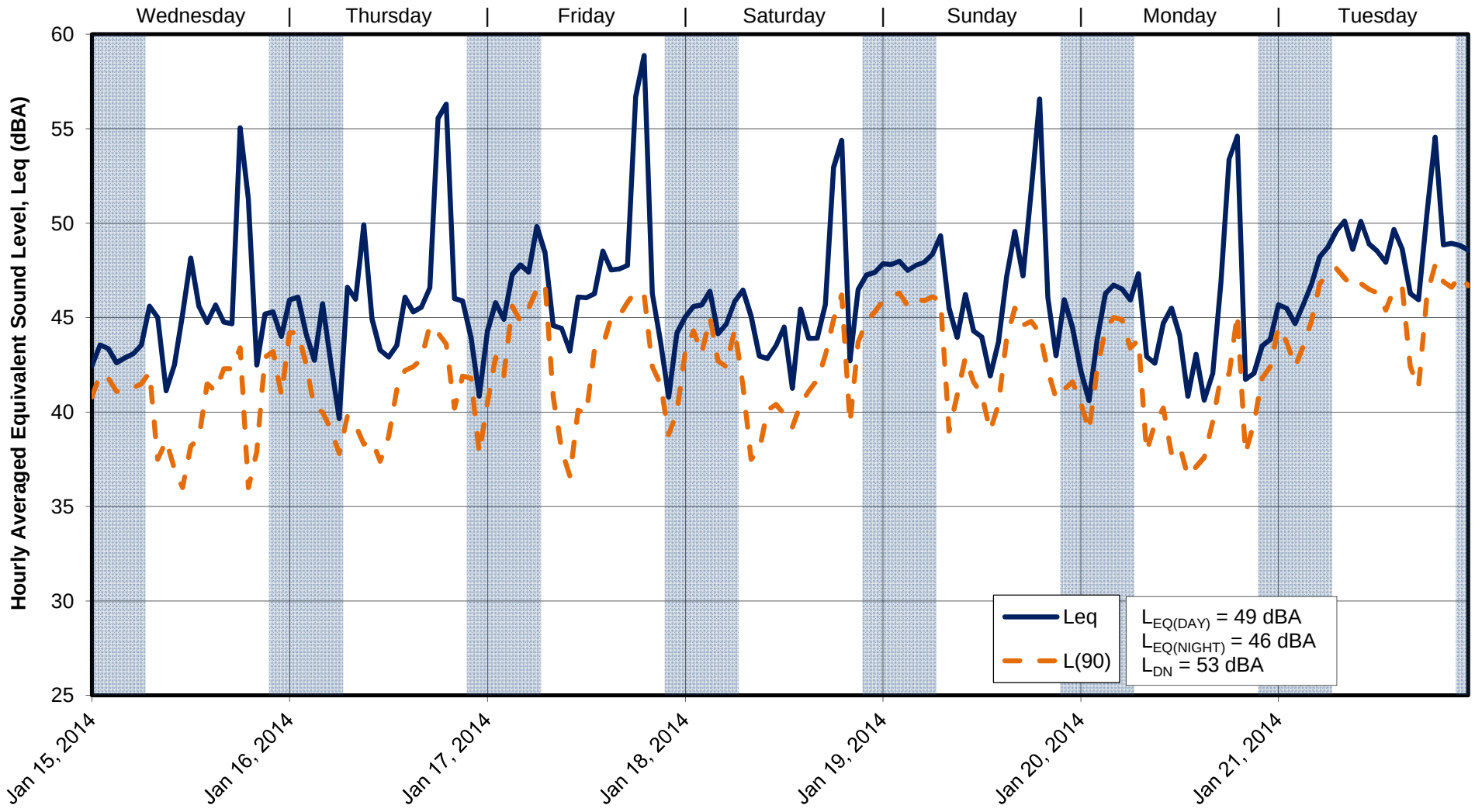
	PROJECT NO: 14-04	DATE: December 2014	FIGURE: 4

Long Term Noise Measurement Data - Location C



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	PROJECT NO: 14-04	DATE: December 2014	FIGURE: 5

APPENDIX A

Acoustic Terminology

Acoustic Terminology

Sound Pressure Level

Sound, or noise, is the term given to variations in air pressure that are capable of being detected by the human ear. Small fluctuations in atmospheric pressure (sound pressure) constitute the physical property measured with a sound pressure level meter. Because the human ear can detect variations in atmospheric pressure over such a large range of magnitudes, sound pressure is expressed on a logarithmic scale in units called decibels (dB). Noise is defined as Aunwanted@ sound.

Technically, sound pressure level (SPL) is defined as:

$$SPL = 20 \log (P/P_{ref}) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and P_{ref} is the reference pressure, 20 µPa, which is approximately the lowest sound pressure that can be detected by the human ear. For example:

If P = 20 µPa, then SPL = 0 dB
If P = 200 µPa, then SPL = 20 dB
If P = 2000 µPa, then SPL = 40 dB

The sound pressure level that results from a combination of noise sources is not the arithmetic sum of the individual sound sources, but rather the logarithmic sum. For example, two sound levels of 50 dB produce a combined sound level of 53 dB, not 100 dB. Two sound levels of 40 and 50 dB produce a combined level of 50.4 dB.

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, in general, a change of 1 or 2 dB in the level of sound is difficult for most people to detect. A 3 dB change is commonly taken as the smallest perceptible change and a 6 dB change corresponds to a noticeable change in loudness. A 10 dB increase or decrease in sound level corresponds to an approximate doubling or halving of loudness, respectively.

A-Weighted Sound Level

Studies have shown conclusively that at equal sound pressure levels, people are generally more sensitive to certain higher frequency sounds (such as made by speech, horns, and whistles) than most lower frequency sounds (such as made by motors and engines)[1] at the same level. To address this preferential response to frequency, the A-weighted scale was developed. The A-weighted scale adjusts the sound level in each frequency band in much the same manner that the human auditory system does. Thus the A-weighted sound level (read as "dBA") becomes a single number that defines the level of a sound and has some correlation with the sensitivity of the human ear to that sound. Different sounds with the same A-weighted sound level are perceived as being equally loud. The A-weighted noise level is commonly used today in environmental noise analysis and in noise regulations. Typical values of the A-weighted sound level of various noise sources are shown in Figure A-1.

[1] D.W. Robinson and R.S. Dadson, AA Re-Determination of the Equal-Loudness Relations for Pure Tones,@ *British Journal of Applied Physics*, vol. 7, pp. 166 - 181, 1956. (Adopted by the International Standards Organization as Recommendation R-226.

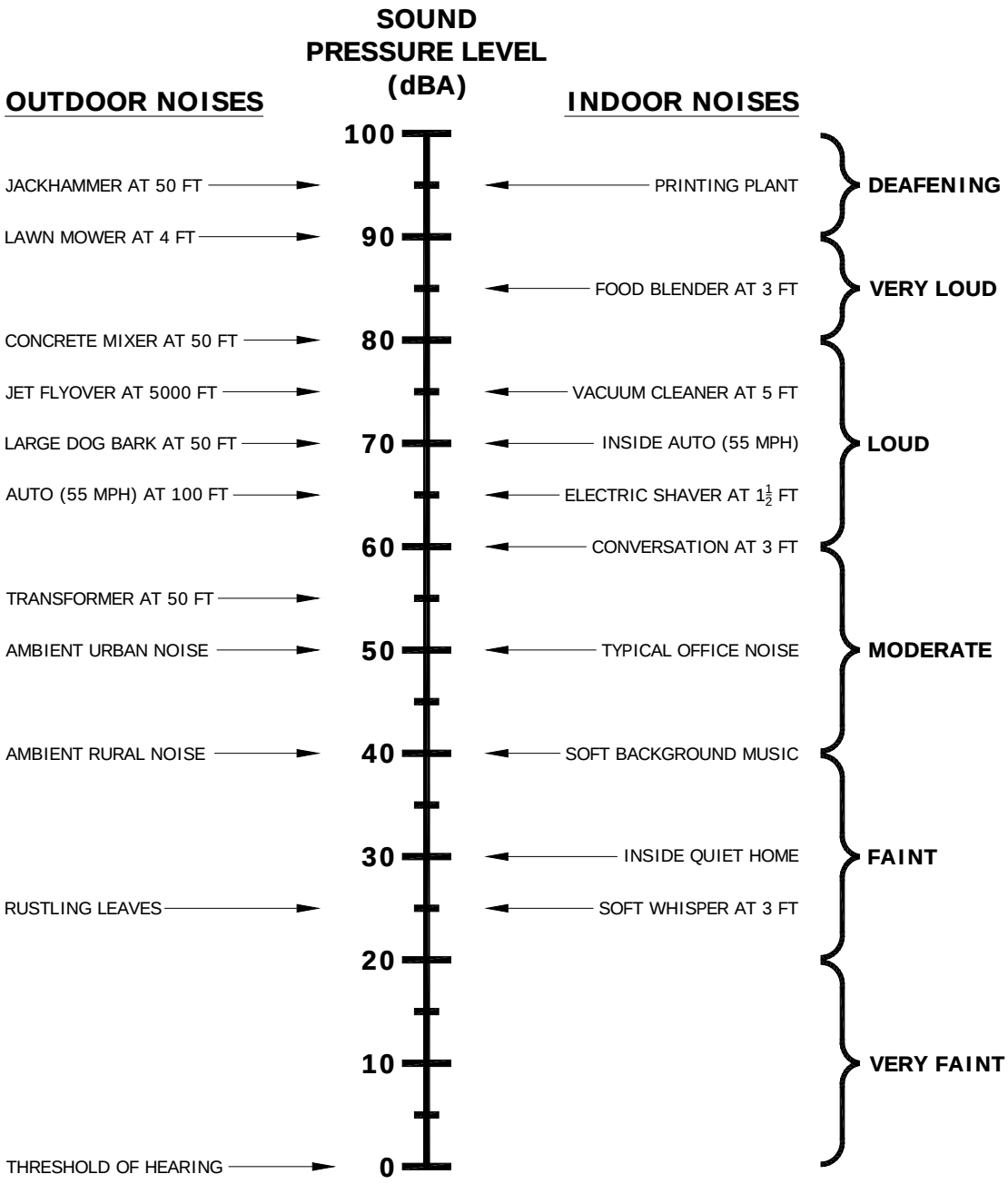

Figure A-1. Common Outdoor/Indoor Sound Levels

Equivalent Sound Level

The Equivalent Sound Level (L_{eq}) is a type of average which represents the steady level that, integrated over a time period, would produce the same energy as the actual signal. The actual *instantaneous* noise levels typically fluctuate above and below the measured L_{eq} during the measurement period. The A-weighted L_{eq} is a common index for measuring environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

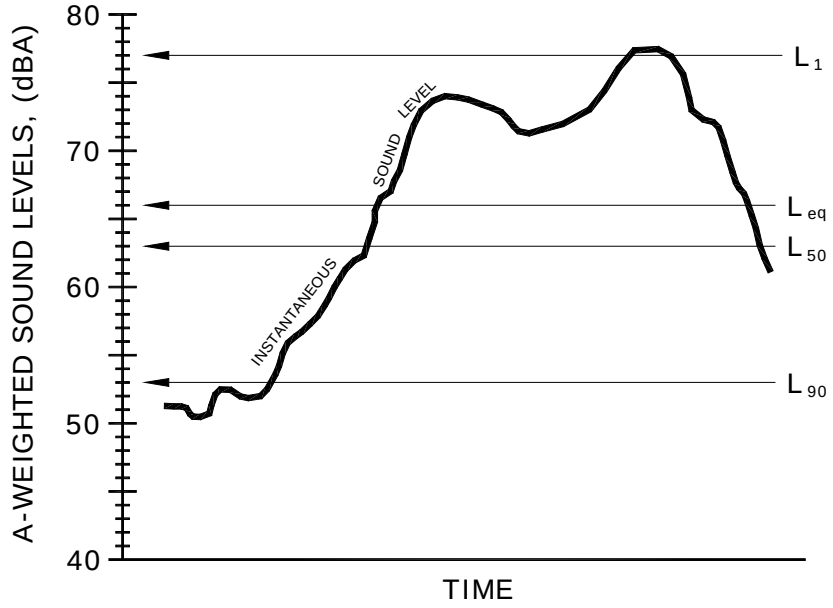

Figure A-2. Example Graph of Equivalent and Statistical Sound Levels

Statistical Sound Level

The sound levels of long-term noise producing activities such as traffic movement, aircraft operations, etc., can vary considerably with time. In order to obtain a single number rating of such a noise source, a statistically-based method of expressing sound or noise levels has been developed. It is known as the Exceedence Level, L_n. The L_n represents the sound level that is exceeded for n% of the measurement time period. For example, L_{10} = 60 dBA indicates that for the duration of the measurement period, the sound level exceeded 60 dBA 10% of the time. Typically, in noise regulations and standards, the specified time period is one hour. Commonly used Exceedence Levels include L_{01}, L_{10}, L_{50}, and L_{90}, which are widely used to assess community and environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

Day-Night Equivalent Sound Level

The Day-Night Equivalent Sound Level, L_{dn}, is the Equivalent Sound Level, L_{eq}, measured over a 24-hour period. However, a 10 dB penalty is added to the noise levels recorded between 10 p.m. and 7 a.m. to account for people's higher sensitivity to noise at night when the background noise level is typically lower. The L_{dn} is a commonly used noise descriptor in assessing land use compatibility, and is widely used by federal and local agencies and standards organizations.

APPENDIX B

Photographs at Project Site

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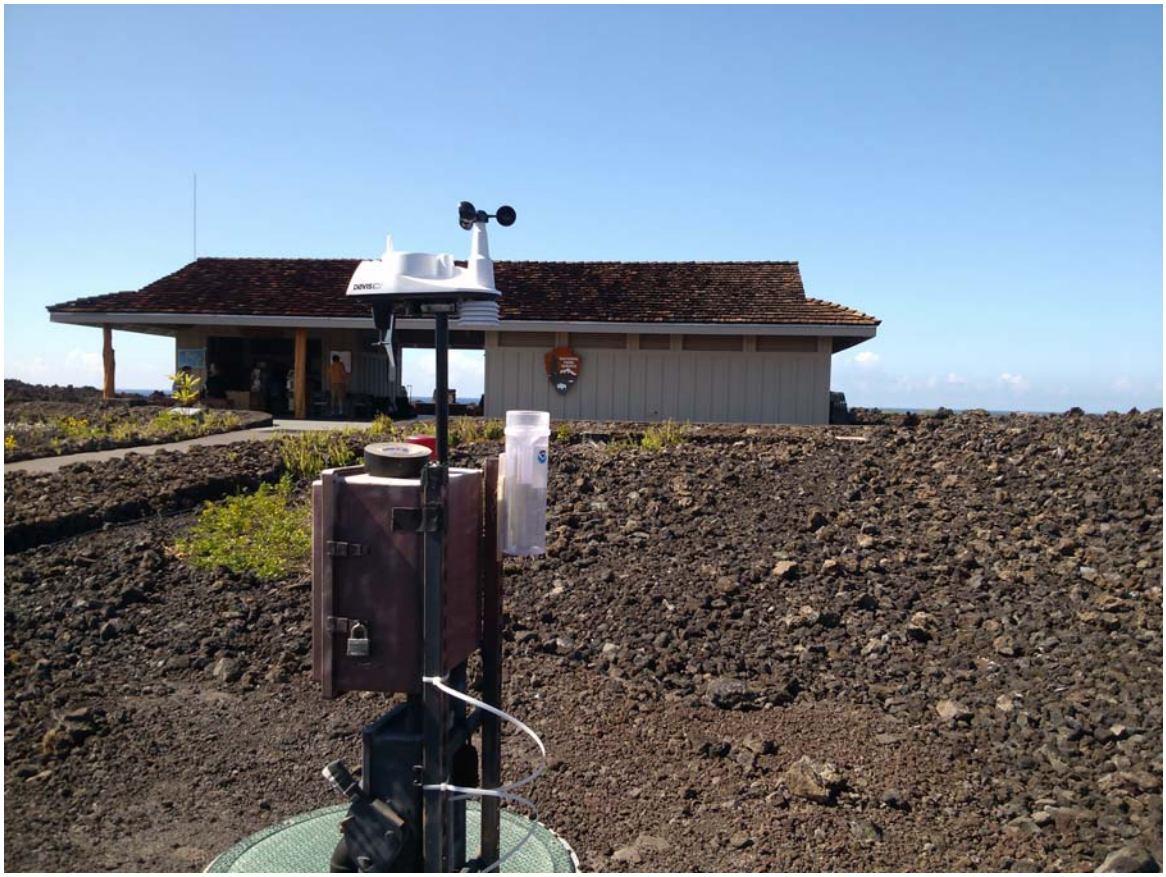
Location A

Microphone, anemometer, and weather statin mounted approximately 5' above grade. Equipment was located near the Hale Ho'okipa Visitors Center, approximately 800 feet west of Queen Ka'ahumanu Highway.

The building in the photographs is the Hale Ho'okipa Visitors Center.



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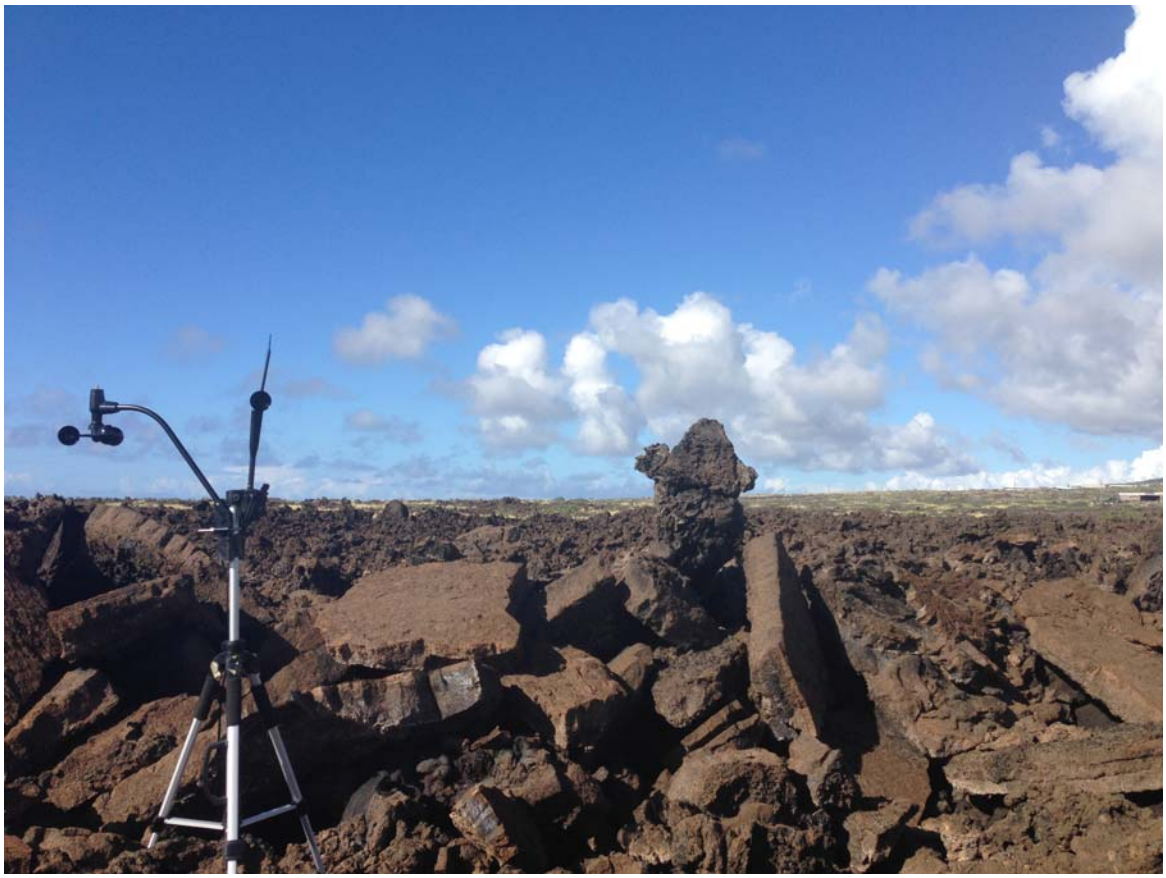
Location B

Microphone and anemometer mounted on tripods approximately 5' above grade. Equipment was located near the Ala Hu'e Hu'e trail, approximately 2000 feet west of Queen Ka'ahumanu Highway.



.

Location C

Microphone and anemometer mounted approximately 5’ above grade. Equipment was located near the Na Leo Kahiko Cultural Center, approximately 500 feet east of the shoreline.

The building in the photograph is the Na Leo Kahiko Cultural Center.

Location D

Short term measurement location, approximately 80 feet east of the centerline of Queen Ka’ahumanu Highway.

Appendix C: Summary of Traffic Noise Model Speed and Traffic Volume Data[1]

Road	Segment	Speed (mph)[2]	Existing (20114)		Future (2035) No Build		Future (2035) Build	
			AM	PM	AM	PM	AM	PM
Queen Ka'ahumanu Highway	Kealakehe Pkwy to Honokohau St	45	1883	2444	2788	4663	2826	4643
	Honokohau St to Kaloko-Honokohau NHP Access Rd		1902	2428	2833	4465	2771	4445
	Kaloko-Honokohau NHP Access Rd to Allied Quarry Rd		1912	2416	3117	4246	3136	4236
	Allied Quarry Rd to Hina Lani St		1823	2351				

Notes:

1. The traffic volumes shown in the table were calculated based on data provided by the Traffic Consultant [Reference 6]. The values represent the peak hour traffic volume for existing and future conditions. The forecasted volumes for the future (2035) are based on projected regional growth in the area and will remain the same regardless of the highway improvements.
2. Posted speed is currently 45 mph, however, the average operating speed from the Traffic Consultant's field data was, on average, 36 mph. Projected speed limits for the future conditions are, on average, 15 mph and 31 mph for the no build and build conditions, respectively. Per FHWA guidance, the posted speed was used in the TNM model since the actual operating speed is not project to be higher.

From: Urada, Scot T
To: fredcachola@gmail.com; Powell, Lisa (FHWA); Otani, Meesa (FHWA); mnaber@achp.gov; Lebo, Susan A; tammy_duchesne@nps.gov; laurenm@oha.org; keolal@oha.org; Kiersten@historichawaii.org; paka@sandwichisles.net; cynazara@gmail.com; bokahui@laiopua.org; nakoafoundation@gmail.com; konakuahau@gmail.com; kuauhaunui@gmail.com; konakuauhau@gmail.com; Sniffen, Edwin H; Chow, Sterling; Soriano, Natasha A; Ando, Marshall; Chun, Karen; Kennedy, Henry; Tatsuguchi, Ken; Aiu, Pua; Naboa, Deona; Mimura, Misako K; Shin, Robert; Chung, Albert; briant@rmtowill.com; lauram@rmtowill.com; jasont@rmtowill.com; stacya@rmtowill.com; jimmy@rmtowill.com; royt@rmtowill.com; dnschang@kuiwalu.com; herblee@thepaf.org; Jeff Zimpfer; Bill Thompson
Subject: REV: Queen Kaahumanu Meeting Invite - May 23, 2017
Date: Thursday, May 11, 2017 8:35:10 PM
Attachments: 170523 Queen Kaahumanu 106 Consultation Mtg 2 -Agenda.pdf

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Aloha Again Everyone,

As a follow-up to my email dated April 27, 2017, attached for your information is the agenda for the next Section 106 consultation meeting on Tues., May 23, 2017, at the NELHA Hale Lako Training Room #119. Again, the primary purpose for the upcoming meeting is to continue discussions of possible mitigation related to the site breaches, and we would welcome your thoughts on mitigation proposals. Please note that the meeting time has changed from "8:30 am to 1:00 pm" to "9:00 am to 3:00 pm". We apologize for any inconvenience this may cause, however, we felt that additional time may be needed to allow for a thorough discussion. We are mindful that your time is important and will try to finish as early as possible.

Please let us know by next Thursday, May 18th, if you will attend the meeting either in person or via phone, so that we can coordinate the morning and lunch refreshments. For those who will participate via phone, you may dial in to the conferencing service using the following:

- Phone: 800.504.8071
- Access Code: 8421133#

To date, we have received confirmation from the following consulting parties:

1. Historic Hawai'i Foundation – Kiersten Faulkner
2. State Historic Preservation – Amy Rubingh
3. Office of Hawaiian Affairs – Keola Lindsey
4. LaiOpua – Bo Kahui

The draft notes for the April 7, 2017 meeting were emailed to you on April 21, 2017, and your comments are appreciated by this Friday, May 5th.

The summary below includes the project documents that are available on R. M. Towill Corporation's sharefile site: https://share.rmtowill.com/index.php/s/bjTqGBKwEjB72eC

We look forward to meeting with everyone again. Please let me know if you have any questions or need more information.

Mahalo,
Scot Urada

Documents for Queen Ka'ahumanu Highway Widening Improvements, Phase 2			
	Item	**Date**	**Email/Upload**
1	Updated Contact List	4.29.17	Emailed by Jason on 4.29.17
2	2015 Annual Report	4.28.17	Emailed by Lisa on 4.28.17
3	4.7.17 Draft Meeting Notes	4.21.17	Emailed by Scot on 4.21.17
			Provided at 4.7.17 meeting Emailed by Jason on 4.8.17

4	Expanded APE	Mar. 2017	and 4.27.17 Available on RMTC Sharefile site
5	Attendance log, agenda, and meeting handouts including: a) 2016 Annual Report; b) Contact list; c) Construction status update; d) Maps of disturbed sites and buffers; and e) Final Action Plan for Archaeological Monitoring	a) 2.24.17 b) 2.23.17 c) 4.4.17 d) 12.6.16 e) 11.15.16	Provided at 4.7.17 meeting Emailed by Scot on 4.4.17
6	MOU between HDOT and UH	10.1.13	Provided at 4.7.17 meeting and emailed by Jason on 4.26.17
Other documents available on RMTC Sharefile Site			
7	Supplemental AIS	Mar. 2017	
8	4.7.17 Meeting Audio Recording	4.7.17	
9	SHPD Letter Regarding Verification of Completion of Detailed Mitigation Plan	7.16.15	
10	End of Fieldwork Letter	6.25.15	
11	Section 106 MOA	5.20.15	
12	Final Section (4f) Evaluation Includes Noise Study in Appendix F	5.15.15	
13	Final Archaeological Preservation and Mitigation Plan	Apr. 2014	
14	Final Data Recovery and Preservation Plan	Oct. 2012	
15	Final Archaeological Monitoring Plan	Oct. 2012	
16	Final Archaeological Inventory Survey	7.19.12	

From: Urada, Scot T
Sent: Wednesday, April 26, 2017 5:58 PM
To: Fredrico Cachola <fredcachola@gmail.com>; lisa.powell@dot.gov; meesa.otani@dot.gov; mnaber@achp.gov; Lebo, Susan A <susan.a.lebo@hawaii.gov>; tammy_duchesne@nps.gov; laurenm@oha.org; keolal@oha.org; Kiersten@historichawaii.org; paka@sandwichisles.net; cynazara@gmail.com; bokahui@laiopua.org; nakoafoundation@gmail.com; konakuahau@gmail.com; kuauhaunui@gmail.com; konakuauhau@gmail.com; Sniffen, Edwin H <edwin.h.sniffen@hawaii.gov>; Chow, Sterling <sterling.chow@hawaii.gov>; Soriano, Natasha A <natasha.a.soriano@hawaii.gov>; Ando, Marshall <marshall.ando@hawaii.gov>; Chun, Karen <karen.chun@hawaii.gov>; Kennedy, Henry <henry.kennedy@hawaii.gov>; Tatsuguchi, Ken <ken.tatsuguchi@hawaii.gov>; Aiu, Pua <Pua.Aiu@hawaii.gov>; Naboa, Deona <deona.naboa@hawaii.gov>; Mimura, Misako K <misako.k.mimura@hawaii.gov>; Shin, Robert <robert.shin@hawaii.gov>; Chung, Albert <albert.chung@hawaii.gov>; briant@rmtowill.com; lauram@rmtowill.com; jasont@rmtowill.com; stacya@rmtowill.com; jimmy@rmtowill.com;

royt@rmtowill.com; dnschang@kuiwalu.com; herblee@thepaf.org; Jeff Zimpfer <Jeff_Zimpfer@nps.gov>; Bill Thompson <william_thompson@nps.gov>
Cc: Urada, Scot T <scot.t.urada@hawaii.gov>
Subject: Queen Kaahumanu Meeting Invite - May 23, 2017

Aloha Everyone,

It was great to meet everyone for the first time on April 7, 2017 at NELHA. To continue and build upon discussions we had in that last meeting, we are looking to schedule our next meeting on Tuesday, May 23, 2017 at NELHA. If you are able to attend, please set aside time from 8:30 AM to 1:00 PM.

The primary purpose for this upcoming meeting is to continue discussions of possible mitigation related to the adverse effects to the trails that resulted from the site breaches. Some of you may already have specific thoughts for mitigation in mind and if you would like to share your mitigation proposals prior to this upcoming meeting, we can note these down ahead of time and use it for further discussions on May 23rd . If you would like to share your ideas (items that would be reasonably related to the trails), please send it via email to Lisa Powell (lisa.powell@dot.gov) and myself (scot.t.urada@hawaii.gov) by May 17, 2017 if possible so we can tabulate them.

We will be sending out a meeting agenda and other meeting material prior to May 23rd and look forward to seeing everyone again.

Mahalo,
Scot Urada

U.S. Department of Transportation
Federal Highway Administration

Hawaii Federal-Aid Division

300 Ala Moana Blvd, Rm 3-306
Box 50206
Honolulu, Hawaii 96850
Phone: (808) 541-2700
Fax: (808) 541-2704

April 15, 2015

In Reply Refer To:
HDA-HI

Ms. M. Melia Lane-Kamahele
Manager – Pacific Islands Office
United States Department of the Interior, National Park Service
300 Ala Moana Blvd, Rm. 6-226 (Box 50165)
Honolulu, HI 96850

Subject: Section 4(f) Evaluation
Queen Ka'ahumanu Highway Widening, Phase 2
Kealakehe Parkway to Keahole Airport Access Road
Federal-aid Project No. NH-019-1(038)R

Dear Ms. Lane-Kamahele:

Thank you for your letter dated September 10, 2013, regarding the Draft Section 4(f) Evaluation for the Queen Ka'ahumanu Highway Widening, Phase 2, Kealakehe Parkway to Keahole Airport Access Road project. We apologize for the delay in responding. As a follow up to our response dated January 30, 2014, we offer the following response in regard to the noise study conducted to determine if there is a constructive use under Section 4(f) per 23 CFR 774.15:

Page 16, Paragraph 1 and Page 17, Paragraph 1. The Federal Highway Administration (FHWA) and the Hawaii Department of Transportation (HDOT) conducted a noise study (enclosed) to assess any potential impacts to the Kaloko-Honokohau National Historical Park in accordance with 23 CFR 772 and the HDOT Highway Noise Policy and Abatement Guidelines and per 23 CFR 774.15 to determine whether there is a constructive use.

Noise measurements were taken at three (3) locations specified by the National Park Service (NPS) within the Kaloko-Honokōhau National Historical Park that included the a) visitor center, b) cultural resource center and c) a location along an historic trail mid-way between the highway and shoreline. The existing noise environment was measured 24-hours a day for 27 consecutive days in February and March 2014. Models of the future noise environment with and without the project were prepared using the FHWA Traffic Noise Model (TNM). The results are provided in the table below.

Since the NPS expressed in the September 10, 2013, letter that "Preservation of serenity and quiet is essential to the integrity, historical significance and character of Kaloko-Honokōhau NHP," this assertion would place the Park into the "Activity Category A" where noise levels should not exceed 57 dBA in accordance with Noise Abatement Criteria guidelines (NAC) (23 CFR 772). It should be noted however, that Section 4(f) resources are typically represented by

the NAC guidelines as falling within "Activity Category C" where levels should not exceed 67 dBA. Based on the finding of existing measured noise levels, there is no exceedance of both the Category A and C noise levels. In the Future scenarios, shown in the table below, without the project, there is an increase in noise level at the visitor center of 2.4 dBA. The other two measured sites also show an increase in noise levels in the 2.5-2.6 dBA range. With the project, the noise level at the visitor center during the PM peak increases by 2.8 dBA. The other two sites show an increase from 2.6-2.7 dBA.

Based on the measurements and predictive model, the noise levels will not exceed the 3 dBA level prescribed in 23 CFR 774.15 (f)(3) where it is determined that a constructive use has not occurred. Consequently, no further action is required.

Summary of Existing and Future Traffic Noise Projections (dBA)

Row ID	Noise Receptor	Hale Ho'okipa Visitor Center		Ala Hue Hue Trail		Na Leo Kahiko Cultural Center	
		AM	PM	AM	PM	AM	PM
(x)	Existing (2014)	54.1	54.8	47.8	48.3	43.5	44.1
(y)	Future No Build (2035)	56.5	57.4	50.2	50.9	45.9	46.6
(z)	Future Build (2035)	56.8	57.6	50.3	51.0	46.0	46.7
(y-x)	Future increase without project	2.4	2.6	2.4	2.6	2.4	2.5
(z-x)	Future increase with project	2.7	2.8	2.5	2.7	2.5	2.6
(z-y)	**Future increase due to project**	**0.3**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**
	Distance to future highway EOP	805 feet		1,905 feet		3,605 feet	

Source: DLAA, 2014

If there are any questions or if additional information is needed, please contact me by phone at (808) 541-2316 or by email at meesa.otani@dot.gov.

Sincerely yours,

Meesa J. Otani

Meesa Otani
Environmental Engineer

Enclosure

cc: Henry Kennedy (HDOT), Sterling Chow (HDOT), Chester Koga (R.M. Towill Corporation), Rachel Adams (Parsons Brinckerhoff)

Water Resources and Wetlands

Clean Water Act, 33 U.S.C. 1251–1387.

Section 404, 33 U.S.C. 1344
Section 401, 33 U.S.C. 1341
Section 319, 33 U.S.C. 1329

Coastal Barrier Resources Act, 16 U.S.C. 3501–3510.

Coastal Zone Management Act, 16 U.S.C. 1451–1466.

Safe Drinking Water Act, 42 U.S.C. 300f—300j–26.

Rivers and Harbors Act of 1899, 33 U.S.C. 403.

Wild and Scenic Rivers Act, 16 U.S.C. 1271–1287.

Emergency Wetlands Resources Act, 16 U.S.C. 3901 and 3921.

Wetlands Mitigation, 23 U.S.C. 119(g) and 133(b)(14).

FHWA wetland and natural habitat mitigation regulations at 23 CFR part 777.

Flood Disaster Protection Act, 42 U.S.C. 4001–4130.

Parklands

Section 4(f), 49 U.S.C. 303; 23 U.S.C. 138.

FHWA/FTA Section 4(f) regulations at 23 CFR part 774.

Land and Water Conservation Fund, 16 U.S.C. 460*l*–4–460*l*–11.

Hazardous Materials

Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601–9675.

Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. 9671–9675.

Resource Conservation and Recovery Act, 42 U.S.C. 6901–6992k.

Executive Orders Relating to Eligible Projects

E.O. 11990, *Protection of Wetlands*
E.O. 11988, *Floodplain Management*
E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*
E.O. 13112, *Invasive Species*

PART 774—PARKS, RECREATION AREAS, WILDLIFE AND WATERFOWL REFUGES, AND HISTORIC SITES (SECTION 4(f))

Sec.

AUTHORITY: 23 U.S.C. 103(c), 109(h), 138, 325, 326, 327 and 204(h)(2); 49 U.S.C. 303; Section 6009 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (Pub. L. 109–59, Aug. 10, 2005, 119 Stat. 1144); 49 CFR 1.48 and 1.51.

SOURCE: 73 FR 13395, Mar. 12, 2008, unless otherwise noted.

§ 774.1 Purpose.

The purpose of this part is to implement 23 U.S.C. 138 and 49 U.S.C. 303, which were originally enacted as Section 4(f) of the Department of Transportation Act of 1966 and are still commonly referred to as ''Section 4(f).''

§ 774.3 Section 4(f) approvals.

The Administration may not approve the use, as defined in § 774.17, of Section 4(f) property unless a determination is made under paragraph (a) or (b) of this section.

(a) The Administration determines that:

(1) There is no feasible and prudent avoidance alternative, as defined in § 774.17, to the use of land from the property; and

(2) The action includes all possible planning, as defined in § 774.17, to minimize harm to the property resulting from such use; or

(b) The Administration determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a *de minimis* impact, as defined in § 774.17, on the property.

(c) If the analysis in paragraph (a)(1) of this section concludes that there is no feasible and prudent avoidance alternative, then the Administration may approve, from among the remaining alternatives that use Section 4(f) property, only the alternative that:

(1) Causes the least overall harm in light of the statute's preservation purpose. The least overall harm is determined by balancing the following factors:

(i) The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);

(ii) The relative severity of the remaining harm, after mitigation, to the

protected activities, attributes, or features that qualify each Section 4(f) property for protection;

(iii) The relative significance of each Section 4(f) property;

(iv) The views of the official(s) with jurisdiction over each Section 4(f) property;

(v) The degree to which each alternative meets the purpose and need for the project;

(vi) After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and

(vii) Substantial differences in costs among the alternatives.

(2) The alternative selected must include all possible planning, as defined in § 774.17, to minimize harm to Section 4(f) property.

(d) Programmatic Section 4(f) evaluations are a time-saving procedural alternative to preparing individual Section 4(f) evaluations under paragraph (a) of this section for certain minor uses of Section 4(f) property. Programmatic Section 4(f) evaluations are developed by the Administration based on experience with a specific set of conditions that includes project type, degree of use and impact, and evaluation of avoidance alternatives.[1] An approved programmatic Section 4(f) evaluation may be relied upon to cover a particular project only if the specific conditions in the programmatic evaluation are met

(1) The determination whether a programmatic Section 4(f) evaluation applies to the use of a specific Section 4(f) property shall be documented as specified in the applicable programmatic Section 4(f) evaluation.

(2) The Administration may develop additional programmatic Section 4(f) evaluations. Proposed new or revised programmatic Section 4(f) evaluations will be coordinated with the Department of Interior, Department of Agriculture, and Department of Housing and Urban Development, and published in the FEDERAL REGISTER for comment prior to being finalized. New or revised programmatic Section 4(f) evaluations shall be reviewed for legal sufficiency and approved by the Headquarters Office of the Administration.

(e) The coordination requirements in § 774.5 must be completed before the Administration may make Section 4(f) approvals under this section. Requirements for the documentation and timing of Section 4(f) approvals are located in §§ 774.7 and 774.9, respectively.

[73 FR 13395, Mar. 12, 2008, as amended at 73 FR 31610, June 3, 2008]

§ 774.5 Coordination.

(a) Prior to making Section 4(f) approvals under § 774.3(a), the Section 4(f) evaluation shall be provided for coordination and comment to the official(s) with jurisdiction over the Section 4(f) resource and to the Department of the Interior, and as appropriate to the Department of Agriculture and the Department of Housing and Urban Development. The Administration shall provide a minimum of 45 days for receipt of comments. If comments are not received within 15 days after the comment deadline, the Administration may assume a lack of objection and proceed with the action.

(b) Prior to making *de minimis* impact determinations under § 774.3(b), the following coordination shall be undertaken:

(1) For historic properties:

(i) The consulting parties identified in accordance with 36 CFR part 800 must be consulted; and

(ii) The Administration must receive written concurrence from the pertinent State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO), and from the Advisory Council on Historic Preservation (ACHP) if participating in the consultation process, in a finding of ''no

[1] FHWA has issued five programmatic Section 4(f) evaluations: (1) Final Nationwide Programmatic Section 4(f) Evaluation and Determination for Federal-Aid Transportation Projects That Have a Net Benefit to a Section 4(f) Property; (2) Nationwide Section 4(f) Evaluations and Approvals for Federally-Aided Highway Projects With Minor Involvement With Public Parks, Recreation Lands, Wildlife and Waterfowl Refuges, and Historic Sites; (3) Final Nationwide Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects With Minor Involvements With Historic Sites; (4) Historic Bridges; Programmatic Section 4(f) Evaluation and Approval; and (5) Section 4(f) Statement and Determination for Independent Bikeway or Walkway Construction Projects.

adverse effect'' or ''no historic properties affected'' in accordance with 36 CFR part 800. The Administration shall inform these officials of its intent to make a *de minimis* impact determination based on their concurrence in the finding of ''no adverse effect'' or ''no historic properties affected.''

(iii) Public notice and comment, beyond that required by 36 CFR part 800, is not required.

(2) For parks, recreation areas, and wildlife and waterfowl refuges:

(i) Public notice and an opportunity for public review and comment concerning the effects on the protected activities, features, or attributes of the property must be provided. This requirement can be satisfied in conjunction with other public involvement procedures, such as a comment period provided on a NEPA document.

(ii) The Administration shall inform the official(s) with jurisdiction of its intent to make a *de minimis* impact finding. Following an opportunity for public review and comment as described in paragraph (b)(2)(i) of this section, the official(s) with jurisdiction over the Section 4(f) resource must concur in writing that the project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. This concurrence may be combined with other comments on the project provided by the official(s).

(c) The application of a programmatic Section 4(f) evaluation to the use of a specific Section 4(f) property under §774.3(d)(1) shall be coordinated as specified in the applicable programmatic Section 4(f) evaluation.

(d) When Federal encumbrances on Section 4(f) property are identified, coordination with the appropriate Federal agency is required to ascertain the agency's position on the proposed impact, as well as to determine if any other Federal requirements may apply to converting the Section 4(f) land to a different function. Any such requirements must be satisfied, independent of the Section 4(f) approval.

§774.7 Documentation.

(a) A Section 4(f) evaluation prepared under §774.3(a) shall include sufficient supporting documentation to demonstrate why there is no feasible and prudent avoidance alternative and shall summarize the results of all possible planning to minimize harm to the Section 4(f) property.

(b) A *de minimis* impact determination under §774.3(b) shall include sufficient supporting documentation to demonstrate that the impacts, after avoidance, minimization, mitigation, or enhancement measures are taken into account, are *de minimis* as defined in §774.17; and that the coordination required in §774.5(b) has been completed.

(c) If there is no feasible and prudent avoidance alternative the Administration may approve only the alternative that causes the least overall harm in accordance with §774.3(c). This analysis must be documented in the Section 4(f) evaluation.

(d) The Administration shall review all Section 4(f) approvals under §§774.3(a) and 774.3(c) for legal sufficiency.

(e) A Section 4(f) approval may involve different levels of detail where the Section 4(f) involvement is addressed in a tiered EIS under §771.111(g) of this chapter.

(1) When the first-tier, broad-scale EIS is prepared, the detailed information necessary to complete the Section 4(f) approval may not be available at that stage in the development of the action. In such cases, the documentation should address the potential impacts that a proposed action will have on Section 4(f) property and whether those impacts could have a bearing on the decision to be made. A preliminary Section 4(f) approval may be made at this time as to whether the impacts resulting from the use of a Section 4(f) property are *de minimis* or whether there are feasible and prudent avoidance alternatives. This preliminary approval shall include all possible planning to minimize harm to the extent that the level of detail available at the first-tier EIS stage allows. It is recognized that such planning at this stage may be limited to ensuring that opportunities to minimize harm at subsequent stages in the development process have not been precluded by decisions made at the first-tier stage. This preliminary Section 4(f) approval is

then incorporated into the first-tier EIS.

(2) The Section 4(f) approval will be finalized in the second-tier study. If no new Section 4(f) use, other than a *de minimis* impact, is identified in the second-tier study and if all possible planning to minimize harm has occurred, then the second-tier Section 4(f) approval may finalize the preliminary approval by reference to the first-tier documentation. Re-evaluation of the preliminary Section 4(f) approval is only needed to the extent that new or more detailed information available at the second-tier stage raises new Section 4(f) concerns not already considered.

(3) The final Section 4(f) approval may be made in the second-tier CE, EA, final EIS, ROD or FONSI.

(f) In accordance with §§ 771.105(a) and 771.133 of this chapter, the documentation supporting a Section 4(f) approval should be included in the EIS, EA, or for a project classified as a CE, in a separate document. If the Section 4(f) documentation cannot be included in the NEPA document, then it shall be presented in a separate document. The Section 4(f) documentation shall be developed by the applicant in cooperation with the Administration.

§ 774.9 Timing.

(a) The potential use of land from a Section 4(f) property shall be evaluated as early as practicable in the development of the action when alternatives to the proposed action are under study.

(b) Except as provided in paragraph (c) of this section, for actions processed with EISs the Administration will make the Section 4(f) approval either in the final EIS or in the ROD. Where the Section 4(f) approval is documented in the final EIS, the Administration will summarize the basis for its Section 4(f) approval in the ROD. Actions requiring the use of Section 4(f) property, and proposed to be processed with a FONSI or classified as a CE, shall not proceed until notification by the Administration of Section 4(f) approval.

(c) After the CE, FONSI, or ROD has been processed, a separate Section 4(f) approval will be required, except as provided in § 774.13, if:

(1) A proposed modification of the alignment or design would require the use of Section 4(f) property; or

(2) The Administration determines that Section 4(f) applies to the use of a property; or

(3) A proposed modification of the alignment, design, or measures to minimize harm (after the original Section 4(f) approval) would result in a substantial increase in the amount of Section 4(f) property used, a substantial increase in the adverse impacts to Section 4(f) property, or a substantial reduction in the measures to minimize harm.

(d) A separate Section 4(f) approval required under paragraph (c) of this section will not necessarily require the preparation of a new or supplemental NEPA document. If a new or supplemental NEPA document is also required under § 771.130 of this chapter, then it should include the documentation supporting the separate Section 4(f) approval. Where a separate Section 4(f) approval is required, any activity not directly affected by the separate Section 4(f) approval can proceed during the analysis, consistent with § 771.130(f) of this chapter.

(e) Section 4(f) may apply to archeological sites discovered during construction, as set forth in § 774.11(f). In such cases, the Section 4(f) process will be expedited and any required evaluation of feasible and prudent avoidance alternatives will take account of the level of investment already made. The review process, including the consultation with other agencies, will be shortened as appropriate.

§ 774.11 Applicability.

(a) The Administration will determine the applicability of Section 4(f) in accordance with this part.

(b) When another Federal agency is the Federal lead agency for the NEPA process, the Administration shall make any required Section 4(f) approvals unless the Federal lead agency is another U.S. DOT agency.

(c) Consideration under Section 4(f) is not required when the official(s) with jurisdiction over a park, recreation area, or wildlife and waterfowl refuge determine that the property, considered in its entirety, is not significant.

In the absence of such a determination, the Section 4(f) property will be presumed to be significant. The Administration will review a determination that a park, recreation area, or wildlife and waterfowl refuge is not significant to assure its reasonableness.

(d) Where Federal lands or other public land holdings (e.g., State forests) are administered under statutes permitting management for multiple uses, and, in fact, are managed for multiple uses, Section 4(f) applies only to those portions of such lands which function for, or are designated in the plans of the administering agency as being for, significant park, recreation, or wildlife and waterfowl refuge purposes. The determination of which lands so function or are so designated, and the significance of those lands, shall be made by the official(s) with jurisdiction over the Section 4(f) resource. The Administration will review this determination to assure its reasonableness.

(e) In determining the applicability of Section 4(f) to historic sites, the Administration, in cooperation with the applicant, will consult with the official(s) with jurisdiction to identify all properties on or eligible for the National Register of Historic Places (National Register). The Section 4(f) requirements apply to historic sites on or eligible for the National Register unless the Administration determines that an exception under §774.13 applies.

(1) The Section 4(f) requirements apply only to historic sites on or eligible for the National Register unless the Administration determines that the application of Section 4(f) is otherwise appropriate.

(2) The Interstate System is not considered to be a historic site subject to Section 4(f), with the exception of those individual elements of the Interstate System formally identified by FHWA for Section 4(f) protection on the basis of national or exceptional historic significance.

(f) Section 4(f) applies to all archeological sites on or eligible for inclusion on the National Register, including those discovered during construction, except as set forth in §774.13(b).

(g) Section 4(f) applies to those portions of federally designated Wild and Scenic Rivers that are otherwise eligible as historic sites, or that are publicly owned and function as, or are designated in a management plan as, a significant park, recreation area, or wildlife and waterfowl refuge. All other applicable requirements of the Wild and Scenic Rivers Act, 16 U.S.C. 1271–1287, must be satisfied, independent of the Section 4(f) approval.

(h) When a property formally reserved for a future transportation facility temporarily functions for park, recreation, or wildlife and waterfowl refuge purposes in the interim, the interim activity, regardless of duration, will not subject the property to Section 4(f).

(i) When a property is formally reserved for a future transportation facility before or at the same time a park, recreation area, or wildlife and waterfowl refuge is established and concurrent or joint planning or development of the transportation facility and the Section 4(f) resource occurs, then any resulting impacts of the transportation facility will not be considered a use as defined in §774.17. Examples of such concurrent or joint planning or development include, but are not limited to:

(1) Designation or donation of property for the specific purpose of such concurrent development by the entity with jurisdiction or ownership of the property for both the potential transportation facility and the Section 4(f) property; or

(2) Designation, donation, planning, or development of property by two or more governmental agencies with jurisdiction for the potential transportation facility and the Section 4(f) property, in consultation with each other.

§774.13 Exceptions.

The Administration has identified various exceptions to the requirement for Section 4(f) approval. These exceptions include, but are not limited to:

(a) Restoration, rehabilitation, or maintenance of transportation facilities that are on or eligible for the National Register when:

(1) The Administration concludes, as a result of the consultation under 36 CFR 800.5, that such work will not adversely affect the historic qualities of

the facility that caused it to be on or eligible for the National Register, and

(2) The official(s) with jurisdiction over the Section 4(f) resource have not objected to the Administration conclusion in paragraph (a)(1) of this section.

(b) Archeological sites that are on or eligible for the National Register when:

(1) The Administration concludes that the archeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place. This exception applies both to situations where data recovery is undertaken and where the Administration decides, with agreement of the official(s) with jurisdiction, not to recover the resource; and

(2) The official(s) with jurisdiction over the Section 4(f) resource have been consulted and have not objected to the Administration finding in paragraph (b)(1) of this section.

(c) Designations of park and recreation lands, wildlife and waterfowl refuges, and historic sites that are made, or determinations of significance that are changed, late in the development of a proposed action. With the exception of the treatment of archeological resources in § 774.9(e), the Administration may permit a project to proceed without consideration under Section 4(f) if the property interest in the Section 4(f) land was acquired for transportation purposes prior to the designation or change in the determination of significance and if an adequate effort was made to identify properties protected by Section 4(f) prior to acquisition. However, if it is reasonably foreseeable that a property would qualify as eligible for the National Register prior to the start of construction, then the property should be treated as a historic site for the purposes of this section.

(d) Temporary occupancies of land that are so minimal as to not constitute a use within the meaning of Section 4(f). The following conditions must be satisfied:

(1) Duration must be temporary, *i.e.*, less than the time needed for construction of the project, and there should be no change in ownership of the land;

(2) Scope of the work must be minor, *i.e.*, both the nature and the magnitude of the changes to the Section 4(f) property are minimal;

(3) There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis;

(4) The land being used must be fully restored, *i.e.*, the property must be returned to a condition which is at least as good as that which existed prior to the project; and

(5) There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.

(e) Park road or parkway projects under 23 U.S.C. 204.

(f) Certain trails, paths, bikeways, and sidewalks, in the following circumstances:

(1) Trail-related projects funded under the Recreational Trails Program, 23 U.S.C. 206(h)(2);

(2) National Historic Trails and the Continental Divide National Scenic Trail, designated under the National Trails System Act, 16 U.S.C. 1241–1251, with the exception of those trail segments that are historic sites as defined in § 774.17;

(3) Trails, paths, bikeways, and sidewalks that occupy a transportation facility right-of-way without limitation to any specific location within that right-of-way, so long as the continuity of the trail, path, bikeway, or sidewalk is maintained; and

(4) Trails, paths, bikeways, and sidewalks that are part of the local transportation system and which function primarily for transportation.

(g) Transportation enhancement projects and mitigation activities, where:

(1) The use of the Section 4(f) property is solely for the purpose of preserving or enhancing an activity, feature, or attribute that qualifies the property for Section 4(f) protection; and

(2) The official(s) with jurisdiction over the Section 4(f) resource agrees in writing to paragraph (g)(1) of this section.

§ 774.15 Constructive use determinations.

(a) A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished.

(b) If the project results in a constructive use of a nearby Section 4(f) property, the Administration shall evaluate that use in accordance with § 774.3(a).

(c) The Administration shall determine when there is a constructive use, but the Administration is not required to document each determination that a project would not result in a constructive use of a nearby Section 4(f) property. However, such documentation may be prepared at the discretion of the Administration.

(d) When a constructive use determination is made, it will be based upon the following:

(1) Identification of the current activities, features, or attributes of the property which qualify for protection under Section 4(f) and which may be sensitive to proximity impacts;

(2) An analysis of the proximity impacts of the proposed project on the Section 4(f) property. If any of the proximity impacts will be mitigated, only the net impact need be considered in this analysis. The analysis should also describe and consider the impacts which could reasonably be expected if the proposed project were not implemented, since such impacts should not be attributed to the proposed project; and

(3) Consultation, on the foregoing identification and analysis, with the official(s) with jurisdiction over the Section 4(f) property.

(e) The Administration has reviewed the following situations and determined that a constructive use occurs when:

(1) The projected noise level increase attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility of a property protected by Section 4(f), such as:

(i) Hearing the performances at an outdoor amphitheater;

(ii) Sleeping in the sleeping area of a campground;

(iii) Enjoyment of a historic site where a quiet setting is a generally recognized feature or attribute of the site's significance;

(iv) Enjoyment of an urban park where serenity and quiet are significant attributes; or

(v) Viewing wildlife in an area of a wildlife and waterfowl refuge intended for such viewing.

(2) The proximity of the proposed project substantially impairs esthetic features or attributes of a property protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the property. Examples of substantial impairment to visual or esthetic qualities would be the location of a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historical building, or substantially detracts from the setting of a Section 4(f) property which derives its value in substantial part due to its setting;

(3) The project results in a restriction of access which substantially diminishes the utility of a significant publicly owned park, recreation area, or a historic site;

(4) The vibration impact from construction or operation of the project substantially impairs the use of a Section 4(f) property, such as projected vibration levels that are great enough to physically damage a historic building or substantially diminish the utility of the building, unless the damage is repaired and fully restored consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties, *i.e.*, the integrity of the contributing features must be returned to a condition which is substantially similar to that which existed prior to the project; or

(5) The ecological intrusion of the project substantially diminishes the value of wildlife habitat in a wildlife and waterfowl refuge adjacent to the

project, substantially interferes with the access to a wildlife and waterfowl refuge when such access is necessary for established wildlife migration or critical life cycle processes, or substantially reduces the wildlife use of a wildlife and waterfowl refuge.

(f) The Administration has reviewed the following situations and determined that a constructive use does not occur when:

(1) Compliance with the requirements of 36 CFR 800.5 for proximity impacts of the proposed action, on a site listed on or eligible for the National Register, results in an agreement of ''no historic properties affected'' or ''no adverse effect;''

(2) The impact of projected traffic noise levels of the proposed highway project on a noise-sensitive activity do not exceed the FHWA noise abatement criteria as contained in Table 1 in part 772 of this chapter, or the projected operational noise levels of the proposed transit project do not exceed the noise impact criteria for a Section 4(f) activity in the FTA guidelines for transit noise and vibration impact assessment;

(3) The projected noise levels exceed the relevant threshold in paragraph (f)(2) of this section because of high existing noise, but the increase in the projected noise levels if the proposed project is constructed, when compared with the projected noise levels if the project is not built, is barely perceptible (3 dBA or less);

(4) There are proximity impacts to a Section 4(f) property, but a governmental agency's right-of-way acquisition or adoption of project location, or the Administration's approval of a final environmental document, established the location for the proposed transportation project before the designation, establishment, or change in the significance of the property. However, if it is reasonably foreseeable that a property would qualify as eligible for the National Register prior to the start of construction, then the property should be treated as a historic site for the purposes of this section; or

(5) Overall (combined) proximity impacts caused by a proposed project do not substantially impair the activities, features, or attributes that qualify a property for protection under Section 4(f);

(6) Proximity impacts will be mitigated to a condition equivalent to, or better than, that which would occur if the project were not built, as determined after consultation with the official(s) with jurisdiction;

(7) Change in accessibility will not substantially diminish the utilization of the Section 4(f) property; or

(8) Vibration levels from project construction activities are mitigated, through advance planning and monitoring of the activities, to levels that do not cause a substantial impairment of protected activities, features, or attributes of the Section 4(f) property.

§ 774.17 Definitions.

The definitions contained in 23 U.S.C. 101(a) are applicable to this part. In addition, the following definitions apply:

Administration. The FHWA or FTA, whichever is making the approval for the transportation program or project at issue. A reference herein to the Administration means the State when the State is functioning as the FHWA or FTA in carrying out responsibilities delegated or assigned to the State in accordance with 23 U.S.C. 325, 326, 327, or other applicable law.

All possible planning. All possible planning means that all reasonable measures identified in the Section 4(f) evaluation to minimize harm or mitigate for adverse impacts and effects must be included in the project.

(1) With regard to public parks, recreation areas, and wildlife and waterfowl refuges, the measures may include (but are not limited to): design modifications or design goals; replacement of land or facilities of comparable value and function; or monetary compensation to enhance the remaining property or to mitigate the adverse impacts of the project in other ways.

(2) With regard to historic sites, the measures normally serve to preserve the historic activities, features, or attributes of the site as agreed by the Administration and the official(s) with jurisdiction over the Section 4(f) resource in accordance with the consultation process under 36 CFR part 800.

(3) In evaluating the reasonableness of measures to minimize harm under § 774.3(a)(2), the Administration will consider the preservation purpose of the statute and:

(i) The views of the official(s) with jurisdiction over the Section 4(f) property;

(ii) Whether the cost of the measures is a reasonable public expenditure in light of the adverse impacts of the project on the Section 4(f) property and the benefits of the measure to the property, in accordance with § 771.105(d) of this chapter; and

(iii) Any impacts or benefits of the measures to communities or environmental resources outside of the Section 4(f) property.

(4) All possible planning does not require analysis of feasible and prudent avoidance alternatives, since such analysis will have already occurred in the context of searching for feasible and prudent alternatives that avoid Section 4(f) properties altogether under § 774.3(a)(1), or is not necessary in the case of a *de minimis* impact determination under § 774.3(b).

(5) A *de minimis* impact determination under § 774.3(b) subsumes the requirement for all possible planning to minimize harm by reducing the impacts on the Section 4(f) property to a *de minimis* level.

Applicant. The Federal, State, or local government authority, proposing a transportation project, that the Administration works with to conduct environmental studies and prepare environmental documents. For transportation actions implemented by the Federal government on Federal lands, the Administration or the Federal land management agency may take on the responsibilities of the applicant described herein.

CE. Refers to a Categorical Exclusion, which denotes an action with no individual or cumulative significant environmental effect pursuant to 40 CFR 1508.4 and § 771.117 of this chapter; unusual circumstances are taken into account in making categorical exclusion determinations.

De minimis impact. (1) For historic sites, *de minimis* impact means that the Administration has determined, in accordance with 36 CFR part 800 that no historic property is affected by the project or that the project will have ''no adverse effect'' on the historic property in question.

(2) For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

EA. Refers to an Environmental Assessment, which is a document prepared pursuant to 40 CFR parts 1500–1508 and § 771.119 of this title for a proposed project that is not categorically excluded but for which an EIS is not clearly required.

EIS. Refers to an Environmental Impact Statement, which is a document prepared pursuant to NEPA, 40 CFR parts 1500–1508, and §§ 771.123 and 771.125 of this chapter for a proposed project that is likely to cause significant impacts on the environment.

Feasible and prudent avoidance alternative. (1) A feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource to the preservation purpose of the statute.

(2) An alternative is not feasible if it cannot be built as a matter of sound engineering judgment.

(3) An alternative is not prudent if:

(i) It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;

(ii) It results in unacceptable safety or operational problems;

(iii) After reasonable mitigation, it still causes:

(A) Severe social, economic, or environmental impacts;

(B) Severe disruption to established communities;

(C) Severe disproportionate impacts to minority or low income populations; or

(D) Severe impacts to environmental resources protected under other Federal statutes;

(iv) It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;

(v) It causes other unique problems or unusual factors; or

(vi) It involves multiple factors in paragraphs (3)(i) through (3)(v) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

FONSI. Refers to a Finding of No Significant Impact prepared pursuant to 40 CFR 1508.13 and §771.121 of this chapter.

Historic site. For purposes of this part, the term ''historic site'' includes any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that are included in, or are eligible for inclusion in, the National Register.

Official(s) with jurisdiction. (1) In the case of historic properties, the official with jurisdiction is the SHPO for the State wherein the property is located or, if the property is located on tribal land, the THPO. If the property is located on tribal land but the Indian tribe has not assumed the responsibilities of the SHPO as provided for in the National Historic Preservation Act, then a representative designated by such Indian tribe shall be recognized as an official with jurisdiction in addition to the SHPO. When the ACHP is involved in a consultation concerning a property under Section 106 of the NHPA, the ACHP is also an official with jurisdiction over that resource for purposes of this part. When the Section 4(f) property is a National Historic Landmark, the National Park Service is also an official with jurisdiction over that resource for purposes of this part.

(2) In the case of public parks, recreation areas, and wildlife and waterfowl refuges, the official(s) with jurisdiction are the official(s) of the agency or agencies that own or administer the property in question and who are empowered to represent the agency on matters related to the property.

(3) In the case of portions of Wild and Scenic Rivers to which Section 4(f) applies, the official(s) with jurisdiction are the official(s) of the Federal agency or agencies that own or administer the affected portion of the river corridor in question. For State administered, federally designated rivers (section 2(a)(ii) of the Wild and Scenic Rivers Act, 16 U.S.C. 1273(a)(ii)), the officials with jurisdiction include both the State agency designated by the respective Governor and the Secretary of the Interior.

ROD. Refers to a Record of Decision prepared pursuant to 40 CFR 1505.2 and §771.127 of this chapter.

Section 4(f) evaluation. Refers to the documentation prepared to support the granting of a Section 4(f) approval under §774.3(a), unless preceded by the word ''programmatic.'' A ''programmatic Section 4(f) evaluation'' is the documentation prepared pursuant to §774.3(d) that authorizes subsequent project-level Section 4(f) approvals as described therein.

Section 4(f) Property. Section 4(f) property means publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance.

Use. Except as set forth in §§774.11 and 774.13, a ''use'' of Section 4(f) property occurs:

(1) When land is permanently incorporated into a transportation facility;

(2) When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose as determined by the criteria in §774.13(d); or

(3) When there is a constructive use of a Section 4(f) property as determined by the criteria in §774.15.

PART 777—MITIGATION OF IMPACTS TO WETLANDS AND NATURAL HABITAT

Sec.

AUTHORITY: 42 U.S.C. 4321 *et seq.;* 49 U.S.C. 303; 23 U.S.C. 101(a), 103, 109(h), 133(b)(1),