

Richard W. Ubersax, Ph.D.
41-1013 Laumilo Street
Waimanalo, HI 96795
UBERSAX@GMAIL.COM
(808) 259-6895

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To: Mr. Wayne Y. Yoshioka
Department of Transportation Services
City and County of Honolulu
650 South King Street, 3rd Floor
Honolulu, HI 96813

CC: Mr. Ted Matley
FTA Region IX
201 Mission Street, Suite 1650
San Francisco, CA 94105

Comments on Draft EIS Chapter 4.9 (Noise and Vibration) and Technical Report RTD 2008f
(Honolulu High-Capacity Transit Corridor Project Noise and Vibration Technical Report, October 2008)

Dear Mr. Yoshioka:

I have broken my comments into three separate areas with respect to Chapter on Noise:

- I. The DEIS and Technical Report do not meet the full-disclosure requirements specified in FTA's "Transit Noise and Vibration Impact Assessment" Manual (FTA-VA-90-1003-06, May 2006). It is imperative that modifications to the DEIS be made or included in a Supplementary EIS to satisfy these requirements.
- II. The noise impact criteria methodology used in the DEIS does not adequately address noise impacts for all situations along the guideway. The City should review each of the areas cited in these comments and address them accordingly in the Final EIS or SEIS.
- III. Lack of accountability for operating within noise standards. Since there are no City or State statutes for regulation of noise from mobile sources, objectionable noise from Project operation will be difficult control. It is imperative that appropriate statutes be adopted prior to start-up of any segment of the First Project.

Each of these areas is discussed in detail below. If you have any questions, please feel free to contact me by phone or email.

Respectfully yours,



Richard W. Ubersax

P.S.: I have also sent an electronic copy to you via email.

CONCLUSION:

It will be evident from the discussion that follows that the DEIS has not adequately analyzed noise along the guideway and has grossly underestimated the impact that noise generated by the Project will have on the quality of life of residents living close to the guideway. The DEIS “Summary of Environmental Effects” (DEIS Table 4-1) relating to noise indicates that there will be numerous “Moderate Impact” locations along the guideway, and that *“no feasible and reasonable mitigation is available to reduce moderate noise impacts that remain”*. The number of impacted sites would be much higher, and the level of impact would be more severe if the assessment:

- a) followed the guidelines and recommendations in the FTA “Transit Noise and Vibration Impact Assessment” Manual
- b) considered the open door and window lifestyle of our people, and
- c) extended the study to include the instantaneous noise from each passing train

The ultimate message one gets from the DEIS is that there will be objectionable noise – although grossly understated – and that the City expects us to live with it or deal with it later. The time to deal with it is now, and not later.

It is understandable that the City has tried to gloss over the negatives of the Project; but it is unacceptable to push the Project forward while knowing the problems – and expect the people to accept it. If there is no way to mitigate the impact of noise (or other environmental effects) along sections of the guideway, a new design or route needs to be devised. Anything less is a gross injustice to the people. None of the three Build Alternatives is acceptable in their current form.

I. The DEIS and accompanying Technical Report do not satisfy the “full disclosure” requirements of NEPA.

Although the DEIS and Technical Report RTD 2008f provide much useful information on the fundamentals of noise generation, measurement, assessment criteria, impacts, and mitigation, they do not provide all of the information recommended by the FTA in the “Transit Noise and Vibration Impact Assessment” Manual (FTA-VA-90-1003-06, May 2006).

With respect to recommendations provided in the FTA Manual:

A. General

“To be effective, the noise and vibration analysis must be presented to the public in a clear, yet comprehensive manner. The mass of technical data and information necessary to withstand scrutiny in the environmental review process must be documented in a way that remains intelligible to the public. Justification for all assumptions used in the analysis, such as selection of representative measurement sites and all baseline conditions, must be presented for review.” (FTA Manual page 13-1)

Although the Technical Report provides significantly greater detail than the DEIS, it does not provide sufficient detail to withstand “scrutiny” by the informed reader. There are remaining questions regarding the protocol used for determining existing noise, estimating project noise, evaluating noise impact at specific locations, and validation of mitigation measures.

There is also concern about the Project's planned extensions to UH Manoa and Waikiki not being covered in detail in the DEIS.

The Technical Report addresses this issue in the Preface:

"Therefore, the focus of the Draft EIS is on the "First Project," a fundable approximately 20-mile section between East Kapolei and Ala Moana Center. The First Project is identified as "the Project" for the purpose of the Draft EIS.

This technical report documents the detailed analysis completed for the Full Project, which includes the planned extensions, related transit stations, and construction phasing. The planned extensions and related construction planning have not been fully evaluated in the Draft EIS and are qualitatively discussed in the Cumulative Effects section of the Draft EIS as a foreseeable future project(s). Once funding is identified for these extensions, a full environmental evaluation will be completed in a separate environmental study (or studies), as appropriate."

The extensions are an integral part of the ORTP 2030 plan and should be assessed with the same degree of detail in the DEIS as the three Project "alternatives" (Salt Lake alternative, Airport Alternative, and Airport & Salt Lake alternative), especially since the noise impacts of these extensions are expected to be greater and more difficult to mitigate than for the Project. The fact that the DEIS uses the term "First Project" as a descriptor for the "Project" fully indicates that the City's intent is to complete the Full Project, and thus the extensions should be treated with the same level of detail in the DEIS as the Project.

B. Existing Noise

"Measurement procedures should be fully described. Tables of measurement instruments should include manufacturer, type, serial number and date of most recent calibration by authorized testing laboratory. Measurement periods, including time of day and length of time at each site should be shown to demonstrate adequate representation of the ambient conditions. The measurement data should be presented in well organized form in tables and figures." (FTA Manual p. 13-2)

Neither the DEIS nor Technical Report adequately describe details of the methods used for measuring the ambient sound levels at each receptor site. The following information should be included:

- detailed description of measurement instruments and calibration documentation
- precise location of receptor sites (exact coordinates including elevation); location of identified sensitive sites relative to each receptor site (including elevation); location of sensitive sites relative to guideway
- precise time of measurement including day of week, time of day, length of time
- assumptions made in calculations of L_{max} , L_{eq} , L_{dn} , etc.
- unusual occurrences and treatment thereof

C. Prediction of Future Project Noise

"The prediction model used for estimating future project conditions should be fully described and referenced. Any changes or extensions to the models recommended in this manual should be fully described so that the validity of the adjustments can be confirmed. Specific data used as input to the models should be listed. Computed levels should be tabulated and illustrated by contours, cross-sections or shaded mapping. It

is important to illustrate noise/vibration impacts with base maps at a scale with enough detail to provide location reference for the reader.” (FTA Manual p. 13-2)

Neither the DEIS nor Technical Report describe the methodology used for estimating project noise. The following information should be included:

- detailed description of prediction model, and if different from that recommended in FTA-VA-90-1003-06, the justification for deviation; any adjustments to the model should be described in detail.
- specific data used as input to the model should be described including:
 - source reference noise level (unmitigated and mitigated) with supporting details (i.e., vehicle configuration, vehicle speed); details of mitigation techniques and comprehensive justification of mitigated levels (i.e., effect of skirts and parapet wall independently, and combined effect)
- tabulated results for each specific receptor (and relevant impacted sensitive sites) with all assumptions disclosed
- precise distance between receptor and source
- location of receptors (and sensitive sites) relative to source (i.e., distance above/below source)

It is not clear from the DEIS or Technical Report whether the noise impact of vehicles on opposite tracks are treated the same, or whether converging trains are treated. The distance of the train from the receptor, and mitigation by the intervening parapet wall (and thus the noise impact) will be different depending on train direction. This situation should be analyzed and treated appropriately (with explanation) in the FEIS/Technical Report.

Similarly, the DEIS and Technical Report do not address the impact of reflection of sound energy at locations where the guideway traverses in close proximity to buildings on both sides (e.g., Halekauwila Street, etc., UH Manoa extension, Waikiki extension). If it is determined that reflection is inconsequential, it should be stated with appropriate justification. If not, it should be addressed in the assessment.

The DEIS and Technical Report depict noise impact data as distinct individual points along the guideway at ground-floor elevations (except in locations that included buildings of four or more stories). In the FTA manual, it is recommended that impacts be presented in the form contour maps. It would be highly desirable to represent these contours as a function of distance from the guideway as well as overlays to represent elevations above and below the guideway. The maps should be presented in a scale with enough detail to precisely determine distance of each contour line from the guideway. A format similar to DEIS Appendix A would be acceptable, but at 1” = 100’ scale).

D. Mitigation

“The mitigation section of the technical report should begin with a summary of all treatments considered, even if some are not carried to final consideration. Final candidate mitigation treatments should be considered separately with description of the features of the treatment, costs, expected benefit in reducing impacts, locations where the benefit would be realized and discussion of practicality of implementing alternative treatments. With respect to noise impacts, enough information is to be included to allow the project sponsor and FTA to reach decisions on mitigation prior to issuance of the final environmental document.” (FTA Manual p. 13-3)

The project already includes an integrated noise-blocking 3'-high parapet wall on each side of the guideway and a system specification for vehicles with wheel skirts. The parapet wall is expected to reduce noise at or below track level, and the skirts to reduce noise at or above track level. Each data point in the DEIS represents the noise impact with the wall and skirt mitigation measures in place; while Appendix A of the Technical Report, provides project noise impacts with and without these mitigation measures. From Appendix A, it is clear that project noise would be "severe" or "moderate" at most receptor sites without the prescribed mitigation measures. Since the proposed mitigation methods provide only an estimate of actual noise attenuation, it is possible that many of the sites listed as "no impact" could actually be "moderate impact" and sites listed as "moderate impact" could actually be "severe impact".

In situations where noise-sensitive sites exist above the guideway, additional mitigation measures might be needed because of reflection from the guideway surface and lower efficiency of the parapet walls. These sites should be identified and additional mitigation measures identified. The DEIS and Technical Report address this issue to some degree, but it would be highly desirable to include specific recommendations and supporting data to support the recommendations.

The FTA Manual recommends that a summary of "all" treatments considered. Although the Technical Report mentions two additional measures, there are numerous others available (such as an additional wall on the centerline of the guideway). These should be described in detail (along with the benefit expected).

The FTA Manual discusses operational restrictions as a means to mitigate noise, but does not impose them because of their impact on system efficiencies, economics, etc.

"Two changes in operations that can mitigate noise are the lowering of speed and the reduction of nighttime (10 pm to 7 am) operations. Because noise from most transit vehicles depends on speed, a reduction of speed results in lower noise levels. The effect can be considerable. For example, the speed dependency of steel-wheel/steel-rail systems for L_{eq} and L_{dn} (see Table 6-4) results in a 6 dB reduction for a halving of the speed. Complete elimination of nighttime operations has a strong effect on reducing the L_{dn} , because nighttime noise is increased by 10 decibels when calculating L_{dn} ." (FTA Manual p.6-41).

The City should anticipate reducing speed in noise-sensitive areas (below the 45 mph initially planned), and incorporate this scenario in the financial risk analysis section of the DEIS.

The maximum acceptable limits for project noise should be specified in the FDIS (or SEIS), along the length of the guideway (depending on noise impact sensitivity). Shortly after commencement of system operation, detailed measurements should be made to ensure compliance with these limits.

To further ensure that noise from the project is within acceptable limits, City Council (or if necessary, State Legislature) should legislate noise limits along the guideway. Prior to issuance of the FEIS, a written commitment from the City (or State) should be made to pass legislation prior to start up of the project that specifies maximum noise allowed at residential building setbacks and requires a reduction in speed if Project noise level exceeds specification until other mitigation measures can be implemented.

II. The DEIS noise impact criteria methodology does not adequately address noise impacts in all situations:

A. FTA criteria underestimate actual noise impact by use of L_{dn} or the L_{eq}

The FTA criteria incorporate average noise measurements and de-emphasize short-term noise occurrences. However, in some cases, the use of L_{max} , or the maximum noise recorded over a short time interval, is a more meaningful measure of unacceptable noise level, as explained in the FTA Manual:

The assessment of noise impact in this manual utilizes either the L_{dn} or the L_{eq} descriptor. As such, in determining impact it is not necessary to determine and tabulate the maximum levels (L_{max}). However, it is often desirable to include computations of L_{max} in environmental documents, particularly for rail projects, because the noise from an individual train pass by is quite distinguishable from the existing background noise. The L_{max} is also the descriptor used in vehicle specifications. Because L_{max} represents the sound level heard during a transportation vehicle pass by, people can relate this metric with other noise experienced in the environment. Particularly with rail transit projects, it is representative of what people hear at any particular instant and can be measured with a sound level meter. “Thus, although L_{max} is not used in this manual as a basis for assessing noise impact, it can provide people with a more complete description of the noise effects of a proposed project and should be reported in environmental documents.” (FTA Manual p.6-29)

“Although the maximum noise level (L_{max}) is not used in this manual as the basis for the noise impact criteria for transit projects, it is a useful metric for providing a fuller understanding of the noise impact from some transit operations. Specifically, rail transit characteristically produces high intermittent noise levels, which may be objectionable depending on the distance from the alignment. Thus, it is recommended that L_{max} information be provided in environmental documents to supplement the noise impact assessment and to help satisfy the “full disclosure” requirements of NEPA.” (FTA Manual p. 3-9)

This is an especially critical issue in residential areas that are in close proximity to the guideway (<100 feet). In many cases, transit vehicles will pass well within 100 feet, and in some cases as close as 30 feet of windows in residential areas. In these situations, L_{max} would be a more meaningful noise descriptor.

In Hawaii’s tropical climate, it is often necessary to keep windows and doors open for personal comfort since many residences do not have air conditioning. In this case, the actual noise of the passing train, L_{max} , is the best measure for judging the real-life impact of the event. Although the FTA noise impact classification might be “No Impact” or “Moderate Impact”, affected residents will perceive it as being “Severe Impact”. Air conditioning as a mitigation measure would not be accepted by the tropical culture, and would increase the electrical burden of the public.

Neither the DEIS nor Technical Report address this issue even though many residential properties will be severely affected. It is imperative that these issues be addressed in the FEIS or SEIS.

B. FTA criteria underestimate actual noise impact by applying criteria “outside” of residential building locations

“For residential land use, the noise criteria are to be applied outside the building locations at noise-sensitive areas with frequent human use including outdoor patios, decks, pools, and play areas. If none, the criteria should be applied near building doors and windows.” (FTA Manual p. 3-10)

As discussed above, the nature of the climate and lifestyle require windows and doors to be open, in some cases year-round. In typical residential construction (double-pane windows and doors), noise can be mitigated by as much as 25 dB; but in Hawaii, with doors and windows open most of the time, the actual noise can be much louder than indicated by the FTA criteria, and thus, although classified as “No Impact” or “Moderate Impact”, should actually be classified as “Moderate Impact” or “Severe Impact”.

Neither the DEIS nor Technical Report address this issue even though many residential properties will be adversely affected. It is imperative it be addressed in the FEIS or SEIS.

C. FTA criteria underestimate actual noise impact by referencing to ambient noise

The FTA criteria for project noise impact is based on average project noise levels compared to average background (ambient) noise levels: higher project noise is permitted at higher ambient noise levels. However, in many cases, the absolute total noise level (sum of ambient and project) should be used to establish the impact of the project on noise severity as described in the FTA Manual:

“Ambient levels above 65 dB (L_{dn}) are considered “normally unsatisfactory” for residential land use by the Department of Housing and Urban Development. Thus there is a stronger need for mitigation if a project is proposed in an area currently experiencing high noise levels from surface transportation. An example would be a project where additional commuter tracks are added to a very busy rail corridor. If this project were placed in a less noisy environment, the impact assessment might show a Severe Impact, but when the project is overlaid on an existing noisy environment, the result could be Moderate Impact or, possibly, No Impact. However, in this situation the new cumulative noise environment may be very objectionable because people will not be compartmentalizing the existing noise versus the new noise and reacting only to the new noise. In this circumstance impacts predicted in the Moderate range should be treated as if they were Severe. (FTA Manual p. 3-12)

In the FEIS or SEIS, every receptor site should be assessed to determine how application of this criterion would affect the noise impact rating.

D. FTA criteria underestimate actual noise impact by time averaging technique

Ambient L_{dn} is averaged over the full 24-hour day, and remains the same whether the Project is operating or not. Noise generated by the Project (L_{dn}) is also a 24-hour average, but the Project is not expected to operate during the nighttime hours of midnight to 4 AM. During this period, project noise is “zero”, so the calculated Project L_{dn} is lower than if trains were running through the night. This calculated L_{dn} could result in a reduction in noise impact from “Severe Impact” to “Moderate Impact” (or “Moderate Impact” to “No Impact”) even though the instantaneous impact (L_{max}) for each train passing is the same, independent of pass-by frequency.

The same effect would be realized if the frequency of passing a specific receptor site were to be reduced, e.g., by increasing headway. Illustrative of this concept is in the comparison of common receptor sites along the Salt Lake Alternative versus the Salt Lake & Airport Alternative. The frequency of passing trains along Salt Lake Blvd for the Salt Lake & Airport Alternative will be one-half of that for the Salt Lake Alternative. Thus, the calculated project noise levels (L_{dn}) for receptors along Salt Lake Blvd for the Salt Lake & Airport Alternative are significantly lower than

for the Salt Lake Alternative. The consequence is that the five high-rise apartments along Salt Lake Blvd (receptors O and 16) are reduced in noise impact from “Moderate” to “No Impact” in the Salt Lake & Airport Alternative, even though the actual noise from each passing train is the same in either case.

These factors should be explained in the FEIS or SEIS so that the general public – especially those living close to the guideway– has a fuller understanding of the adverse impacts of the Project.

III. Accountability

At the present time, there are no State or County statutes for regulation of noise resulting from transit operations on the guideway. Without these statutes, it is virtually impossible for residents to force mitigation through legal channels. The City has no incentive for mitigation; in fact, it has a disincentive in that any mitigation will result in higher capital and/or operating cost. It is imperative that such statutes be enacted (with full involvement of the public) prior to commencement of service. Such legislation should require reduction in speed as an interim mitigation measure until permanent physical mitigation can be implemented.

(Note: HAR 11-46 is the correct statute for stationary noise listed on DEIS p. 4-98, and not 11-16)

It is unsettling that the City and its consultants have not addressed the noise issue – or other potential negative impacts of the project – more seriously; nor considered the reaction of the public after implementation. It’s as if the attitude is to forge ahead and face the consequences later. For a project that has such a large environmental and economic impact, this is behavior is irresponsible, and should be accounted for.