

PMOC (KEK) Comments on Honolulu High Capacity Transit Plan & Profile-  
5/27/2009

The following comments were made upon the review of two sets of plan-profile drawings, one of the entire alignment and the other of only the design-build portion of the route on the west end. Some comments are design specific observations or suggestions which are likely to be cost neutral. Other comments, shown **in bold**, are observations which could have an impact on project cost and effectiveness.

1. Q: The profile shown on “db structural plan-profile 03-24-09.pdf” is not the same as that shown in “eis\_appendix a plan and profile march 2009.pdf.” At East Kapolei Station, for example, the EIS document shows the PGL at about Elevation 125, while the structural document shows it at about Elevation 119. Because the structural drawing shows more detail, it is assumed here that the PGL it shows is the latest version.

**R: May 2009, EIS Drawings have been corrected to be consistent with RFP Drawings.**

2. Q: Because the proposed park and ride facility begins some 800 feet south of the East Kapolei Station and is on the other side of the highway, resulting in walks as long as 2000', it would seem advantageous to move the station as far south on the tangent as possible to reduce average commuter walking time and distance. Instead of having a pair of reverse curves south of the station, the track centers could be closed by using a compound curve on the future trackwork, which would create additional tangent for the station to slide south. Alternatively, a more convenient location for the park and ride would be another way to improve the car-to-transit time and distance.

**R: The selected site for the P/R is under review with UH West. Plan is move P/R to location directly across from station. The remote site was an earlier agreement with the developer that is no longer associated with the project.**

3. Q: Design of station concourses will be a driving force in establishment of the profile grade of the transit line. Where station concourses are added between a roadway and track level, the track grade obviously has to be raised some 12-15' higher than would otherwise be necessary. For that reason, the necessity of concourses should be questioned wherever other solutions are possible. For example, the structural drawings show a concourse above street level at the East Kapolei Station, yet there appears to be some room for the amenities and vertical circulation access at grade. There would have to be some accommodation of the pedestrian bridge across the North-South Road, but that doesn't mean that there can't be some way to put the pedestrian bridge and the concourse level

amenities at different elevations, particularly if that action would allow lowering of the track profile. There appears to be a horizontal distance of about 60' between the curb line and transit bridge to accomplish some elevation change.

R: The Design and Planning Teams have looked at each station location and determined if a concourse level is justified. We agree that elimination of the concourse will have an economic and access benefits. North South Road is planned as a major arterial, with limited pedestrian at grade crossings. It is the project opinion that a pedestrian overpass is required to provide safe and convenient access to the station and the future development on the mauka side of North South Road. Having a separate pedestrian overpass would add cost for vertical circulation due to ADA requirements. While some saving may be realized for lowering the guideway the added cost to meet ADA requirements would be greater.

**4. Q: Long stretches of the alignment are elevated for little apparent reason.** For example, the stretch of route between East Kapolei and UH-West O'ahu Stations has no crossings, yet is elevated about 25' above existing ground the entire distance (some 5000'). At least 1000' of bridge could be saved by bringing the tracks down to grade between Sta. 420+00 and Sta. 430+00.

R: The North South Road corridor includes significant utility easements for water (30in. and 24in mains), gas and communication lines that are being installed. It is not practical to be at grade without relocating these lines at significant cost. In addition, short reached of at grade construction is complicated due to transition structures and introduction of short profile changes impacting ride quality. The Team has considered various alternatives and has recommended aerial structures for uniformity of construction, greater development potential, and ride quality.

5. Q: The structural profile at the UH West O'ahu Station platform shows the 20'6" wide concourse passageway going through the space normally taken by longitudinal girders. It's **unclear how the tracks are supported over this 20'6"** concourse passageway. Granted, the shortness of the span would dictate much less structural depth than the 8'-10' needed for the long spans, but here, the structural depth below the rails as shown is non-existent. As noted in the earlier comment on East Kapolei Station, any way that the concourse amenities can be lowered would be a plus, even if it means a slope from the end of the pedestrian bridge over the highway down to the concourse or ground level. Here at 1111 West O'ahu Station, this might not reduce the transit line's PGL, but it could provide room for the needed track support.

R: The concourse is constructed under a structural deck slab with a short span (approximately 20ft). This requires two columns spaced close to allow for the

deck slab, but it allows saving in profile and vertical circulation. This station concept is used where ever possible to lower the profile.

6. Q: It's hard to figure out what's being built at the Ho'opili Station, which shows access and emergency exit bridges over empty space. Presumably, that empty space will eventually be a roadway and the transit system will operate in the median of that roadway. Even though this station has side platforms and is presumably in the middle of the road, no concourse level is shown. Here at Ho'opili Station, a concourse seems necessary.

R: Ho`opili Station is planned to be incorporated into a commercial development. Roadway will be designed to accommodate a convenient entrance to the transit station, without a concourse.

7. Q: The transit route between Sta. 480+00 and 500+00 appears to be quite high above the existing ground, even though there are no significant features below it. In some places, the top of rail is shown almost 80' above existing ground.

R: Profile has been lower in the May 2009 release.

8. Q: With the cost of vertical circulation being so high, it seems that it would be prudent to at least consider making all median stations center platforms. This could reduce the number of vertical circulation elements by 50%.

R: Yes vertical circulation would be less, but doubling the number of piers to widen the track centers, and the additional R/W needed to create the larger median is cost prohibited.

9. Q: Particularly on the west end of the project, where development has not yet occurred on a large scale, it would seem prudent to decide where roadways will cross under or over the transitway and then design the track profile to accommodate those and only those crossing points. **Building a continuously-elevated** structure is costly, unnecessary, and may sometimes be seen as a detriment **to** community. Establishing towering piers and soaring spans may discourage rather than encourage future development in the vicinity of the route. A more modest profile would seem less of a visual imposition over the landscape. It would also costless money to build.

R: This has been considered and rejected.

10. Q: It seems odd that the crest of the transit profile at Sta. 565+00 is some 300' west of the highest obstacle in the area, the Fort Weaver Road bridges at ca. Sta. 568+00. This would imply that the structure is unnecessarily high to the west of Fort Weaver Road.

R: To achieve the West Lock Station location, the PI of the vertical curve was located to provide the EVC at the desired location. This necessitated the profile as shown.

11. Q: Again at West Loch Station, it is unclear what is supporting the two tracks over the 20-6" wide concourse passageway. It would appear that the profile should be raised here to provide room for the passageway bridge under the transitway bridge girders.

R: Low profile design of station using structural slab with short span at concourse allows lower profile.

12. Q: The two wye legs leading to the maintenance facility are shown on the EIS plans but not the structural plans. The special trackwork would be at about Sta. 515+00 and at 533+00. Perhaps this location for the maintenance facility has been eliminated?

R: Crossovers were eliminated when the Navy Drum Site was selected as preferred alternative.

13. Q: With the double crossover on the west end of the project located over 1000' east of the end of the platform, trains will have a longer slow stretch of operations either entering or departing the platform (depending on whether they are on the EB or **WB** track). Operationally, it would be much better if the crossover was much closer. Perhaps this could be done if the platform was moved further west to locate it closer to the parking lot (see Comment 2, above).

R: The team looked at all options for the station and crossover. We agree that it is not ideal to have the crossover 1000 ahead of the station, but the alignment and tight corridor restrictions will not permit a more desirable alternative.

14. Q: The structural drawings show a yard lead west of the Leeward Community College Station. Perhaps this is the selected location for the Maintenance and Storage Facility and the one shown west of Station 533+00 is no longer valid.

R: Correct.

15. Q: It seems unusual that the West O'ahu/Farrington Design Build contract ends at a bridge pier on a curve, rather than on a tangent at-grade section of track. Responsibility for the integrity of the design and construction will be difficult to assess at such a match line. Wouldn't it be better to set the matchline at about Sta. 728+00?

R: Ending the initial contract at Station 728+00 would delay start of the most complicated station, park/ride structure and direct highway ramps from H2. This location is complicated due to the wetland mitigation that may be required, FHWA/HDOT interface for the highway ramps, and acquisition of the private property. It is anticipated that the guideway will be simple span design and the ending point of the contract will be at a column making the transition relatively easy.

16. Q: The bridge over I-Hi, numerous ramps, Farrington Highway and Waiawa Stream is very impressive due to its height, lengths of spans, alignment and structural type (cantilever arched girders), but one must wonder if another solution could be found which might be more economical. There are numerous locations where additional piers could be constructed clear of pavement or waterway. Additional piers would shorten structural depth and reduce the need for such a high and expensive structure. It should be noted that the highest obstacles which this bridge must clear are the H-I On Ramp at Sta. 735+60 and the Ramp to Kamehameha Highway at 735+80, but the highest points of both the profile grade line and the arched girder are 60 to 80 feet upstation from those ramps. Other roadway elements end up with 30 to 45 feet of vertical clearance while the waterway has as much as 80 feet of clearance.

R: Several alternative alignments were studied to reduce structure height and property impacts. The governing criterion was the intermodal requirements for a major park/ride and bus terminal at this location.

17. Q: The profile of the H-2 Park and Ride Access Ramp does not come down to **existing ground at its end (Sta. 39+44)**. Does it feed into an above-ground level of a parking structure or is the entire site elevated? The rail profile is still some 30 to 40 feet higher than the end of the ramp.

R: The park/ride structure must clear the flood plain of Waiawa Stream. The ramp off of H2 will tie directly into the parking structure. Hydraulic studies are processing to determine final elevations for the structure and ramps.

18. Q: It appears that the Honolulu International Airport Station will be connected to the existing parking garage by an elevated walkway. The garage has existing

pedestrian bridges over to the main terminal. Ideally, the passenger should not have to cross any lanes of traffic between the Station and the air terminal.

R: Agree.

19. Q: The transitway will have to cross three elevated airport entrance ramps and the corner of a parking garage west of the Honolulu International Airport Station, then it will cross two exit ramps some 1500' east of the station. In between, the transitway will be elevated above mostly surface parking lots and ramps, plus four small buildings, apparently all involved with rental car businesses. Obviously, quite a bit of **coordination and design will be needed to accommodate the** new transit line on airport property. There will most assuredly be impacts to businesses and services on airport proper.

R: Team is working with HDOT-A to minimize impacts and selected an alignment that will reduce the height of the ramp crossings.

20. Q: The airport route has some impact on parks and recreation, as the plans show it going through a set of tennis courts at Sta. 2279+00 and other park grounds nearby.

R: Yes, 4f issues are addressed in the FEIS.

21.Q: Although the EIS drawings show the Iwilei Station on top of some buildings, the intention, presumably, is for the route and station to be centered on Ka'aahi Street and an extension of its tangent to the west. This is a very tight area. The design in congested areas near Downtown Honolulu must minimize impacts to adjacent businesses wherever possible.

R: Agree. Team has worked closely with HCDA and others to secure the RW needed in the Iwilei area.

22. Q: The transitway at and east of the Kaka'ako Station goes through or over at least 6 large buildings between Sta. 1423+00 and 1436+00, one of which may be a retail establishment while the others appear to be warehouses or light industrial facilities. Consideration of any alternative routing which could reduce impact to businesses would be strongly encouraged. In congested areas, sharper curves and lower speed alignments could be considered.

R: Kaka'ako (Ward Center) has plans for a major development at this site. The buildings noted will be removed and the Station can be incorporated into the development. RTD will work with the developer to achieve best fit. The Design

Team has tried to maximize speed and comfort into its design criteria and prefers not to compromise those goals.

23. Q: There are some locations along the Salt Lake Blvd. alignment where the transitway might not be shown high enough to allow cross-streets to access both sides of the Boulevard, e.g., at Sta. 1063+00 and at Sta. 1090+00. Refinement of the design must assure adequate clearance at these and all other locations.

R: The locations sited were outside of the roadway where clearance can be reduced.

24. Q: Clearance over several of the ramps in the H-I/Nimitz Highway spaghetti bowl interchange does not look adequate (vic. Sta. 1200+00 on the Salt Lake Blvd. route). As noted above, refinement of the design must assure adequate clearance at these and all other locations.

R: Salt Lake alignment provides the clearance required over HDOT roadways.