BART

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CITY OF PITTSBURG

June 20, 2006

Mr. Ken Strelo
City of Pittsburg
Planning Department
Civic Center – 65 Civic Avenue
Pittsburg, CA 94565

RE: Trans Bay Cable Project Draft Environmental Impact Report (SCH# 2004082096)

Dear Mr. Strelo:

Thank you for providing the San Francisco Bay Area Rapid Transit District (BART) with the opportunity to review the environmental document for the City of Pittsburg's Trans Bay Cable Project. The project's approximate 57 mile High Voltage Direct Current (HVDC) utility transmission line that will run under the San Francisco Bay from Pittsburg to San Francisco will cross above the BART Transbay Tube (TBT) that runs under the Bay between Embarcadero and West Oakland Stations. BART's comments on the document are provided below.

Representatives from BART Maintenance & Engineering (M&E) and BART Earthquake Safety Program (ESP) met with Trans Bay Cable Project representatives on two occasions last year to discuss potential project impacts to the BART facilities, specifically, maintenance of the cathodic protection system of the Transbay Tube and the planned seismic retrofit of the Transbay Tube. However, we find that the draft environmental document does not fully address BART's concerns.

The Draft Environmental Impact Report (EIR) does not address the on-going maintenance of the Impressed Current Cathodic Protection of the Steel Skin of the TBT. Currently BART spends an average of about $1 million per year to repair / replace the cables, rectifiers and anodes due to consumption of the anode by the impressed current flow and by damage from the use of anchors by ships despite the TBT being marked as a "No Anchor Zone". Our experience for 30 years is that the anchor damage occurs at all locations along the tunnel and not just in the shallow water, although the latter is more common. During the meetings with the cable project representatives, BART requested that the HVDC cable cross the TBT approximately halfway between the anodes so that the electric charge on the TBT skin, which will be bled off the skin by the proximity of the HVDC cable, will be minimized and BART can keep the charge at an appropriate level to minimize the corrosion of the steel skin. 5-1

Testing in 1994 at approximately 20 locations showed that only 5% of the skin was corroded away in 25 years. Without adequate cathodic protection this rate will be much higher and failure of the skin in certain specific locations will occur long before the expected life of the tunnel has occurred. The cost of replacing the skin would be very high and possibly not even practical. The concrete of the tunnel would then be in salt water and be seriously damaged quite quickly.

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The anodes are placed about 300 feet out roughly perpendicular (+ - 20 degrees) to the
tunnel. If the HVDC cable crosses BART's cables then repair of the cables will be
impossible as we would be unable to bring the one end of the cable to the surface to splice a
section on. This is our normal way of repairing cable damage or replacing a consumed
anode. In the deep water where the HVDC cable is proposed, the labor cost of each repair /
5-1 replacement is between $20,000 to $40,000 per cable. If we can not lift the anode cable end
up, a whole new cable would have to be installed crossing over the HVDC cable and the
end inserted through the tunnel walls using a complex procedure which entails removing
the sediment above the tunnel and threading the cable through a "water lock" to prevent
water pouring in to the tunnel. This will likely cost about $100,000 per cable. Thus, it is a
significant cost issue for BART M&E to have the HVDC cable crossing as far away from
the anodes and their cables as possible.

The Draft EIR states that the installation of the HVDC cable will be done using a hydro-
plow, which we agree is a good method. However, where the cable crosses the TBT this
5-2 method may damage the skin of the TBT. BART has drawings of the tunnel construction
but the depth of cover that is there today will certainly be different from the drawings and
this should be addressed in the environmental document. Trans Bay Cable LLC is clearly
aware of this, as they have submitted a permit application to BART to determine this.

The cable design, as shown in Section 3 on Figure 3-4, shows that the Armor (steel wire,
presumably) around the positive and negative cables has an outer serving of "String". This
is likely adequate for most of the route. However when there is a cable fault, the fault
current will return in this Armor. With only a String Serving, much of the current will
5-3 likely flow into the Steel Skin of the TBT and possibly damage it. Accordingly, BART
requires that insulation be installed between the cable and the TBT for 50 feet on either side
of the TBT to reduce the current in the TBT skin to a minimal amount. This was discussed
in one of the meetings with the project proponents and they indicated that it would not be
problem. So we are surprised this was not addressed in the Draft EIR.

As noted in the Draft EIR, implementation of BART's seismic retrofit of the TBT may or
may not coincide with construction of the proposed cable installation in the area of the
Transbay Tube. BART would like some discussion in the environmental document of the
minimum safe distance from the cable for installation of earthquake retrofits (specifically
5-4 stone columns, since the proposed crossing area appears to be within the zone where we
will have to utilize stone columns). It has been pointed out that the cable needs to be
located midway between two anodes; Earthquake Safety Program will need to install at
least some stone columns between the anodes and the cable to avoid having too large a gap
in the Tube retrofit treatment. We are trying to hold our retrofit "gaps" to no more than 80-
100 feet, so the spacing between the cable and the adjacent anodes will be critical.

In addition to the recommendation that the cable be placed in a certain location, BART
might consider an option of moving one or two anodes, at the Trans Bay Cable Project's
expense. Moving the exit point from the TBT is not practical as BART would have to move
the rectifier unit in the lower gallery, the water tight penetration of the tube for the cable,
5-5 install new cable and anode. However, some relocation of the anode is certainly possible
but would likely be limited to approximately 50 feet parallel to the TBT and the cable could
also lengthened by 50 feet as well. The cost of such a move is pretty high, but it might not
be so bad in the context of this very large project. BART will work with the Tranbay Cable
Project staff to further define an adequate crossing location and a minimum separation
distance between anode and cable.

BART is also a Rail Facility but this is not mentioned in Section 4.10.1.4 with the other rail facilities in the area. 5-6

The Trans Bay Cable Project will require a permit from BART to enter into construction within BART's right of way as well as an agreement to allow for long-term maintenance of the HVDC cable. 5-7

In summary, BART recognizes the need for this project and the concept of installing the cable over the BART Transbay Tube is not a problem, however, the above issues need to be recognized and addressed.

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Please contact Mr. Tom Horton, Earthquake Safety Program Group Manager at (510) 287-4978 or Mr. Roger Avery, Manager, Mechanical and Electrical Engineering at (510) 464-6685 regarding BART's comments on the Transbay Cable Project.

Sincerely,

Janie L. Layton

Janie L. Layton
BART Environmental Compliance
System Safety Department

cc: Tom Horton, BART
Roger Avery, BART
Les Freleigh, /BART