

## **APTS Phileas Facts**

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The APTS Phileas magnetically guided bus technology recently received strong endorsement from several speakers at recent hearings on the selection of a fixed guideway system for Honolulu. The claims made by those promoting the system make it appear so attractive that one wonders how the technology selection panel rejected such an obvious choice. Since the submittal of Phileas to the City has now been released it is worth taking a close look to see if the claims by the company meet the expectation of its adherents.

In my role as Chief Project Officer for the City's Rapid Transit Division, I took the opportunity on Monday to have a telephone conversation with Mr. Jos Jensen, the company's Manager of Marketing and Sales in Helmond, Netherlands, to clarify some of the information in the Phileas submittal.

The responses of the company are not quite the same as the claims of the local proponents. Let's look at four of the issues:

**1. Their claim:**

**The Phileas bus can run automatically at 55 mph to provide a high speed service in the corridor.**

**Finding:**

**The Phileas bus supplier presently cannot provide the vehicles or technology that meet the performance criteria.**

The Phileas submittal explicitly states on page 17 that full automatic operation is not possible at 55 mph. The submittal noted that Phileas is seeking safety certification in Europe for automatic operation at 37 miles per hour. This was confirmed by Mr. Jensen. It is not currently certified at all for such operations. If and when the certification is granted for 37 mph, this system cannot run automatically at the speeds we require,

**2. Their claim:**

**The Phileas bus elevated guideway will cost less and be significantly smaller and less intrusive than a rail transit guideway.**

**Finding:**

**There is no technical and factual evidence to support this claim.**

The Phileas vehicles are not significantly smaller or lighter than light rail cars so the supporting structures such as guideway cannot be significantly smaller. Based

on the APTS submittal, it was determined that the weight of the vehicles and passengers would be about 190,000 lbs in each span. The comparable light metro rail cars impose loads of about 230,000 lbs per span. Structural design of a viaduct structure is a very complex business, but the engineers estimate that this loading difference will amount to less than 5% of the cost to construct the structure and essentially no difference in visual obstruction.

**3. Their claim:**

**Noise from the Phileas bus is less than from a rail car operating at the same speed and at the same distance from the guideway.**

**Finding:**

**Based on the information submitted, the noise level of the Phileas vehicles exceeds that of the steel rail vehicles.**

APTS-Phileas provided information on pass-by noise from its vehicles operating at 50 miles per hour alongside the guideway. This information shows a noise level up to 79 dbA on asphalt and higher on concrete. Two rail suppliers provided the similar information that their noise levels would be 75 dbA and 73 dbA respectively when operated at 55 miles per hour. These two rail suppliers have measured lower noise at higher speeds.

One other important consideration is the location of the source of the noise. For a rail system with electric power, the primary source of noise is at the wheel rail interface and any mitigation sound walls can be very low and short. For a diesel powered hybrid system such as Phileas, noise emanates not only from the tires on the running surface, but also from the motor which is placed well above the running surface. Sound walls to mitigate that noise would probably need to be at least twice as high or higher, resulting in much more visual intrusion.

**4. A Phileas system would cost less to operate than a rail system for the same peak hour ridership.**

**Finding:**

**There is no information in the submittals to support this claim.**

The concrete or asphalt running surfaces require maintenance similar to the steel rail system. The real difference in operating costs is in the labor of the transit system employees. In the case of Phileas, according to their submittal, each vehicle with one driver would carry about 200 passengers. In the case of a light rail, a single train with a driver can carry 4½ times more passengers during the peak period. The technology selection panel considered the overall costs in their evaluation and concluded that the rail system would cost less in the long run.