

**Council Committee on Transportation and Public Works**

# **Technology Selection Briefing**

**Ron Tober**

**Panel Chair**

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# Panel Member Experience

## ■ Rubber Tire on Concrete

- Ron Tober
- Steve Barsony
- Ken Knight
- Henry Kolesar

## ■ Maglev

- Steve Barsony

## ■ Steel Wheel/Steel Rail

- Ron Tober
- Steve Barsony
- Ken Knight
- Henry Kolesar

## ■ Monorail

- Ron Tober
- Ken Knight
- Steve Barsony

# Public Policy Connections

- **Fixed guideway rapid transit is an major 50+ year investment – maximize ridership potential**
- **Success of the investment has critical policy implications**
  - **Manage growth into existing and new areas**
  - **Protect sensitive areas from intense development**
  - **Connect land use and transit investment to constrain VMT growth**
- **Strong need to minimize risks involved with the investment**

# Technology Selection

**Steel wheel-on-steel rail was selected by the panel as the most appropriate technology for Honolulu after considering the following factors:**

- Functionality**
- Cost**
- Technology Maturity**
- Service Quality/Environmental Impact**

# Functionality

**Steel wheel has a proven operational history and meets the functional demands for Honolulu's fixed guideway transit**

- **System Capacity**

- **Run times/vehicle capacity meet ridership demand at reasonable headways**
- **Proven system reliability and operational safety**

- **Interoperability**

- **Conventional vehicles technology providing for competitive initial and future procurements**
- **Open systems architecture for automatic train operations**

# Cost

**Cost information provided by the suppliers was limited, however the panel's wide range of experience provided the following insight:**

- Guideway capital costs were considered similar for the technologies considered**
- Capital costs for the vehicle were comparable on a per-rider basis among the different technologies**
- Proprietary technology will likely increase future replacement and expansion costs**

# Technology Maturity

- **Maglev does not have a mature urban transit experience**
- **Monorail technologies have the urban transit experience, but limited number of suppliers and several of the suppliers who developed this experience are no longer in that business**
- **APTS Phileas does not have a comparable system in service and its ability to handle to required ridership is based only on unproven techniques**
- **Rubber tired and steel wheel have mature operating systems worldwide**
- **Steel wheel has by far the greatest number of in-service systems**

# **Service Quality/Environmental Impact**

- **Steel wheel has higher ride quality than rubber tire at the speeds required for this system**
- **Noise mitigation within the vehicle and wayside must be considered in the design and on-going maintenance of the system**
  - **Modern rail systems have successfully mitigated noise and vibration**
- **Low rolling friction and regeneration braking technology makes steel wheel a very energy efficient choice**

# Conclusion

The panel carefully considered all technology options as to how each would meet the transportation needs of Honolulu for:

- **Functionality**
- **Cost**
- **Technology Maturity**
- **Rider comfort and Environmental**

**The panel selected: Steel Wheel on Steel Rail**

**Final comment: In the past 10 years of the 20 plus new or expanded fixed guideway systems within the U.S., only one was not steel wheel. Honolulu is not alone in coming to this conclusion.**