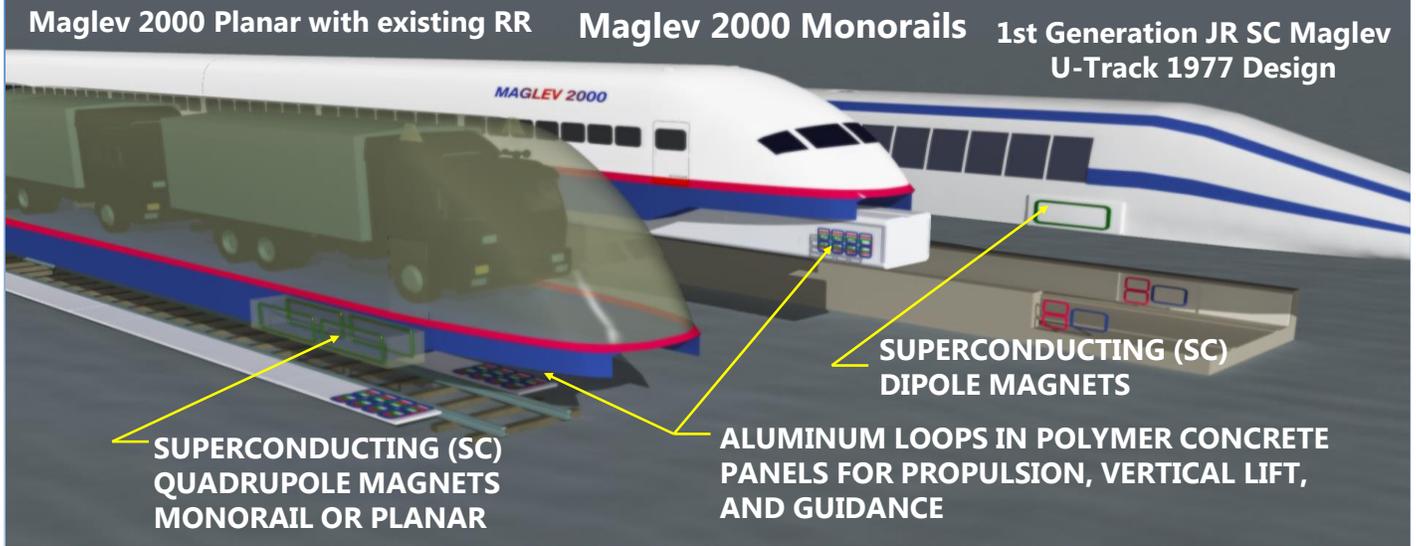


Frank Genadio of NB#34 Makakilo-Kapolei Honokai Hale
 Presentation to Citizen Advisory Committee 03/21/18

Evolution of Superconducting Maglev Designs



The American designed 2nd Generation Maglev 2000 System provides Freight or Passenger capability in both planar and monorail configurations.

Maglev 2000 Guideways

Monorail



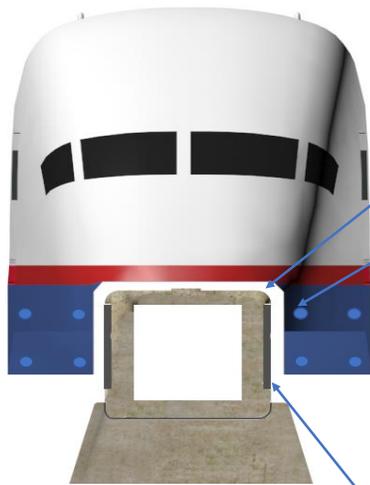
- Guideway Loop Panels Attached to Sides of Hollow Beam Box.
- Elevated Monorail Used for 300 mph Intercity Service and in Urban/Suburban Areas Where Existing RR Tracks are Not Available.
- Prefabricated Beams and Piers Transported (Truck, Rail or Along Completed Guideway) to Construction Site; Erected on Pre-Fabricated Footings.
- Projected Cost ~\$25M Per 2-Way Mile.
 (NOTE: Using \$50M+ for O'ahu costing)

Planar



- Guideway Loop Panels Attached to RR Cross Ties.
- Maglev-2000 Vehicle Remains Levitated While Operating on RR Tracks.
- Conventional Trains can Still Use RR Tracks with Appropriate Scheduling.
- Projected Cost ~\$5M Per 2-Way Mile.

Superconducting Maglev Quadrupole Monorail Electrodynamic Switching (EDS)



4 INCH OPERATING
CLEARANCE

CONFORMS TO 4' 8.5" RAIL GAUGE STANDARD

SUPERCONDUCTING (SC) QUADRUPOLE MAGNETS ON VEHICLE ONLY

ALUMINUM LOOPS IN POLYMER CONCRETE PANELS FOR PROPULSION, VERTICAL, AND LATERAL STABILITY

- Drs. James Powell and Gordon Danby created the 2nd Generation Maglev 2000 System Design
- Hollow prefabricated box beam elevated monorail guideway with polymer concrete panels with aluminum loops to provide vertical lift, lateral stability, and linear synchronous propulsion provides for safe high-speed operations.
- Superconducting (SC) quadrupole magnets can run even after the power supply has been shut off; for example, in the event of a blackout.
- Its 4-inch operating clearance can operate in high wind conditions. The 4-inch gap allows for ground movement such as caused by earthquakes

Guideway Loop Panel Design

<p><u>Layout of Loops on Panel</u></p>	<p><u>Features</u></p> <ul style="list-style-type: none"> • Multi-Turn Aluminum Loops • Al Conductor Coated With Insulating Layer • 3 Kinds of Loops on Panel <ul style="list-style-type: none"> –Sequence of Independent Figure of 8 Null Flux Loops –Sequence of Independent Dipole Loops –1 Long Dipole Loop for Propulsion (Electrically Connected Along Guideway)
<p><u>Operation on Monorail Guideways</u></p> <ul style="list-style-type: none"> • Figure of 8 Loops Provide Vertical Lift and Stability • Dipole Loops on Opposite Sides of Guideway are Connected In Null Flux Circuit to Provide Horizontal Stability • Propulsion Loops Carry AC Current to Propel Vehicle 	<p><u>Operation on Planar Guideways</u></p> <ul style="list-style-type: none"> • Dipole Loops Provide Vertical Lift and Stability • Figure of 8 Loops Provide Horizontal Stability • Propulsion Loops Carry AC Current to Propel Vehicle