

Technology Selection Panel

Honolulu High-Capacity
Transit Corridor Project

Schedule of Events

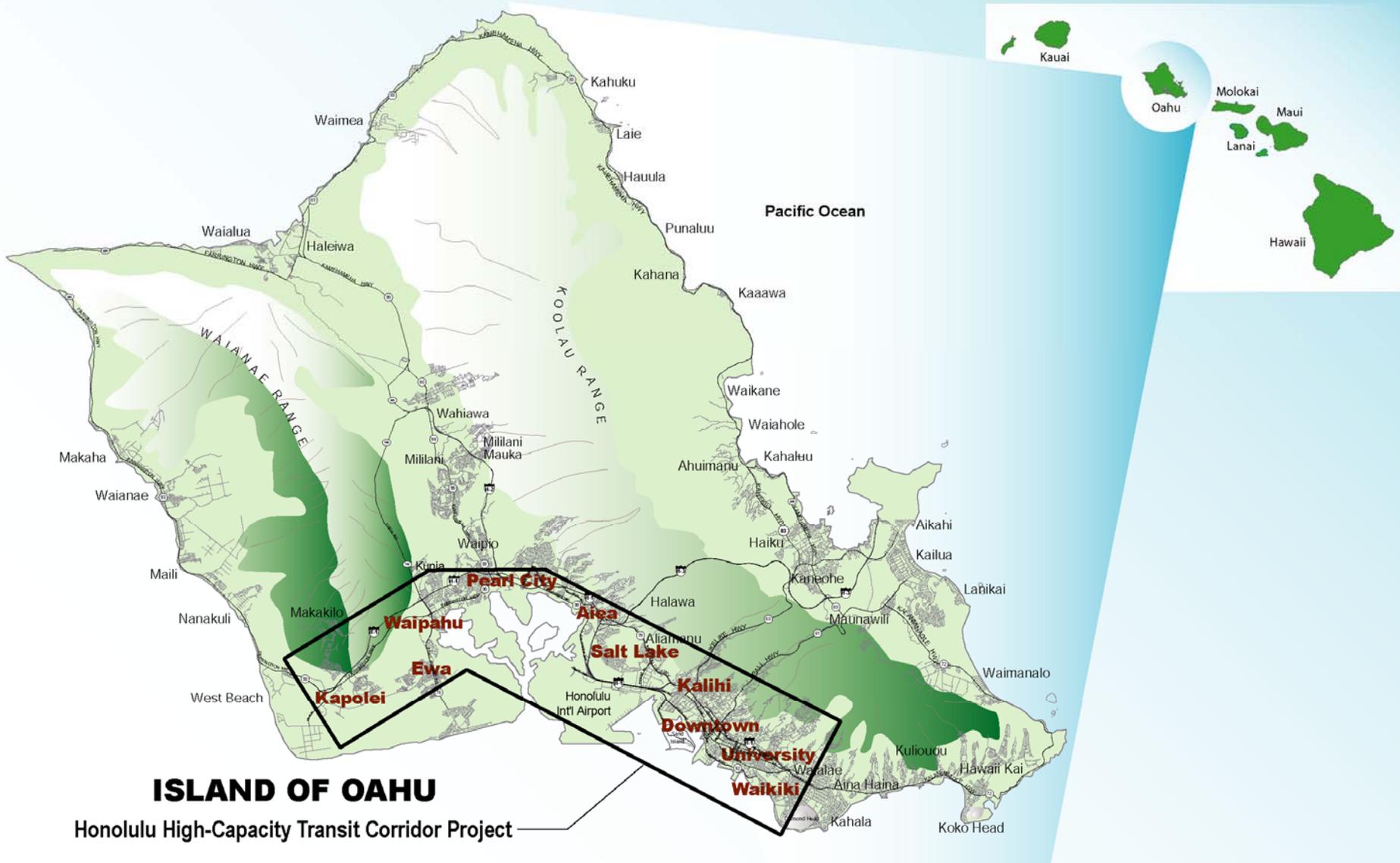
Technology Selection Panel Resolution Introduced	November 20, 2007
City Council Committee on Transportation and Public Works Action	November 29
Released Request for Information	December 5
City Council Resolution Passed	January 23, 2008
RFI Submittal Deadline	January 24
Fifth Panel Member Selected	February 1
First Panel Meeting	February 15
Final Panel Meeting	February 22
Report to Council Transportation and Public Works Committee	February 28

Overview of LPA Selection

O'ahu Regional Transportation Plan 2030



Project Study Area



Project Development Process

■ Alternatives Analysis

- Begin Environmental Process
- Selection of the Locally Preferred Alternative
- Identification of the First Project for Implementation

■ Environmental Impact Statement and Preliminary Engineering

- Complete Environmental Process

■ Final Design

■ Construction

■ Operation

Four Alternatives Evaluated During Alternatives Analysis

- No Build: No major transit improvements
- TSM: Improved bus system
- Managed Lane: New facility to carry buses and other vehicles
- Fixed Guideway: Fixed guideway transit between Kapolei and UH Mānoa with buses feeding the stations

No Build Alternative

- Existing bus system, including currently programmed enhancements and expansion to support growth
- Projects included in the O'ahu Regional Transportation Plan - \$3 Billion in highway capacity improvements

\$3 Billion in Highway Capacity Improvements

■ H-1 Improvements

- Widening, Middle Street to Vineyard Boulevard
- Widening, Liliha Street to Pali Highway
- Widening, Waiawa Interchange to Hālawā Interchange
- Widening, Ward Avenue to Punahou Street
- HOV Lanes, Makakilo Interchange to Waiawa Interchange
- PM Zipper Lane, Ke‘ehi Interchange to Kunia Interchange

■ New or Extended Roadways

- Nimitz Flyover, Ke‘ehi Interchange to Pacific Street
- North-South Road
- Kapolei Parkway

■ Road Widenings

- Farrington Highway
- Fort Barrette Road
- Kunia Road

Transportation System Management Alternative

- Everything included in No Build
- Expanded bus service
 - More frequent service
 - New routes
- Construction of new low-cost transit facilities:
 - Park-and-ride lots
 - Transit centers

Managed Lane/ Bus Guideway Alternative

- Everything included in No Build
- Construction of a two-lane grade-separated roadway from Waipahu to Iwilei
- Five entrance/exit points and a bus flyover connection from Nimitz Highway to Hotel Street
- “Manage” use of lanes to maintain free-flow speeds
- Allow access, up to available capacity:
 - Buses
 - Other High-occupancy vehicles (HOVs)
 - Toll-paying single-occupant vehicles (with variable pricing)

Managed Lane/ Bus Guideway Alternative

Two options:

■ Two-lane reversible

- Town-bound in morning
- 'Ewa-bound in evening
- Served by express buses, peak direction only, with no intermediate stops

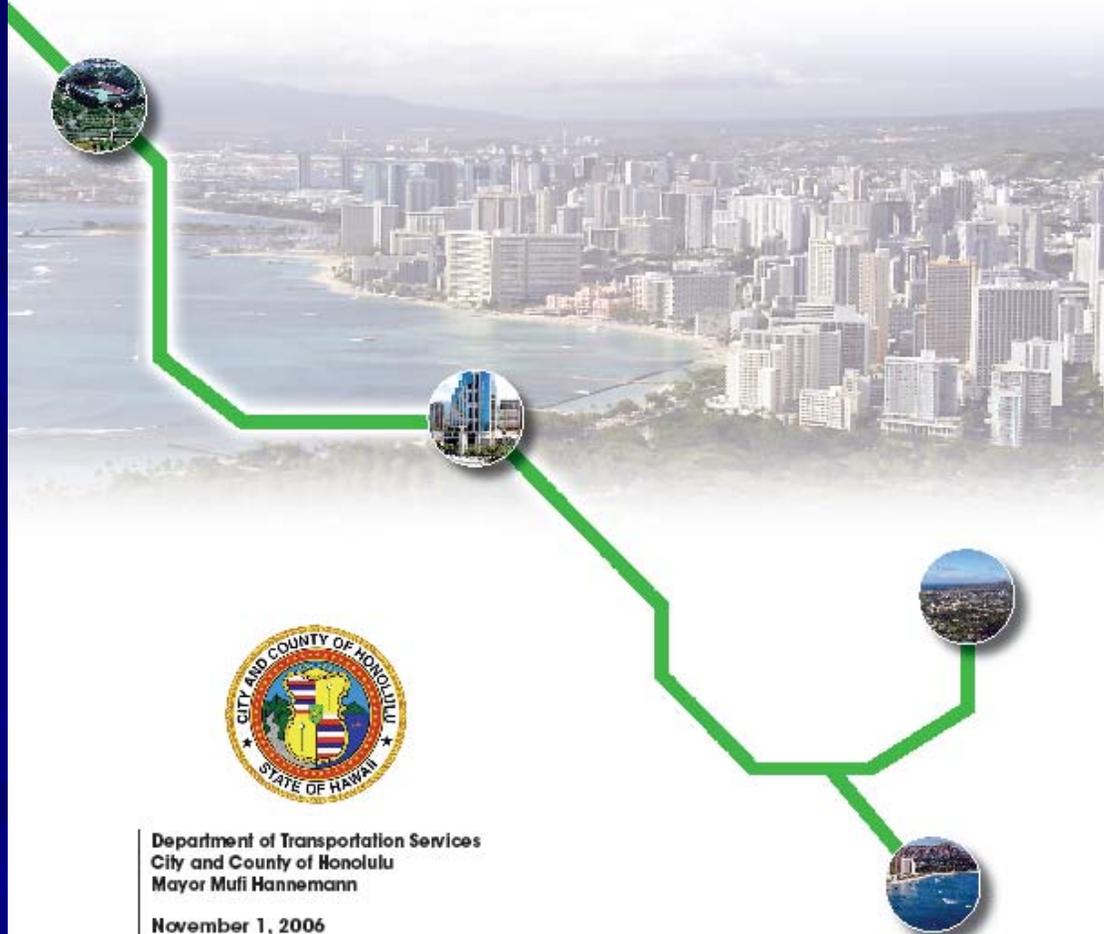
■ One-lane in each direction

- Two-directional all day
- Includes intermediate passenger stop locations – buses can stop or bypass

Fixed Guideway Alternative

- Fixed guideway system
 - High Capacity
 - Reliable travel times
 - Integrated with bus, parking, bicycling and walking
- Multiple alignment options by geography
- Several technologies available

Honolulu High-Capacity Transit Corridor Project Alternatives Analysis Report



Department of Transportation Services
City and County of Honolulu
Mayor Mufi Hannemann

November 1, 2006

Public Testimony

Date	Meeting	Description
October 25, 2006	City Council	Bill 79 passed first reading
November 2, 2006	Council Transportation & Planning Committee	Bill 79, CD1 reported out of Committee
November 13, 2006	Council Transportation & Planning Committee	Community Outreach Meeting @
November 16, 2006	Council Transportation & Planning Committee	Community Outreach Meeting @ Kapolei Hale
November 17, 2006	Council Transportation & Planning Committee	Community Outreach Meeting @ Kalākaua Middle School
November 20, 2006	Council Transportation & Planning Committee	Community Outreach Meeting @ Windward Community College
November 21, 2006	Council Transportation & Planning Committee	Community Outreach Meeting @
November 22, 2006	Council Transportation & Planning Committee	Community Outreach Meeting @
November 27, 2006	Council Transportation & Planning Committee	Community Outreach Meeting @ Radford High School
December 7, 2006	City Council	Public Hearing; Bill 79, CD1 passed second reading
December 14, 2006	Council Transportation & Planning Committee	Bill 79, CD2 reported out of Committee
December 22, 2006	City Council	Bill 79, CD2, FD2 passed

Locally Preferred Alternative Selection December 22, 2006

COUNCIL 12/22/06 CR-508 ADOPTED. BILL 79, CD2, FURTHER AMENDED ON THE COUNCIL FLOOR TO CD2, FD1, HOWEVER, BILL 79, CD2, FD1, FURTHER AMENDED TO BILL 79, CD2, FD2 (FINAL #2), AND SUBSEQUENTLY PASSED THIRD READING, AS AMENDED (BILL 79, CD2, FD2 (FINAL #2))

(NOTE: BILL 79 (2006), PROPOSED CD2, FD1 (NORTH-SOUTH BRANCH, NON-LPA COMMITMENT) WAS ALSO CONSIDERED AND SUBSEQUENTLY WITHDRAWN)

APO	Y	CACHOLA	Y	DELA CRUZ	Y	DJOU	N	GARCIA	Y
KOBAYASHI	Y	MARSHALL	N	OKINO	Y	TAM	Y		

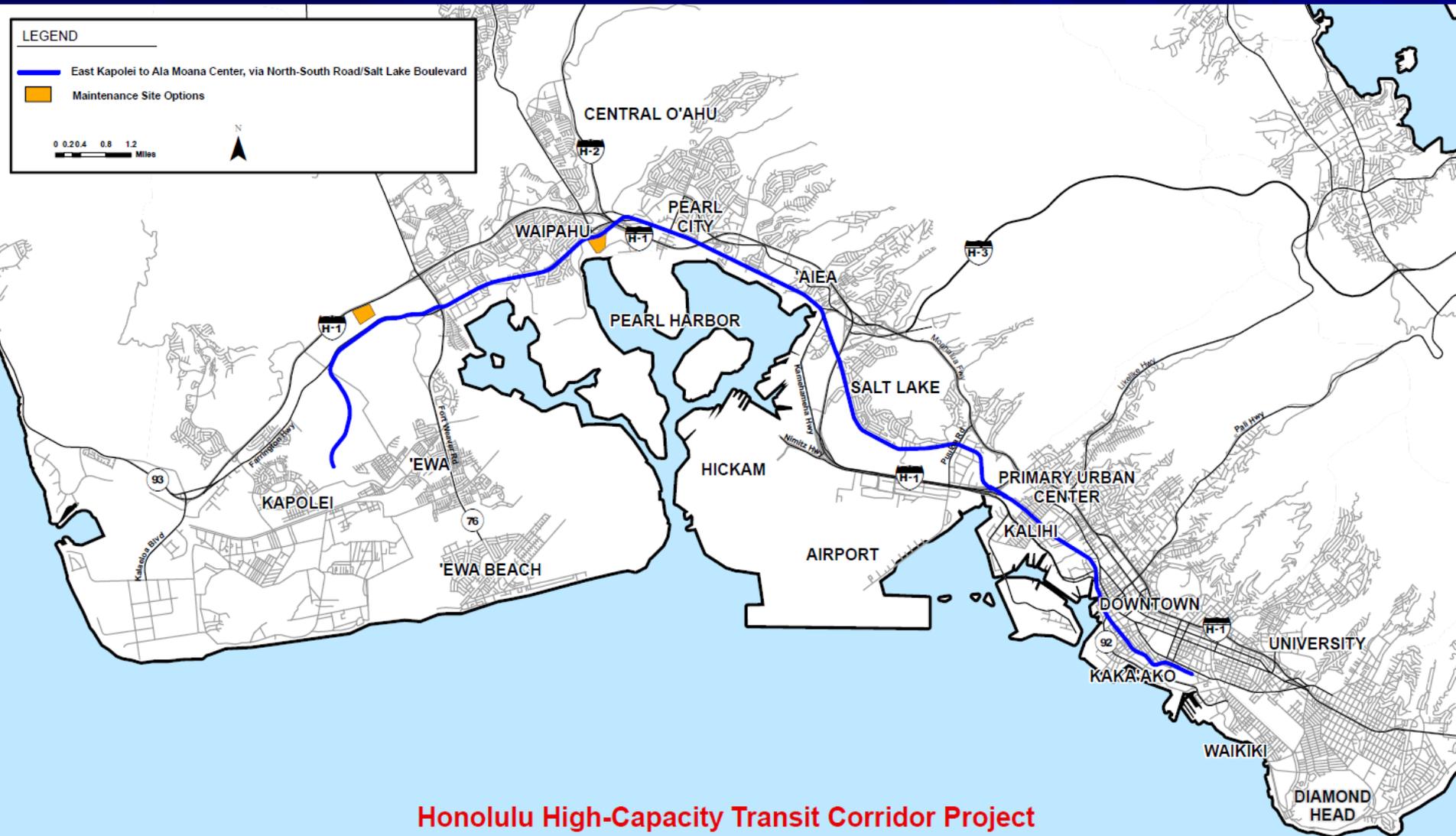
Decision by City Council

- ~~No Build~~
- ~~Transportation System Management (TSM)~~
- ~~Managed Lane/
Bus Guideway~~
- Fixed Guideway

Bill 79, CD2, FD2 Enacted as Ordinance 07-001

“The council believes that, in its role as policymakers for the city, a fixed guideway system is the best selection for the long-term needs and demands of our growing island population. Therefore, the council approves a fixed guideway system as the locally preferred alternative, which will allow the city administration to move forward on the locally preferred alternative.”

Identification of a First Project for Implementation



**Honolulu High-Capacity Transit Corridor Project
East Kapolei to Ala Moana Center, via North-South Road/Salt Lake Boulevard**

'Ewa Section

LEGEND

- First Project
- Maintenace Site Option
- Station Location

0 1,000 2,000 4,000 Feet

N



Downtown Section



What are the operating details?

■ When will it run?

- From 4 a.m. to midnight, every 3 to 10 minutes.

■ How fast will it be?

- 55+ mph top speed; 30 mph average with stops

■ Will it be reliable?

- Dedicated right-of-way and dedicated, bi-directional vehicles

■ How much will a ride cost?

- Same as TheBus and TheBoat, can use a transfer from one to the other

What are the physical characteristics?

- Where is the guideway located?
 - Elevated, with columns in existing roadway medians
- How wide is the guideway?
 - < 30 feet between stations
 - At stations ~ 50 feet plus vertical circulation
- How many stations?
 - Approximately every mile
- How long are the stations?
 - Approximately 270 feet

Available Transit Technologies

- Need to “fit” within the Fixed Guideway Alternative’s operating and physical characteristics
- Potentially can include vehicles running on
 - Steel wheels
 - Rubber tires, including monorail
 - Magnetic levitation

RFI Process

RFI Process

- Request For Information (RFI) process is provided in Hawaii Administrative Rules §3-122-9.02 - when it is impractical to describe procurement requirements.
- Must contain:
 - Objective of the process – to select appropriate technology for the transit system
 - Responses will contain recommendations that will allow the RTD to accomplish their goals
 - RTD reserves the right to incorporate the information received into any future procurement
 - Neither the RTD nor the respondents have any obligation to each other

RFI Process

- Objective – to select appropriate technology for the transit system
- Four technologies under consideration based on Alternatives Analysis:
 - Monorail
 - Rubber Tired
 - Steel Wheel/Steel Rail
 - Urban Maglev
- Respondents were asked to affirm they could meet RTD's requirements or indicate how their technology provides a better solution
- RTD solicited and responded to questions from respondents
- Expert Panel analyzing responses and making technology selection recommendation to RTD

Systems Requirements

Systems Requirements

Vehicle / Guideway

- Meet Minimum Guideway Curve Radius of 400'
- Meet Minimum Maintenance Facility Curve Radius of 150'
- Operate with Maximum Station Platform Length of 300'
- Operate with Maximum Station Grade of 1%
- Operate at 55 mph (meet and End-to-End Trip Time of 40 Min.)
- Have Accessible Emergency Walkway for Full Length of Guideway

Systems Requirements

Power

- Have Electric Propulsion
- Have Power Distribution via a Third Rail Type of System

Control and Protection

- Allow Fully Automatic, Bi-Directional Operation at 2 Min. Headway
- Have Guideway Switching to accommodate 2 Min. Headway

Systems Requirements

Communications

- Allow Passenger Communications to Operator/OCC
- Have an ADA Message System
- Have On-Board CCTV

Operations

- Carry 9000 ppdph
- Meets the FTA Noise and Vibration Criteria at Stations
- Be Cost Effective to Operate and Maintain

RFI Responses

RFI Responses

- Twelve responses were received, of which ten were responsive to our request.
 - Information received from steel wheel/steel rail (5), rubber tire (3), monorail (1), and maglev (1) suppliers
 - One supplier provided only general sales brochures and one respondent is a train control manufacturer
- Overall, the suppliers were very thorough in their responses to the RFI questionnaire
 - All suppliers provided excellent information regarding the operational and performance characteristics
 - The weakest area in their response were to questions concerning cost, which was expected

RFI Responses

Monorail

Hitachi – provided information based upon operating monorail systems in Asia

- Proposed multi-unit train consist (3 to 4 cars)
- Peak period seated capacity 28%
- Estimated fleet of 198 cars
- Monorail guideway (single beam) as shown in their response will not meet NFPA 130, safety standards

RFI Responses

Rubber Tire

APTS (Phileas) – information based upon a new application of their guided bus technology

- APTS proposed a diesel electric propulsion, single ended, not capable of multi-unit consists
- Peak period seated capacity 20%
- Estimated fleet of 92 cars

IHI Corporation - information based upon airport and urban people mover system existing in Asia

- Well established technology
- Peak period seated capacity 35%
- Estimated fleet 160 cars

RFI Responses

Rubber Tire

Siemens CITYVAL – new application for Siemens adapting Translohr guidance system for high capacity transit

- Peak period seated capacity 26%
- Estimated fleet 220 cars

Translohr Low Floor Guided Trolley Bus

- No technical information provided

RFI Responses

Steel Wheel on Steel Rail

Alstom Automated LRV – information provided based upon several LRV system throughout the world

- Proposed vehicle is a double articulated unit capable of being combined into train consist
- Peak period seated capacity 33%
- Estimated fleet 56 vehicles

Ansaldo STS Automated LRV – information provided based upon existing LRV and train control systems

- Proposed vehicle is double or triple articulated unit, capable of being coupled into a consist
- Peak period seated capacity 31%
- Estimated fleet 40 vehicles

RFI Responses

Steel Wheel on Steel Rail

Bombardier – information provided based upon LIM technology used in Vancouver and NY AirTrain

- Proposed two vehicle consist of being combined into larger train consist
- Peak period seated capacity 24%
- Estimated fleet 72 vehicles

Mitsubishi Sumitomo – information provided based upon existing LRV

- Proposed vehicle is configured as multi-articulated train consists of 3 to 4 cars
- Peak period seated capacity 44%
- Estimated fleet 116 cars to be married into train consists

RFI Responses

Steel Wheel on Steel Rail

Siemens Low Floor LRV – information provided based upon low floor LRV

- Proposed vehicle is a single articulated unit capable of being combined into train consist
- Peak period seated capacity 39%
- Estimated fleet requirements were not provided

RFI Responses

Urban Maglev

Mitsubishi Itochu – information based upon existing systems in Japan

- Proposed train is a unit consist of 4 cars, not capable of being coupled into a longer train consist
- Peak period seated capacity 23%
- Estimated fleet 156 cars to be configured into train consists

Other

Thales – is a train control system provider, does not manufacture vehicles

Evaluation Criteria

Evaluation Criteria

- The panel is requested to use the evaluation forms provided, both hard and electronic versions are available
- The criteria to be considered are listed in the form
- Panel members are free to select whatever evaluation methodology they prefer, however they are asked to clearly describe their findings and identify the key factors influencing their decisions for each criterion
- The Summary Report will identify the technology selected by the individual panelist, with a brief discussion of the rationale leading to your selection

Evaluation Criteria

- Each panelist is requested to identify only one technology for selection
- The completed evaluation form should be returned to RTD no later than 4:30 p.m. on Wednesday, February 20
- If requested, RTD staff will provide administrative assistance in preparing the documentation