

**ALTERNATE RAIL TECHNOLOGY (ART)**

**MTA BOARD PRESENTATION**

**AUGUST 1995**

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## **WHAT IS AN ALTERNATE RAIL TECHNOLOGY VEHICLE (ARTV)**

- A passenger rail car with an internal power source, commonly diesel
- Usually capable of operating in one or two car units, or as part of a larger, "multiple unit" train
- Capable of operating in manner similar to light rail, but without the electric power infrastructure

## **PROJECT STATUS**

### **Feasibility Study - Two Phases:**

- **Phase 1 - Specific Technology Issues Applicable to All Corridors (MTA staff)**

**Completed: August 1995**

- **Phase 2 - Burbank/Glendale/Los Angeles Corridor Operational Study**

**Funding Partners:**

**City of Burbank**

**City of Glendale**

**Burbank-Glendale-Pasadena Airport Authority**

**MTA**

**Anticipated Completion: Fall 1995**

## PHASE 1 STUDY PURPOSE

- Survey current worldwide usage of ARTVs.
  
- Identify potential technical issues:
  - Regulatory
  - ADA Compliance
  - Environmental
  - Operating Issues
  - Costs
  
- Lay groundwork for specific corridor feasibility studies.

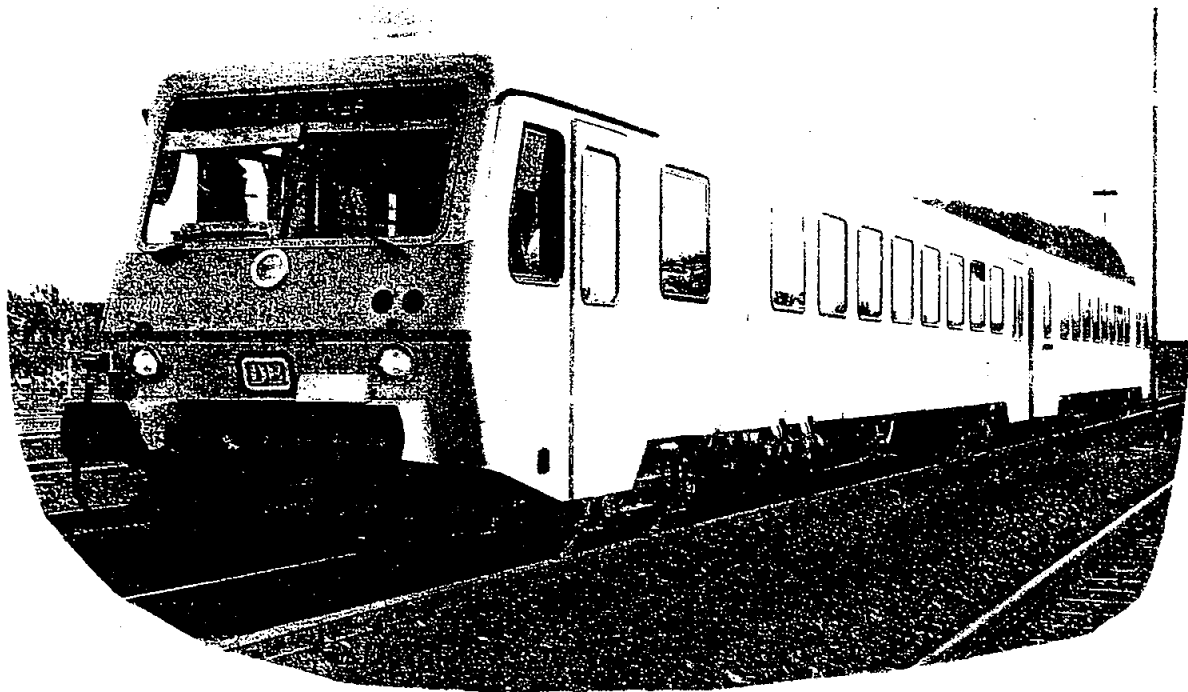
## CURRENT WORLDWIDE STATUS

- Approximately 10,000 ARTVs operate in Europe, Asia, and Australia.
- At least 15 firms manufacture ARTVs for these markets.
- Several firms are now pursuing U.S. market.

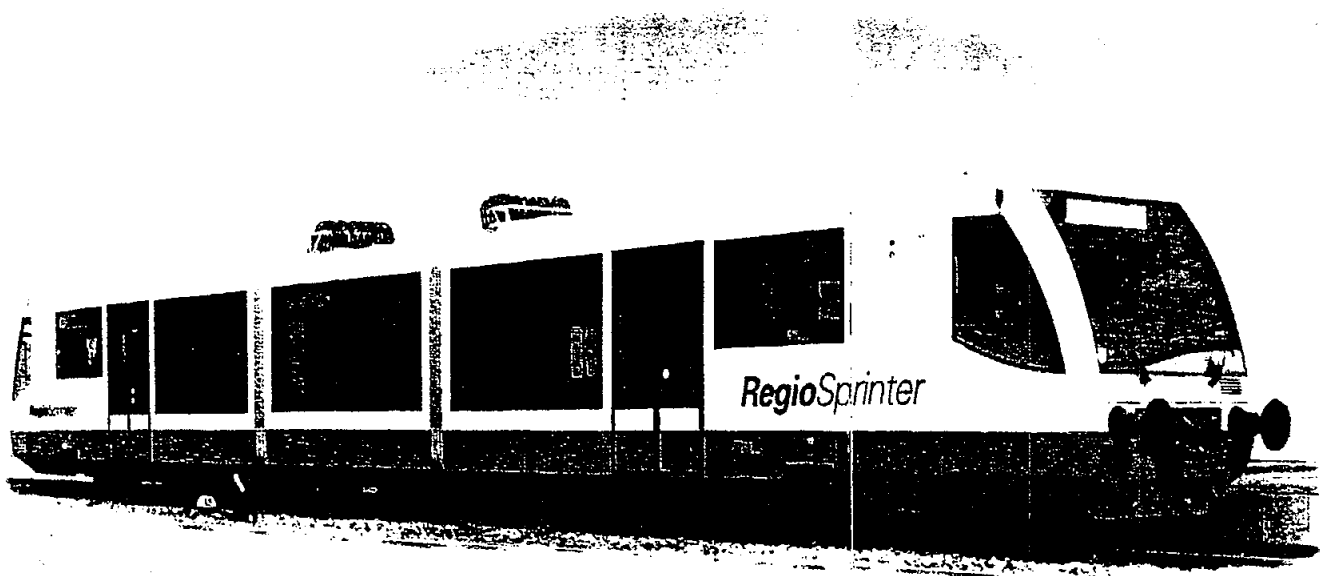
*BRITISH CAR - CLASS 165 "NETWORK TURBO"*



*German Alternate Rail Technology Vehicles*



*Type 628*



*RegioSprinter*

## CURRENT STATUS IN THE UNITED STATES

- In use through 1950s; phased out in 1960s and 1970s.
- Recently there has been interest in ART systems throughout U.S.
- Locations where ART systems operate or are soon to be operational:

Syracuse, New York (operating since 9/94)

Dallas, Texas (under construction, operations planned for 1996)

- Locations of current ART interest:

Tampa, Florida

Burlington, Vermont

Oceanside - Escondido, California

Folsom - Sacramento, California

Ventura County, California

Kings County, California



## REGULATORY ISSUES

- The following agencies/organizations have applicable standards:
  - Federal Railroad Administration
  - California Public Utilities Commission
  - American Association of Railroads
  
- Applicable standards include:
  - structural strength of rail cars (if used on shared railroad tracks)
  - fire safety
  - coupling/uncoupling mechanisms
  - brakes
  
- Some manufacturers are considering building ARTVs to U.S. railroad standards

## **AMERICANS WITH DISABILITIES ACT ISSUES**

- Compatibility with existing Metrolink platforms/floor heights may require modifications.
- Width of doors and aisles may require modifications.
- Restrooms may require modification or could be eliminated entirely consistent with Blue Line.
- Using lifts or Metrolink-style ramp could result in additional maintenance and/or operating costs.
- Many current models meet U.S. accessibility requirements.

## AIR QUALITY ISSUES

- All existing ARTVs are diesel or clean diesel powered.
- ARTVs are classified as "locomotives" and are therefore exempt from state/local emissions rules.
- An ART system would need to demonstrate air pollution reduction in order to be included in the RTIP. This is uncertain in the case of diesel engines.
- Alternative fuel engines offer potential for greater emission reductions.

## ALTERNATIVE FUELS

- Since many ARTV engines are similar to urban bus engines, an alternative fueled ARTV is possible.
  
- Potential alternative fuel technologies:
  - Natural Gas (Compressed or Liquified) - Uncertain effect on performance and cost; issue of fuel storage.
  - Liquified Petroleum Gas/Propane - Perceived supply availability problems.
  - Fuel Cell - Under development for use in buses.
  
- Alternative fuel technologies may require additional infrastructure investment for maintenance facilities and fueling stations.

## **COST ISSUES**

- **Capital Cost:**
  - Will be affected by size of vehicle order and ability to use "off-the-shelf" technology.
  - Significantly lower than LRT.
  
- **Operating Cost:**
  - Will be affected by platform height and means of disabled access.
  - LRT costs for vehicle maintenance and energy are less than ART; this is offset by LRT power system maintenance costs.

## **OTHER CONSIDERATIONS**

- **Passenger Acceptance - Some overseas ARTVs have historically compromised passenger comfort, although standards have recently become higher. Passenger comfort must be considered in the procurement process.**
- **Local Economic Development Potential - Will depend primarily upon the overall North American demand and the Southern California regional demand. This will be addressed more fully in Phase II.**

## CONCLUSIONS

- At least six ARTV models are, or will be, compliant with FRA requirements. Some are candidates for immediate application of clean fuels technology.
- At least three ARTV models are available for use on exclusive tracks. These are not required to meet FRA structural strength standards. Some are candidates for immediate application of clean fuels technology.
- Different clean fuel strategies are needed for the short and long term.
- ARTV operating and maintenance costs are generally comparable to, or slightly higher than, LRT.
- ARTV capital costs are significantly lower than LRT.

## NEXT STEPS

- Complete Phase II Burbank/Glendale/Los Angeles Corridor Operational Analysis (Fall, 1995)
  - Address issues raised in Phase 1 analysis.
  - Evaluate operational considerations:
    - track sharing
    - ridership / system connectivity
    - frequency
    - corridor operating cost
  - Identify capital improvements:
    - platforms
    - sidings
    - maintenance/fueling facilities
- Decide whether to evaluate remaining corridors from Long Range Plan.
- Consider whether to pursue ART implementation, if funds become available (Fall 1995).