

# California Partners for Advanced Highways and Transit (PATH): Future Research in Transit Operations

*California PATH Program  
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## Shared-Use Vehicle Systems (carsharing, station cars)

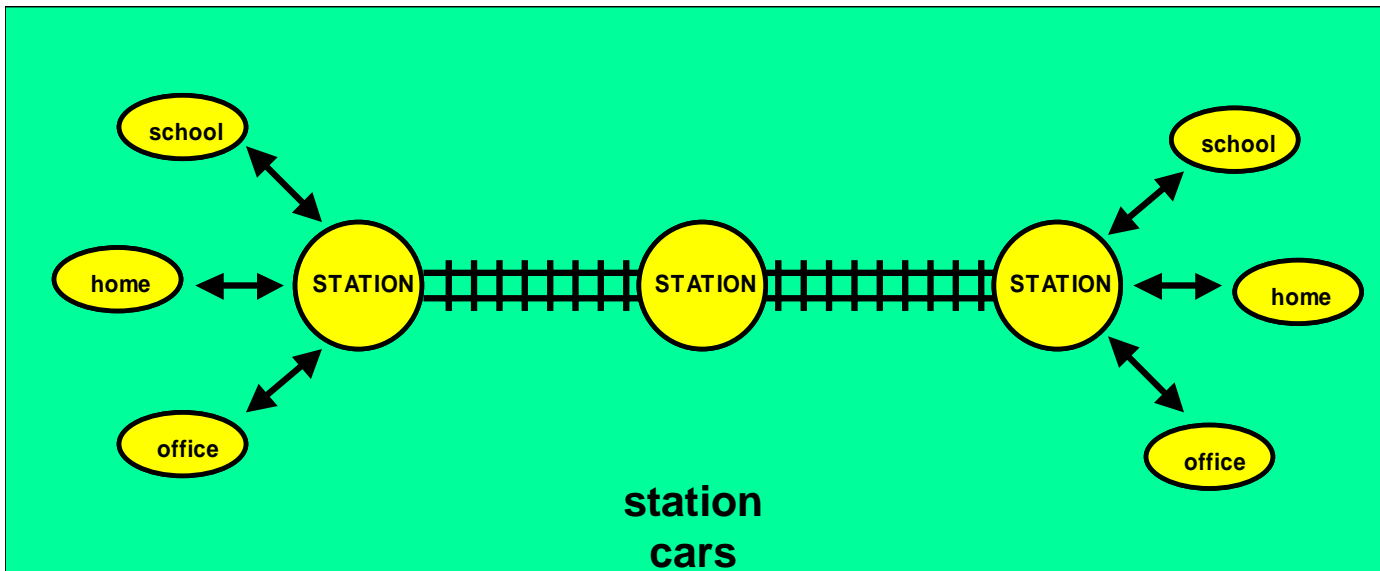
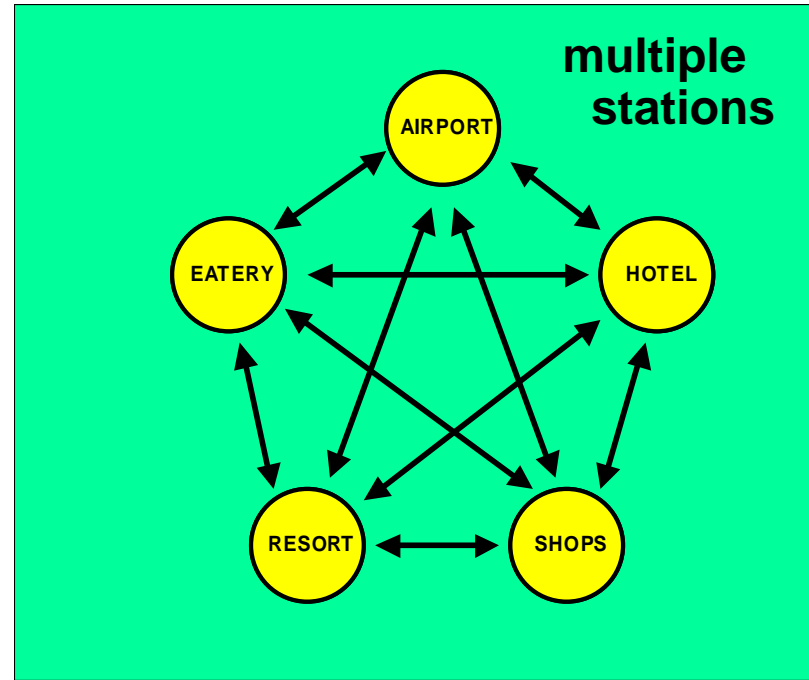
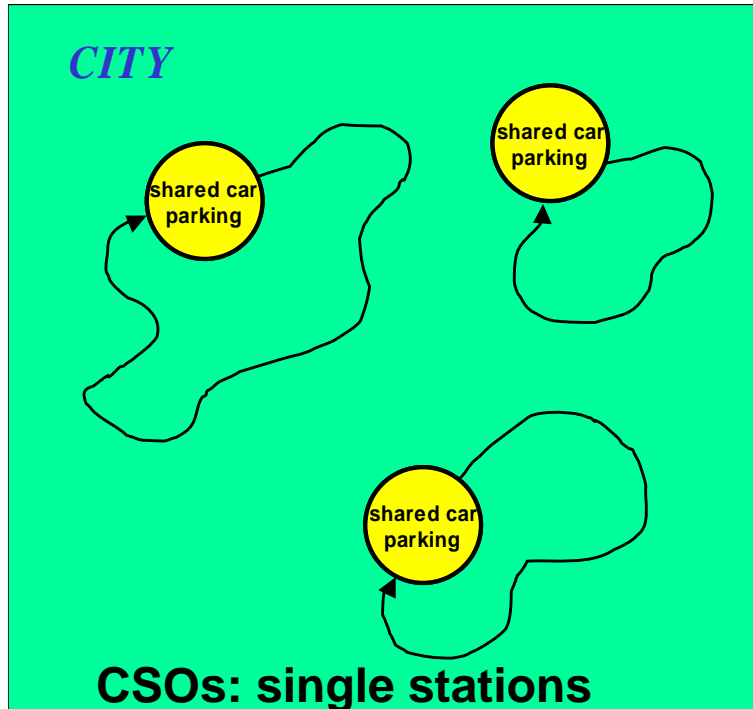
- multiple users have joint access to a fleet of vehicles
- vehicles are used multiple times by multiple users
- organized short-term car rental
- ITS technology enhances systems

### *Key Benefits:*

- improves transportation efficiency:
  - reduces number of vehicles to meet total travel demand
  - results in better land use
- user cost savings: vehicle payments, insurance, maintenance, etc.
- environmental benefit: lower vehicle emissions/energy
- transit ridership: improves access to transit



# Primary Shared-Use Vehicle System Models



# Universal Access Control and Payment Systems

- **Interoperability of Smartcards and Transponders**
- **Integrated Transit Applications**
- **Transition to Mobile Phones/PDAs as an identification and debit mechanism**
- **Mobile Phone/PDA as Controllers**



## Proliferation in Smart Parking and other Resource Management Techniques

- parking is costly and limited in almost every major city in the U.S., contributing to increased congestion, air pollution, and driver frustration
- **Smart parking Management:**
  - use of advanced technologies to help direct drivers efficiently to available parking spaces
  - encourages transit ridership
  - lessens driver frustration
  - reduces congestion on roadways
- **Approaches:**
  - dynamic displays on roadway signs informing drivers of location and parking lot capacity
  - the Internet, and cell phones: providing space availability, location, and pricing information
- **PATH Smart Parking Field Test:**
  - 12/04 – 4/06
  - 1400 participants, over 12000 successful parking events



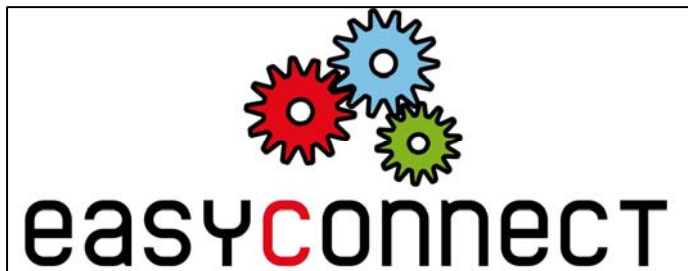
## **Transit Oriented Development and Enhanced Transit**

- **TODs promote transit use through the integration of multiple transit options in high-density developments consisting of residential, commercial, and retail entities**
- **Transit agencies are seeking new ways to increase ridership and to provide better service with limited resources**
- **ITS technologies expands the different transportation possibilities and allows for significant improvements in mobility**
- **TODs have the potential to improve personal mobility through:**
  - **advanced transit modes**
  - **innovative feeder options**
  - **integrated ITS technologies**
  - **shared-use vehicle systems**
  - **intelligent parking services**



## EasyConnect—Low-Speed & Electric Modes at Transit Village

- Launched August 2005; Connects Over 25 Participants at 4 Employment Sites Within 3-4 Mile Radius of BART Pleasant Hill Transit Village. Currently, Recruiting Additional Companies.
- Ribbon Cutting: June 12, 2006
- Grants/Donations: BART, MTC, Giant Bikes, Segway LLC, BAAQMD, Contra Costa Centre, 511 Contra Costa.
- Key Findings: Individuals Now Taking BART as They Can Connect More Efficiently; Using E-Bikes for Work-Related Errands; Trail Network Safe & Efficient.
- *EasyConnect II*—Includes Smart Parking, Carsharing, Transit Signage/Information & H2.



## **Universal ATIS across all Transportation Modes**

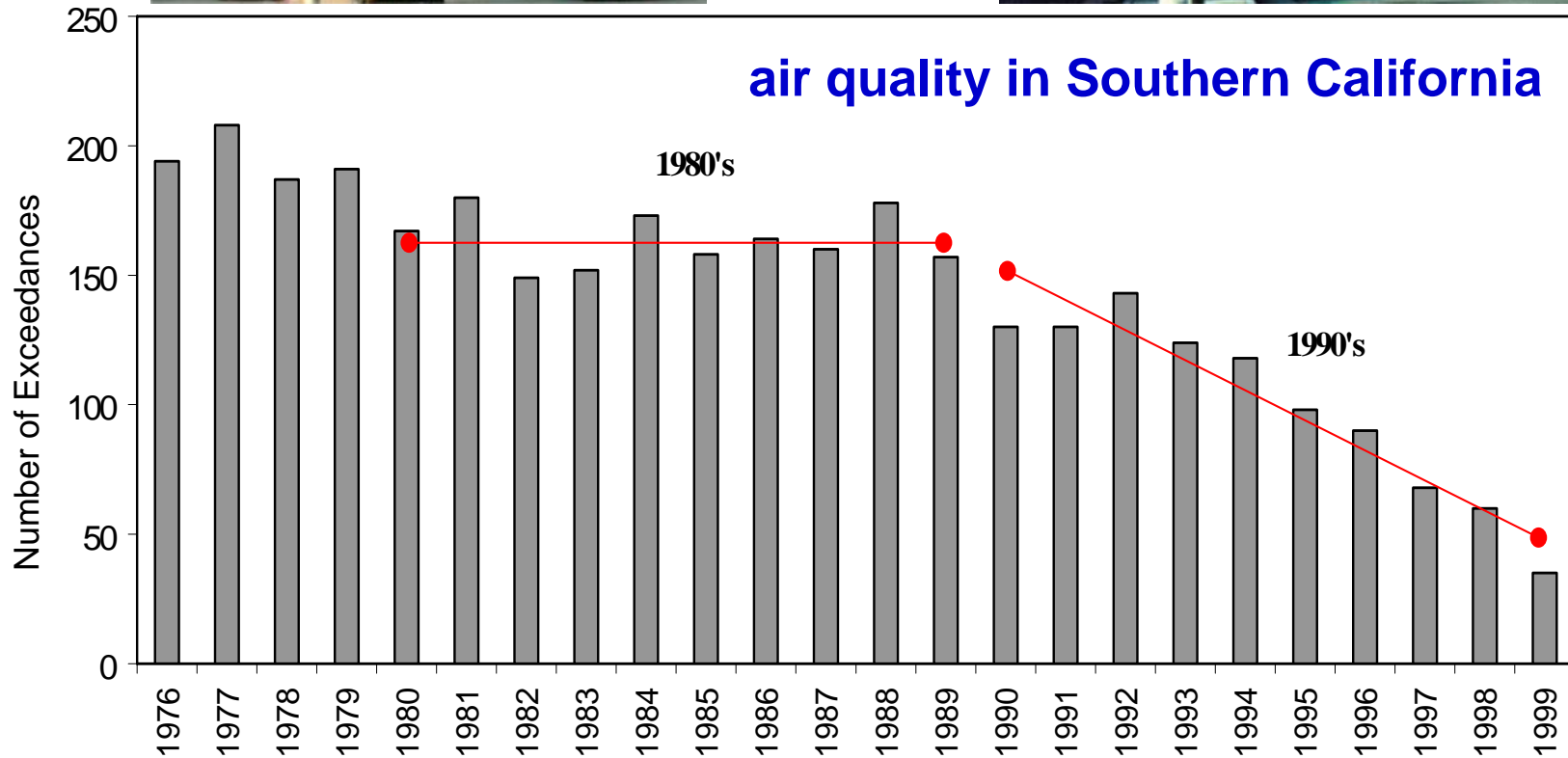
- **Reservation Systems**
- **Routing Information**
- **Navigation across Transportation Modes for Various Purposes**

## **Improved Integration of Transit with Infrastructure**

- **Bus Scheduling**
- **BRT**
- **Personalized Access to Transit**



# Air Quality



**key factor:  
emission  
certification  
standards**

