Saving Time and Energy through Bus Rapid Transit (BRT) Projects around the world

Impact of Accessible Transit Systems on Environmental Sustainability

SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY
In collaboration with ITDP
What is the SFCTA?

• Created in 1989
• Long-range transportation planning
• Analyzes, designs and funds improvements for roadway and public transportation networks in San Francisco
What is the SFCTA? (cont.)

- Oversees the delivery of the Prop K half-cent local transportation sales tax program
- Serves as the Congestion Management Agency (CMA)
- Administers the Prop AA additional vehicle registration fee
- Program Manager for the grants from the Transportation Fund for Clean Air
Key SFCTA Initiatives

- San Francisco Transportation Plan
- Lifeline Transportation Program
- San Francisco Safe Routes
- Regional Sustainable Communities/Strategy
Anticipated growth in the region from 2010 to 2040:

- 33% new jobs
- 10% new residents
ITDP
What do we do?

• ITDP aims to deliver a higher standard of living and quality of life for citizens of cities around the world

SUSTAINABLE DEVELOPMENT
BRT Growth Over Time

- After Curitiba
- After Bogotá
- After Quito, Brisbane & European cities

Worldwide combined length of BRT systems (km)

- 1970
- 1975
- 1980
- 1985
- 1990
- 1995
- 2000
- 2005
TransOeste, Rio De Janeiro, Brazil

- Length: 55 Km
- Stations: 74
- Daily Ridership: 220,000
- Engine Technology: Diesel
- Platform Height: high
- Passing Lane: yes
- BRT Standard: Gold
TransOeste, Rio De Janeiro, Brazil
TransOeste, Rio De Janeiro, Brazil

- Avg. time saved per trip: 40 min
- Vehicle Travel reduction/year: 57 million Km*
- Fuel Reduction/year: 44 million liters*
- CO2 Reduction/year: 107,000 tons
- NOx Reduction/year: 206 tons
- Particulate Matter reduction/year: 6.9 tons

* Estimates over a 20 year period
Transmilenio, Bogota, Colombia

- Length: 310 Km
- Stations: 142
- Daily Ridership: 2,000,000
- Engine Technology: Diesel
- Platform Height: high
- Passing Lane: yes
- BRT Standard: Gold
Transmilenio, Bogota, Colombia
Transmilenio, Bogota, Colombia

- Avg. time saved per trip: 45 min
- Vehicle Travel reduction/year: 516 million Km
- Fuel Reduction/year: 400 million liters
- CO2 Reduction/year: 973,000 tons
- NOx Reduction/year: 1,873 tons
- Particulate Matter reduction/year: 63 tons
Metrobus, Mexico City, Mexico

- Length: 102 Km
- Stations: 115
- Daily Ridership: 855,000
- Engine Technology: Diesel
- Platform Height: high
- Passing Lane: no
- BRT Standard: Silver
Metrobus, Mexico City, Mexico
Metrobus, Mexico City, Mexico

- Avg. time saved per trip: 15 min
- Vehicle Travel reduction/year: 221 million Km
- Fuel Reduction/year: 400 million liters
- CO2 Reduction/year: 416,000 tons
- NOx Reduction/year: 801 tons
- Particulate Matter reduction/year: 27 tons
Guangzhou BRT, China

- Length: 23 Km
- Stations: 26
- Daily Ridership: 843,000
- Engine Technology: LPG
- Platform Height: Low
- Passing Lane: Yes
- BRT Standard: Gold
Guangzhou BRT, China
Guangzhou BRT, China

- Avg. time saved per trip: 16 min
- Vehicle Travel reduction/year: 218 million Km
- Fuel Reduction/year: 169 million liters
- CO2 Reduction/year: 410,000 tons
- NOx Reduction/year: 789 tons
- Particulate Matter reduction/year: 26 tons
Lanzhou BRT, China

- Length: 12 Km
- Stations: 15
- Daily Ridership: 290,000
- Engine Technology: CNG
- Platform Height: Low
- Passing Lane: yes
- BRT Standard: Silver
Lanzhou BRT, China
Lanzhou BRT, China

- Avg. time saved per trip: 9 min
- Vehicle Travel reduction/year: 75 million Km
- Fuel Reduction/year: 58 million liters
- CO2 Reduction/year: 141,000 tons
- NOx Reduction/year: 272 tons
- Particulate Matter reduction/year: 9 tons
Rea Vaya, Johannesburg, South Africa

- Length: 30 Km
- Stations: 22
- Daily Ridership: 50,000
- Engine Technology: Diesel
- Platform Height: high
- Passing Lane: no
- BRT Standard: Silver
Rea Vaya, Johannesburg, South Africa
Rea Vaya, Johannesburg, South Africa

- Avg. time saved per trip: 22 min
- Vehicle Travel reduction/year: 13 million Km
- Fuel Reduction/year: 10 million liters
- CO2 Reduction/year: 24,000 tons
- NOx Reduction/year: 47 tons
- Particulate Matter reduction/year: 2 tons
Metrobus, Istanbul, Turkey

- Length: 50 Km
- Stations: 44
- Daily Ridership: 750,000
- Engine Technology: Diesel/ Hybrid
- Platform Height: low
- Passing Lane: no
- BRT Standard: Silver
Metrobus, Istanbul, Turkey
Metrobus, Istanbul, Turkey

- Avg. time saved per trip: 37 min
- Vehicle Travel reduction/year: 194 million Km
- Fuel Reduction/year: 150 million liters
- CO2 Reduction/year: 365,000 tons
- NOx Reduction/year: 702 tons
- Particulate Matter reduction/year: 24 tons
TransJakarta, Jakarta, Indonesia

- Length: 210 Km
- Stations: 210
- Daily Ridership: 350,000
- Engine Technology: Diesel/CNG
- Platform Height: high
- Passing Lane: no
- BRT Standard: Bronze
TransJakarta, Jakarta, Indonesia
TransJakarta, Jakarta, Indonesia

- Avg. time saved per trip: 9 min
- Vehicle Travel reduction/year: 90 million Km
- Fuel Reduction/year: 70 million liters
- CO2 Reduction/year: 170,000 tons
- NOx Reduction/year: 328 tons
- Particulate Matter reduction/year: 11 tons
GCRTA – Health Line, Cleveland, USA

- Length: 15 Km
- Stations: 59
- Daily Ridership: 15,000
- Engine Technology: Diesel
- Platform Height: low
- Passing Lane: no
- BRT Standard: Silver
GCRTA – Health Line, Cleveland, USA

- Avg. time saved per trip: ? min
- Vehicle Travel reduction/year: 23 million Km
- Fuel Reduction/year: 3 million liters
- CO2 Reduction/year: 125 tons
- NOx Reduction/year: ? tons
- Particulate Matter reduction/year: ? tons
Orange Line, Los Angeles, USA

- Length: 23 Km
- Stations: 18
- Daily Ridership: 22,000
- Engine Technology: CNG
- Platform Height: low
- Passing Lane: yes
- BRT Standard: Bronze
Orange Line, Los Angeles, USA

- Avg. time saved per trip: ? min
- Vehicle Travel reduction/year: 51 million km
- Fuel Reduction/year: 6 million liters
- CO2 Reduction/year: 281 tons
- NOx Reduction/year: ? tons
- Particulate Matter reduction/year: ? tons
San Francisco BRT Network Context

- Heavy infrastructure investment on south side of city
- BRT network proposed to fill gap...
  ...and support local “rapid” + regional service
Van Ness and Geary BRT: Context and Solutions to Challenges

- **Context:** dense grid environment supporting pedestrian access at many intersections
- **Challenges:** speed and reliability of service
  - Separation from traffic, parking, turning vehicles, loading
  - Faster passenger loading
- **Two goals:**
  - Better transit
  - ‘Complete Streets’

ITDP: pedestrian comfort and safety
Van Ness Avenue – Existing Conditions

- 2 mile corridor
  - Transit trunkway that carries multiple local and regional bus routes
- US 101 in San Francisco
  - 93’ wide, including 14’ median
  - 80,000 daily motorized person-trips
    - 20% transit motorized mode share
- Multiple agency jurisdiction/coordination
Geary Corridor Bus Rapid Transit (BRT)

Currently under study to develop the Environmental Impact Statement and Report (EIS/R)

- 20% faster travel time
- 10% increase in ridership
- 50,000 trips daily
- 6.2 miles
Need for Mobility Improvements on Geary

Existing street configuration is unfavorable for buses, pedestrians, and bicyclists.

Existing bus service is slow and unreliable.

Transit ridership on Geary is consistently high in both directions throughout the day, on weekdays, and weekends.
Other BRT’s in the Bay Area

- AC Transit
- Alam Rock
- Stevens Creek Blvd
- El Camino Real
- Geneva Harney
How do we really want to move?

Public space required to mobilize 60 people