

# San Francisco Muni Unique Cost/ Operating Environment



*Originally Presented to Muni Revenue Panel on July 26, 2007*  
Presentation to SFMTA Board of Directors, September 24, 2007

# Transit Operating Environments Are Unique

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- Muni's Unique Conditions Include:
  - Local Policies/  
Historic Practice
  - Local Needs and  
Expectations
  - Governance and  
Political Structure



# What Are the Factors That Make San Francisco—and Muni—Unique?

- Historical
- Cultural
- Political
- Geographic
- Demographic



## Typically, Large U.S. Cities Are ...

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- Moderately dense/sprawling
- Relatively large geographically
- Have a variety of housing types/costs
- Jobs are concentrated in the central city

## Typically, Large U.S. Transit Agencies ...

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- ❑ Serve a combination of urban and suburban areas
- ❑ Service is geared for commuters
- ❑ Service is combination of bus and rail, and of shared and dedicated right-of-way, where appropriate
- ❑ Are single-purpose agencies distinct from city/county government

# How is San Francisco Different?

## Geography/Demographics:

- ❑ Very compact – 49 square miles
- ❑ Hilly terrain
- ❑ High cost of living
- ❑ High median income
- ❑ Job centers increasingly dispersed



## How is Muni Service Different?

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- ❑ Exclusively serves dense urban area
- ❑ Service is combination of many modes, but primarily operating on-street in mixed flow, even in high-demand corridors
- ❑ Very dense coverage with frequent stops
- ❑ Primarily short-distance trips with many ons/off
- ❑ High all-day demand (not a commute system)

## How is Muni Governance Different?

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- ❑ City department with significant general fund contribution
- ❑ Competing modal interests in the same agency (MTA)
- ❑ Multiple decision-makers/complex approval processes
- ❑ Civil service, City contracting provisions, etc.
- ❑ Long history of labor/political involvement



## Factors Influencing Costs:

- ❑ Historic choices
- ❑ Internal policies
- ❑ External politics
- ❑ Built environment
- ❑ Demographic trends



# A (Very) Brief History of Muni System Design

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- 1912-1944: Muni is cobbled together from competing private operators who often operate redundant routes on parallel streets
- 1918-1928: Twin Peaks and Sunset Tunnels are opened, providing streetcar service to new "suburbs" – putting rail service on corridors with more moderate density

# A (Very) Brief History of Muni System Design

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- 1950s: All streetcar lines that can be replaced by buses are replaced—but those operating in tunnels or off-street rights-of-way (J-Church) remain, retaining servicing in lower-density corridors
- 1973: Heavy rail—BART—comes to San Francisco, but in only one corridor

## The Result:

- Unlike systems in peer cities, Muni relies primarily on buses operating in mixed-flow
- Light rail still functions like streetcars on the surface, and serves relatively low-density corridors



## Light Rail in Other Cities

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- ❑ Longer trains: in North America, up to 5 cars
- ❑ Longer distances between stops: average spacing of newer systems in Baltimore, Los Angeles, Portland, Sacramento, San Diego and San Jose is 4,400'
- ❑ Higher capacity allows longer headways: peak frequencies on U.S. light rail lines of up to 20 minutes (many are 15-minute)

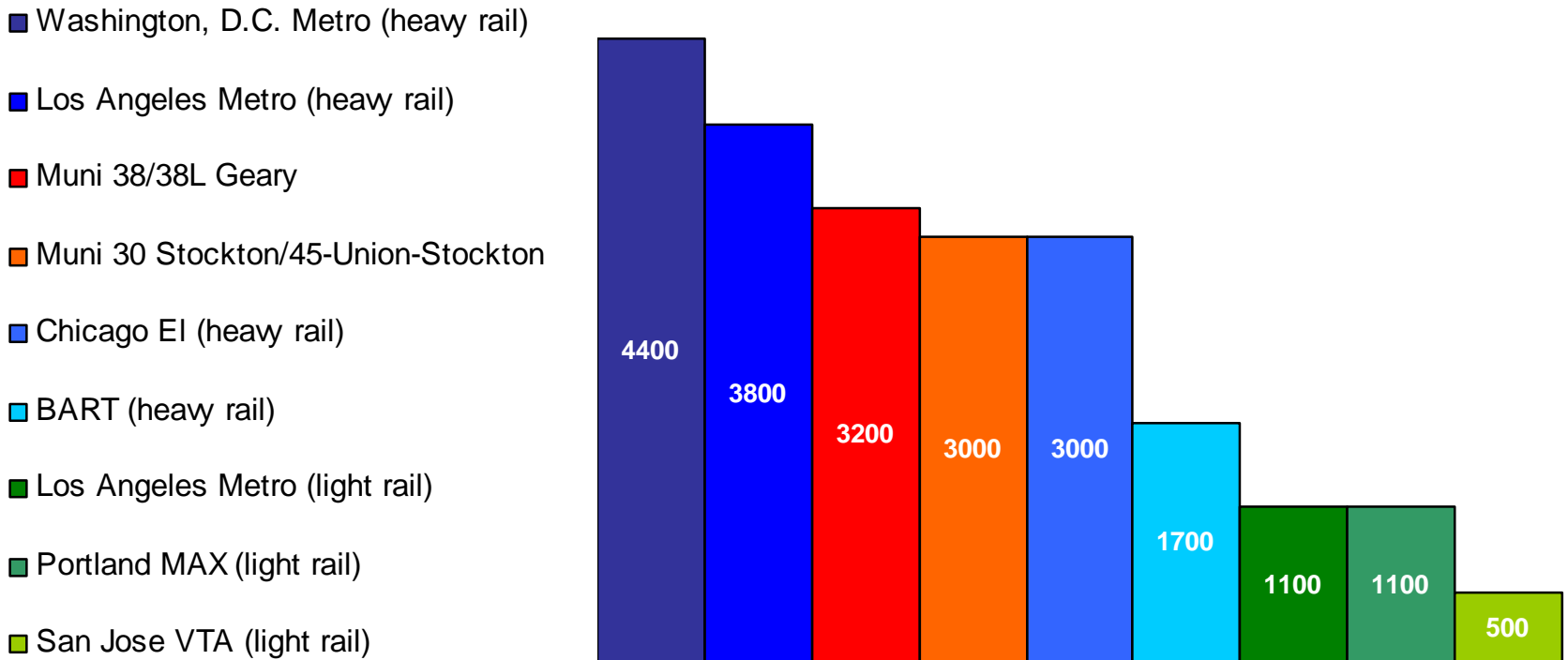
## Light Rail at Muni

- 1-2 cars
- Stops closely spaced: even on T-Third, average on surface is 1,600' (on N-Judah west of Cole, 850')
- Peak headways of 7-10 minutes



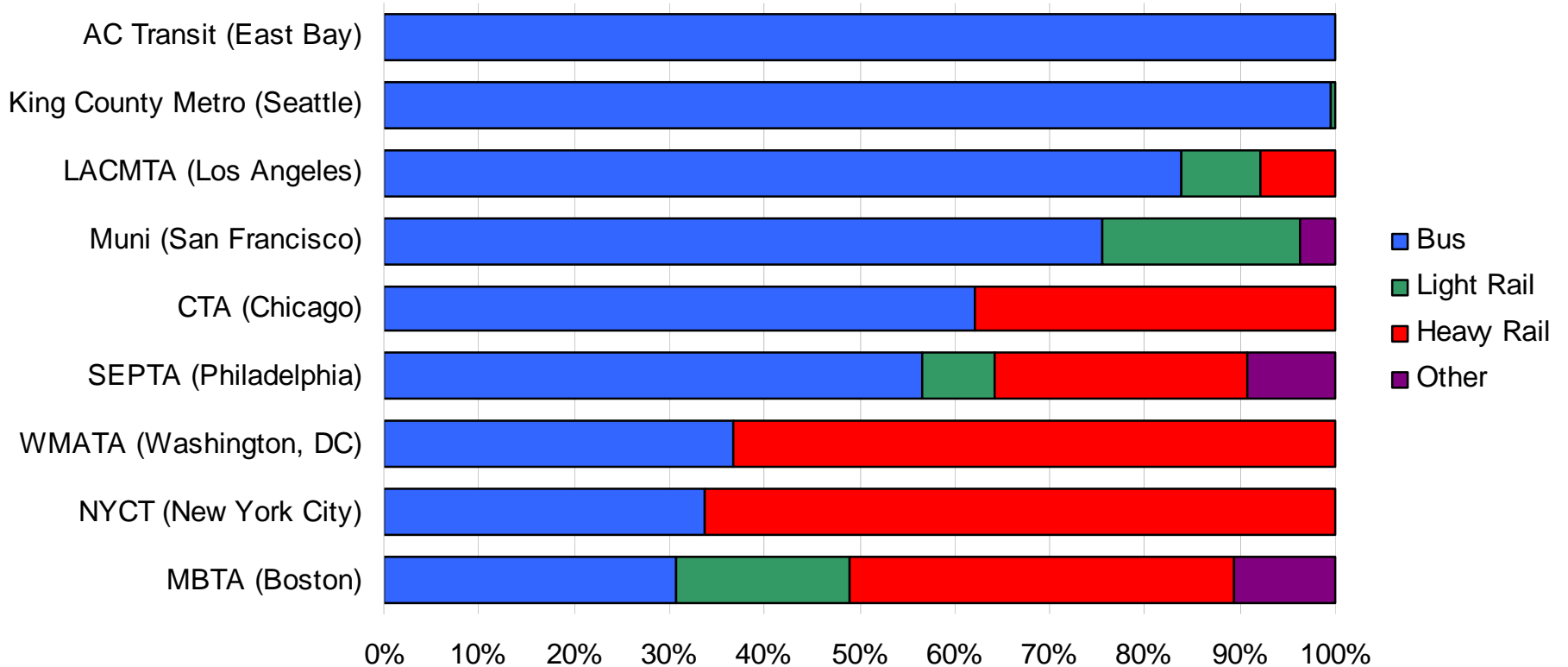
# This Bus Could Be a Train

Average Weekday Boardings Per Route Mile (Approx.)



# Buses Carry 3/4 of All Muni Riders

Percentage of Passenger Trips Carried by Each Mode





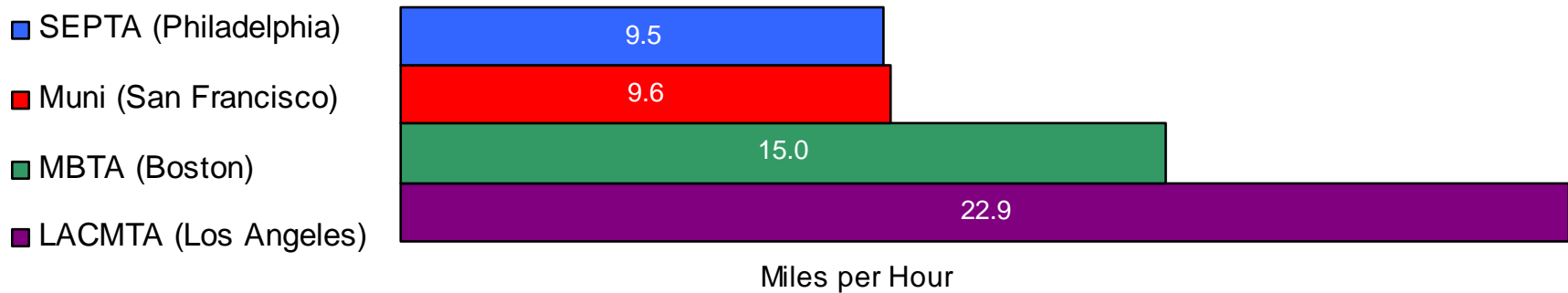
# LRT Costs More Per Passenger Than Bus at Muni

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- The Muni Metro serves relatively (for S.F.) low-density corridors
- Because much of the Metro is on-street, train size is limited – short blocks prevent three-car consists
- And the Metro is slow: much of it operates in mixed-flow, and stops are more frequent than in typical light rail systems

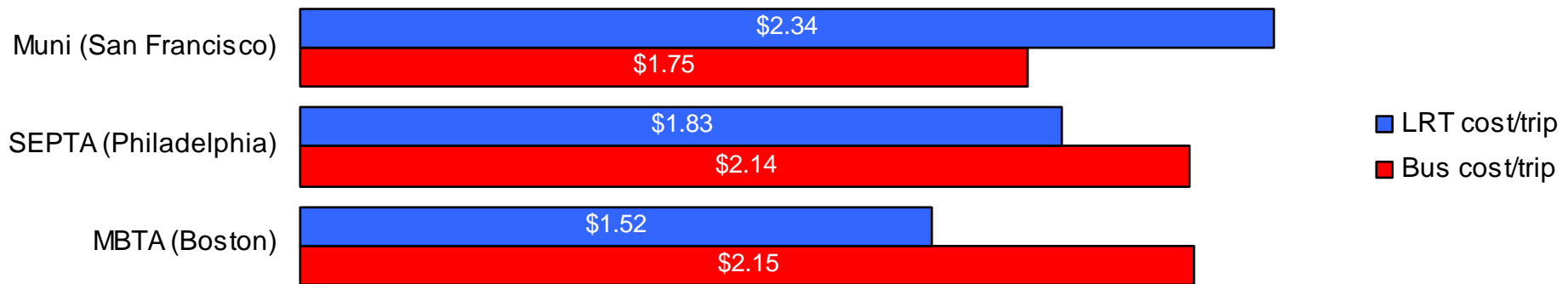
# The Metro Is Slower Than Typical Light Rail ...

Light Rail Average Speed



# ... and Costs 1/3 More Per Passenger Than Muni Buses

Light Rail vs. Bus Cost per Person Trip



always cost more

- Demand for rail remains high for visibility, economic development, and comfort of rail service

## Congestion Has a Major Effect on Muni

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- ❑ Congested streets reduce both bus and light rail speeds and productivity, and congestion is growing worse – more traffic, more curb cuts, more stop signs and signalized intersections ...
- ❑ ... and more double-parking and circling for low-priced meter spaces, because of lack of parking pricing, management and enforcement
- ❑ As congestion increases, resources need to increase just to *maintain* service levels

# For Transit Providers, Time Is Money

- The faster the vehicles, the fewer vehicles and service hours needed to provide the same level of service
- *Faster service = lower costs*



# Why Muni is Slower Than Other Transit Operators

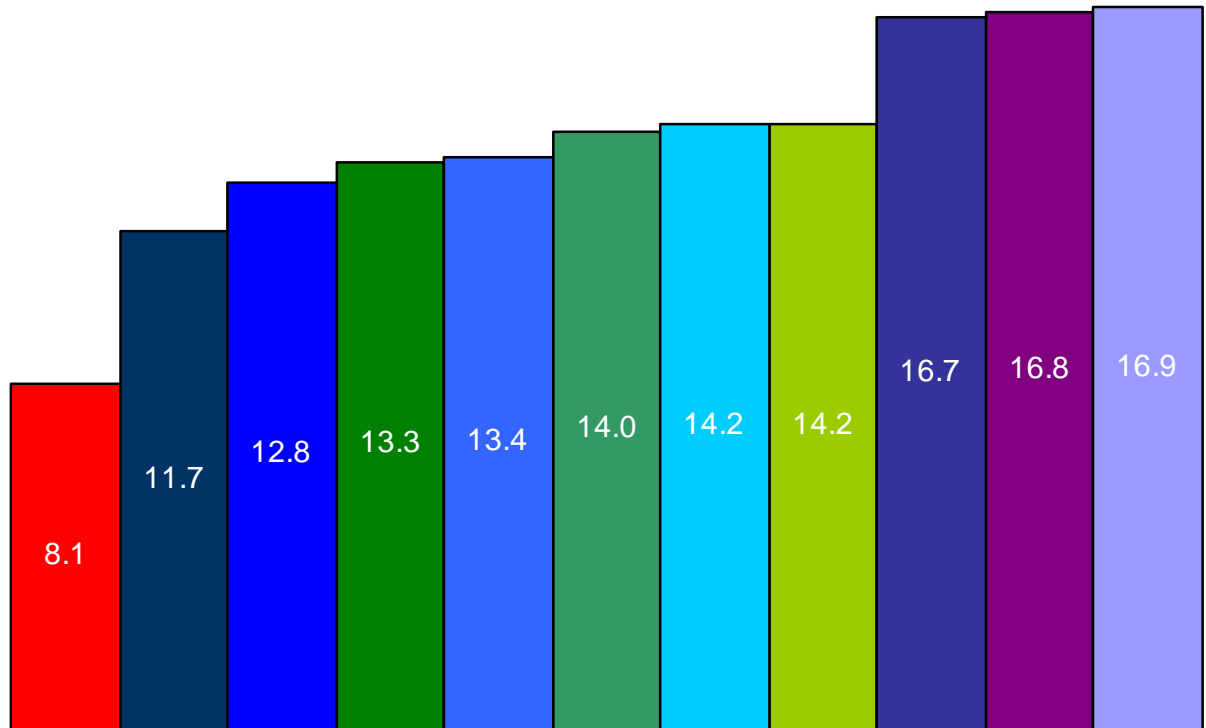
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- Other systems have:
  - More freeway express services
  - More exclusive rights-of-way
  - More rail lines
  - Less frequent stops

# Average System Operating Speed

Miles per Hour

- Muni (San Francisco)
- AC Transit (East Bay)
- CTA (Chicago)
- LACMTA (Los Angeles)
- SEPTA (Philadelphia)
- NYCT (New York City)
- TTC (Toronto)
- Translink (Vancouver)
- King County Metro (Seattle)
- WMATA (Washington, DC)
- MBTA (Boston)



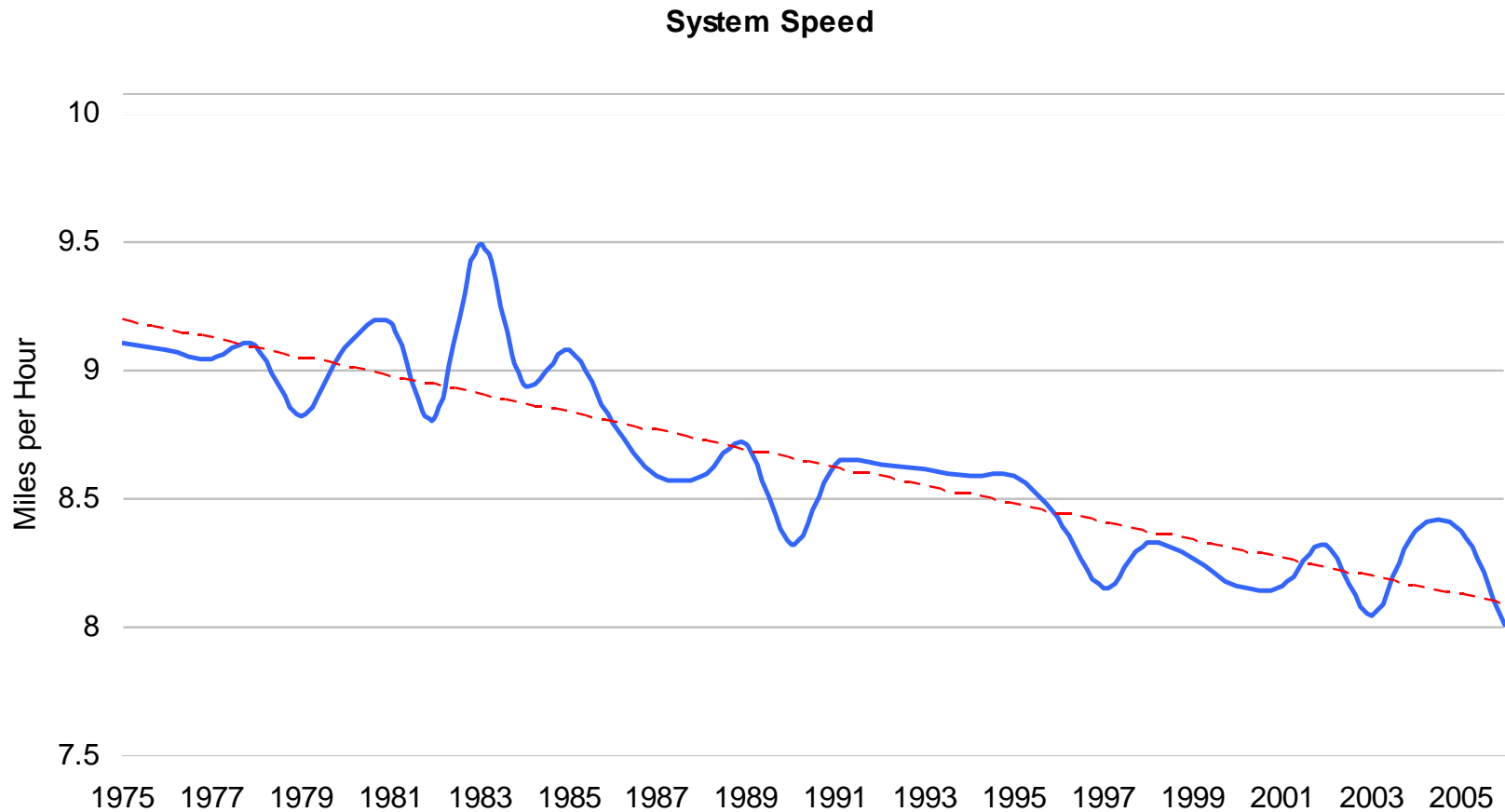
## Increasing Muni's Average Speed From 8 to 10 mph Would:

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- ❑ Increase productivity from 66 to 82 passenger trips per hour – even without new riders!
- ❑ Reduce cost per passenger trip 20%, from \$2 to \$1.60

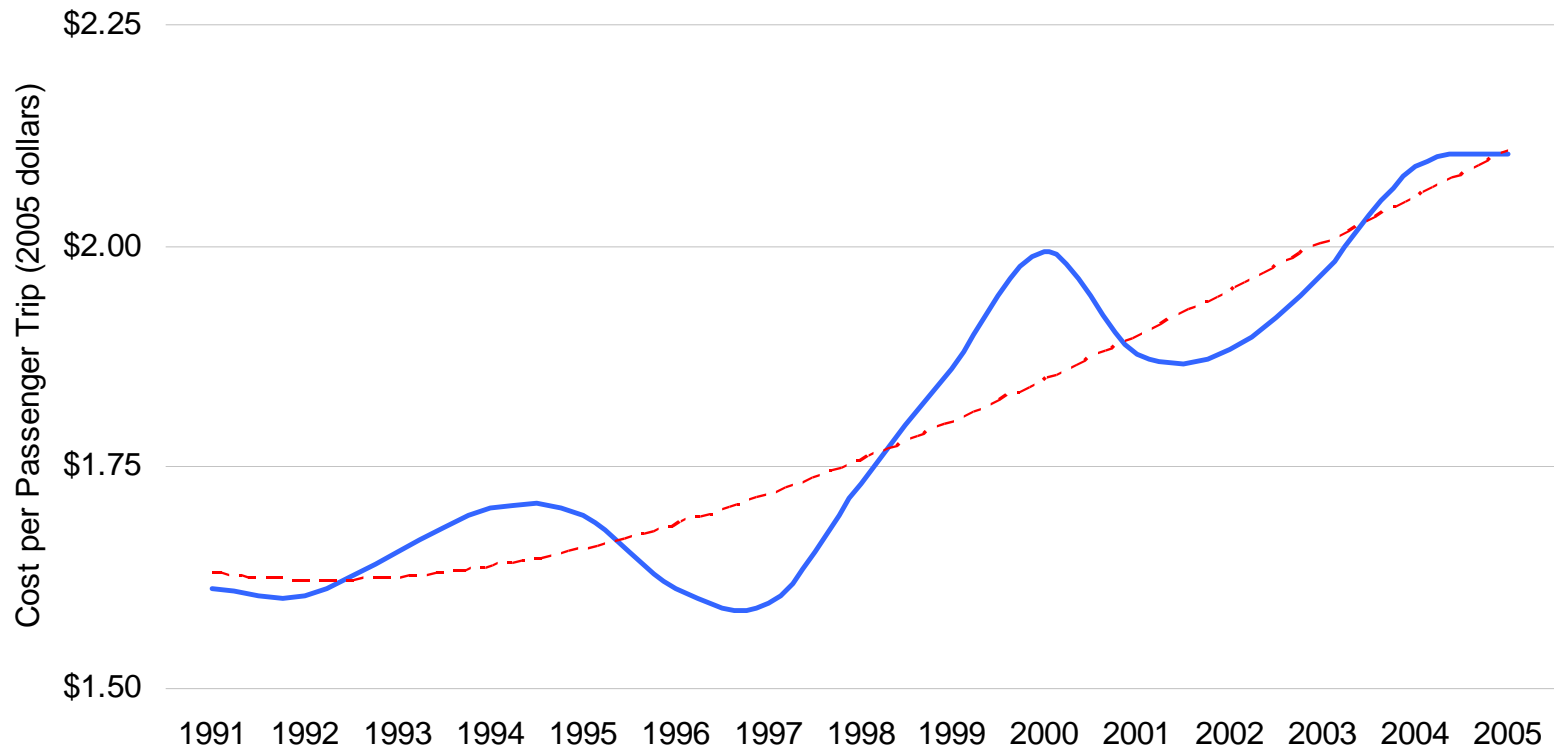


# As Muni Gets Slower ...

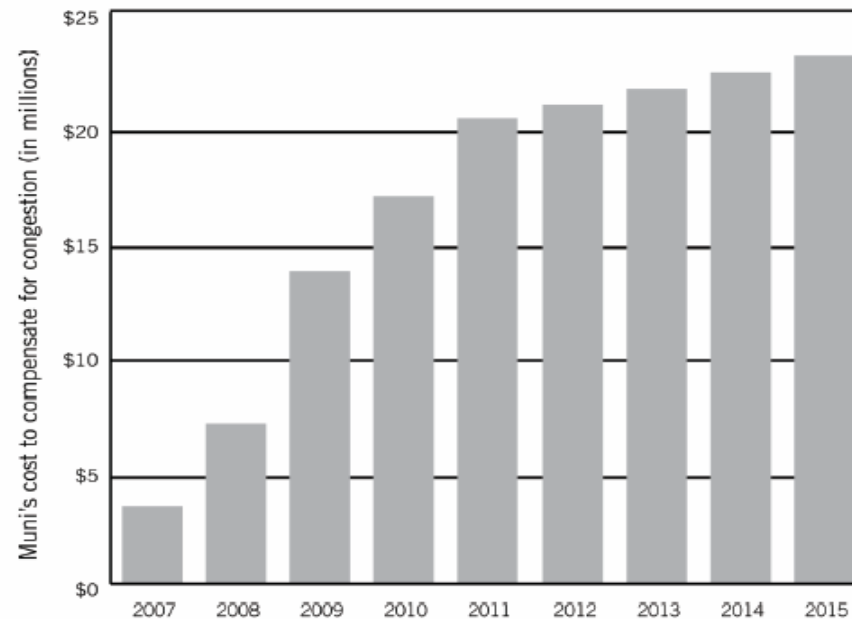


## ... Costs Go Higher

### Cost Effectiveness



# The Real Costs of Congestion



Source: Muni 2004 S RTP, p. 167

Source: SPUR, "Muni's Downward Spiral," 2005

## Impacts of Fleet on Costs

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- ❑ High-floor vehicles increase dwell times and further reduce speeds
- ❑ Front door-only boarding (e.g., on buses) increases dwell times and further reduces speeds
- ❑ Multimodal fleet increases complexity, facility needs and maintenance costs, and limits vehicle and staff flexibility

# Muni Policy Standards: Stop Spacing and Coverage

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- Stop Spacing Policy: Generally 800'-1,200' (close to industry standard), but can be as close on 300' on steep grades
- Coverage Policy: "All residential locations in San Francisco should be within approximately one-quarter mile of a Muni route that operates at least 19 hours per day."

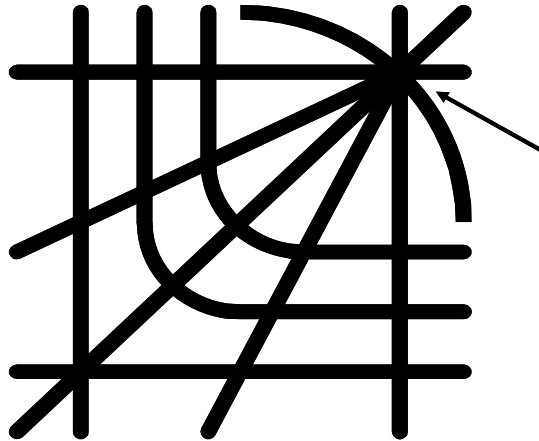
# Policy Headways

- Muni attempts to provide relatively frequent service regardless of ridership:

<b>Weekday</b>	<b>Peak</b>	<b>Base</b>	<b>Evening</b>	<b>Owl</b>
<b>Radial</b>	10	15	20	30
<b>Express</b>	10			
<b>Crosstown</b>	15	15	20	30
<b>Feeder</b>	20	30	30	
<b>Weekend</b>	<b>Peak</b>	<b>Base</b>	<b>Evening</b>	<b>Owl</b>
<b>Radial</b>		15	20	30
<b>Crosstown</b>		20	20	30
<b>Feeder</b>		30	30	

## Transfer Standards

- "Modified" grid system designed to require no more than one transfer:



# Contracting and Hiring Requirements

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- ❑ City contracts are especially complex, with many unusual provisions, adding costs and reducing the field of bidders.
- ❑ Hiring through civil service is a lengthy process. Replacing a retiree can take four or more months.

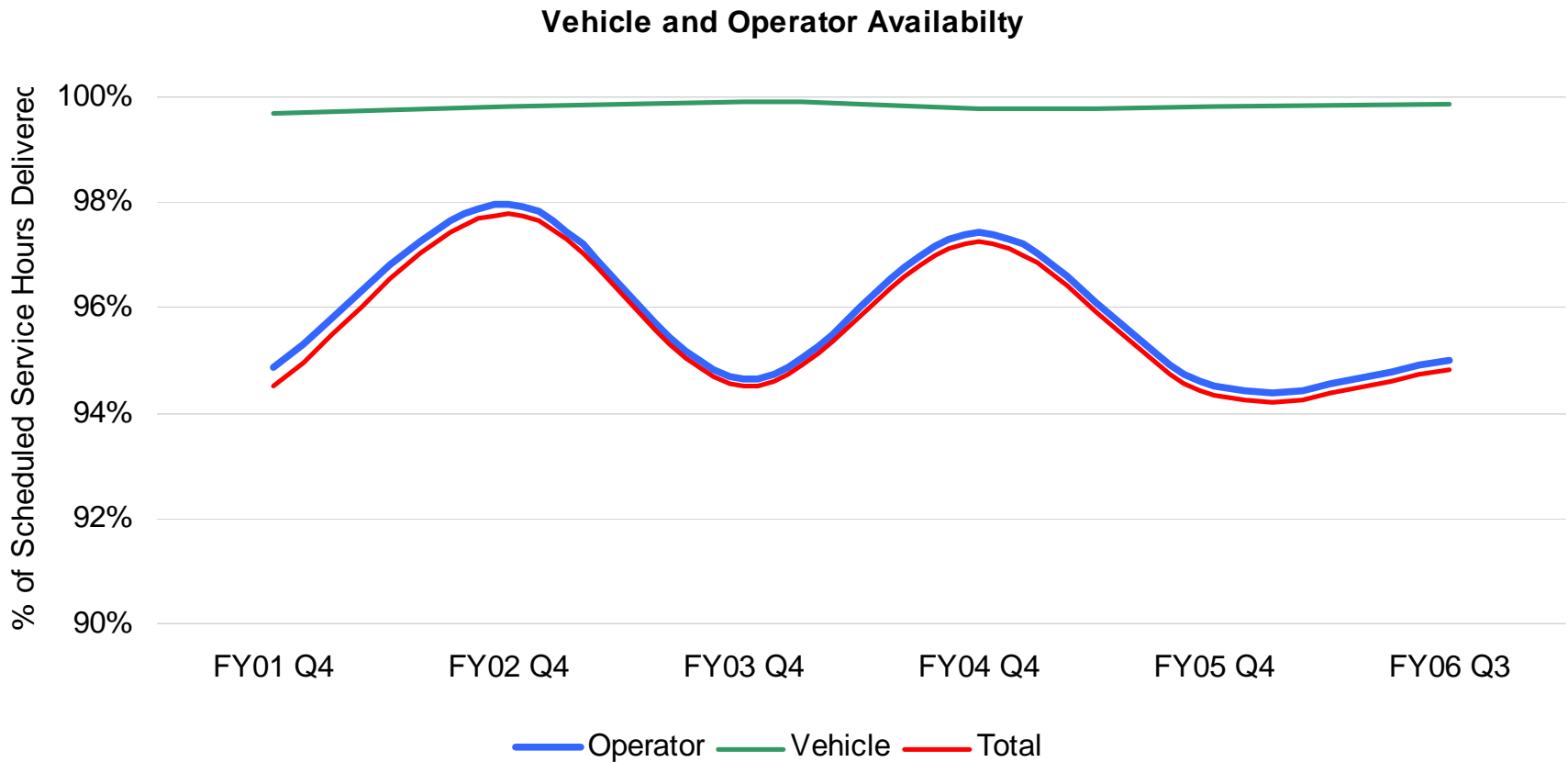


# Political Oversight

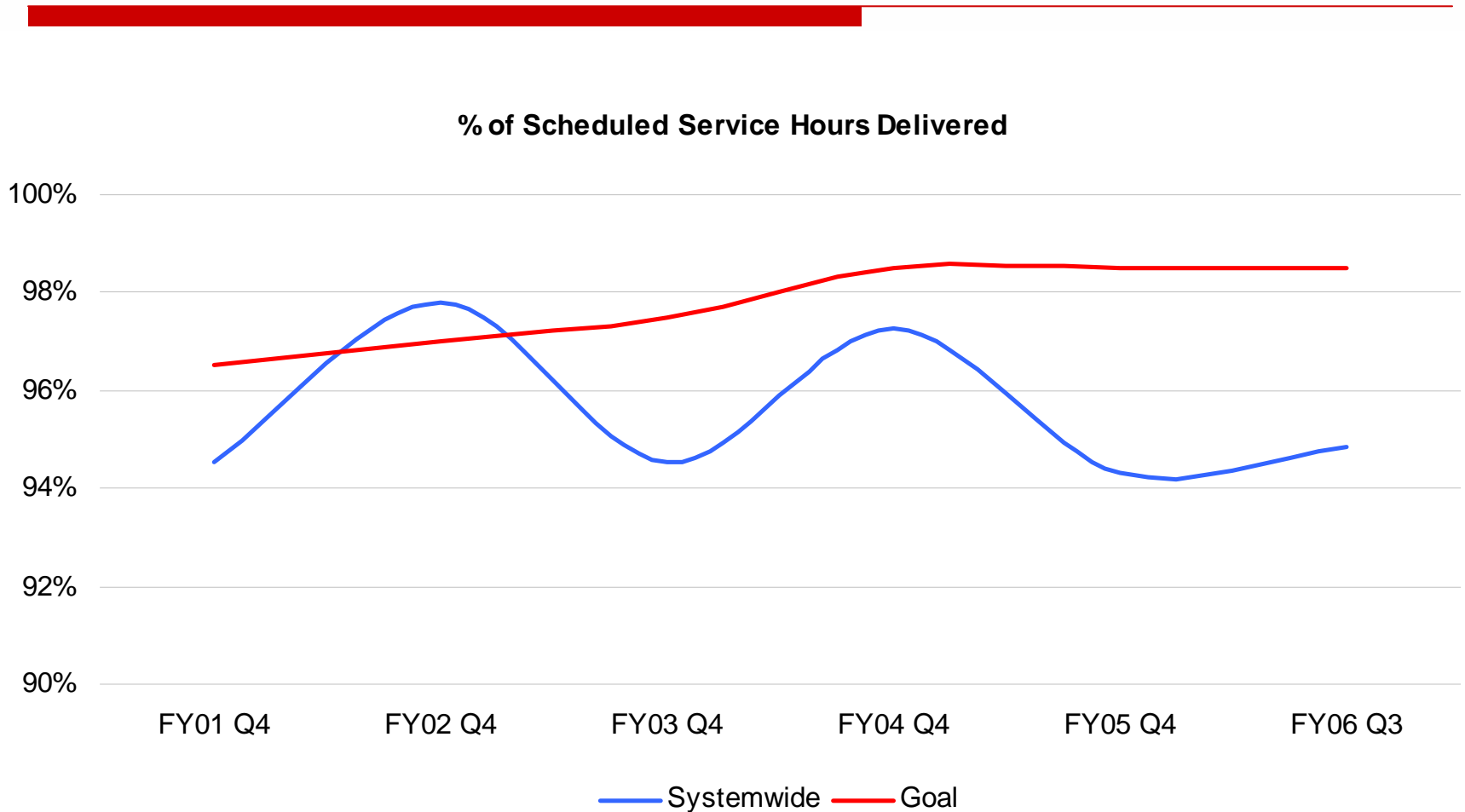
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- Even after Prop. E. charter reform, Board of Supervisors and not the MTA Board has final say over key components of transportation system management
- MTA remains very much a City department with the Board retaining veto power on the budget and continued dependence on city services

# The Relationship Between Operator Availability and Reliability



# Percentage of Scheduled Service Hours Delivered



## Muni Is an "Essential Service"

- The importance of Muni to the City takes away leverage in collective bargaining
- Operator salaries set by charter restrict management leverage in negotiations



## Pressure to Keep Fares Low

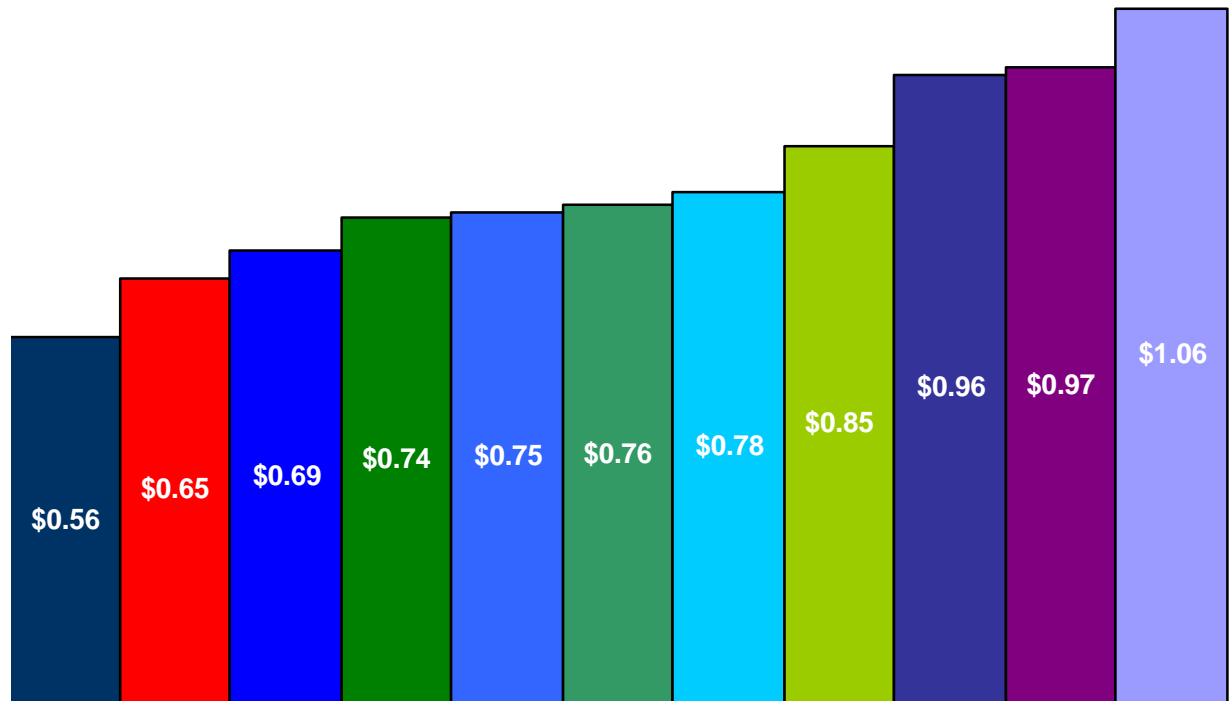
- Despite recent increases, Muni fares remain below those of peer systems



# Muni Fares Compared

Average System Fare (2004)

- LACMTA (Los Angeles)
- Muni (San Francisco)
- AC Transit (East Bay)
- Translink (Vancouver)
- King County Metro (Seattle)
- TTC (Toronto)
- MBTA (Boston)
- CTA (Chicago)
- NYCT (New York City)
- SEPTA (Philadelphia)
- WMATA (Washington, DC)



# San Franciscans Value Community Input

- While extensive outreach is necessary to reflect community desires, attempts at reaching full community consensus can:
  - Slow project development
  - Add cost elements – "Christmas tree effect"
  - Result in a project that is less efficient/effective



## San Franciscans Value Tolerance

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- Tolerant attitudes, however, may foster an acceptance of antisocial behaviors such as verbal and physical assault, vandalism, and fare evasion. These not only have direct costs, but may have the effect of deterring ridership.



## Hills Increase Costs

- Hills increase fuel, maintenance and capital costs. Slopes also require more frequent stops.



## San Francisco Is a Compact City

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- In some ways, the compactness of Muni's service area saves the agency money, as density and walkability drive all-day transit ridership and productivity
- Dense environments, however, are congested environments, and Muni's reliance on on-street, mixed rights of way takes away any advantage transit might have over traffic

## Impacts of Tourists

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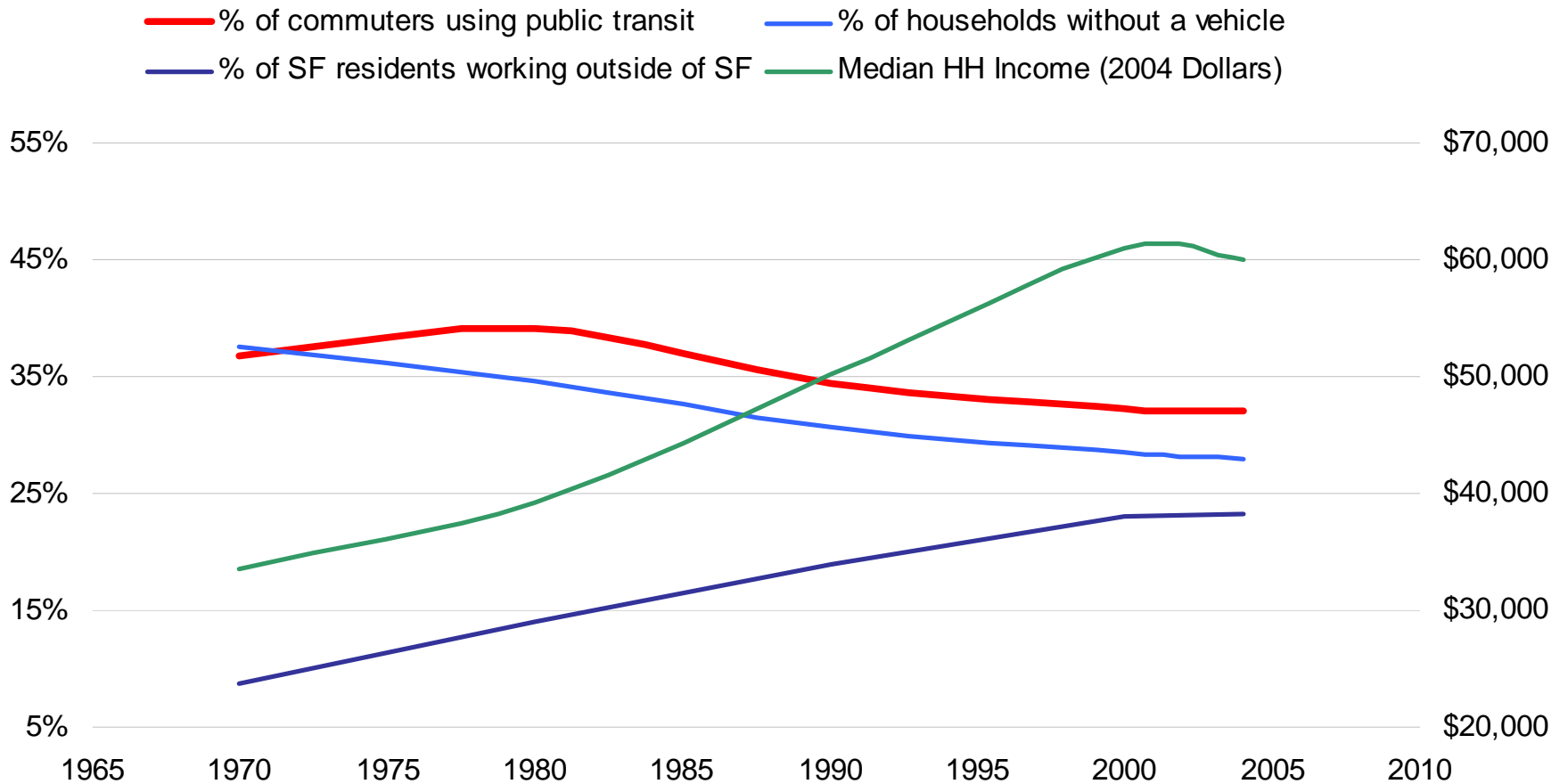
- ❑ Visitors may be willing to pay high cable car fares, but when they ask bus and streetcar drivers for directions, they cause delays..
- ❑ The 39-Coit is one of Muni's least cost-effective routes, with fewer than 1,000 riders per day..

## As the City Grows Wealthier ...

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- ... more households have cars, and traffic congestion and double-parking grow worse. Also, more residents work at home or outside the City.
- The resulting declining mode share translates into fewer passengers per hour—down from 80 in 1993 to 66 today—and lower productivity.

# Demographics Affecting Mode Share



## The Reputation and Role of Muni

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- San Franciscans historically have a low opinion of Muni. This likely depresses not only ridership, but political support, as the system is undervalued.
- However, the sense of urgency surrounding the agency may actually increase political support. Muni, whatever its problems, is seen as *essential* to the City's ability to function.

# Summary

- ❑ Complex governance structure
- ❑ Slow speeds affect costs
- ❑ 1- and 2-car LRT adds to costs
- ❑ More resources needed just to maintain service
- ❑ Gap between expectations and available resources

