More Effectively Govern the Los Angeles Transit Service Delivery Process

By

Xueming (Jimmy) Chen, Ph.D, AICP
Virginia Commonwealth University

Presentation to the 11th Annual NACOTA/WCTA Technical Symposium, Washington, D.C.
January 13, 2008

INTRODUCTION

Background

- Los Angeles County ("the County") is the most populous county in the U.S., and Los Angeles City ("the City") is the second largest city in the U.S.
- Importance of public transit in Los Angeles:
  - a developed transit system helps relieve traffic congestion and provides motorists with a viable travel alternative to auto driving; and
  - legal mandates (ADA and Title VI) and travel needs of physically, socially, or economically disadvantaged groups must be met irrespective of economic benefits and financial subsidies.
- The County/City partnership is at the core of the Los Angeles metropolitan governance, therefore is essential to its public transit service delivery process.

LITERATURE REVIEW

General Understanding about the County and the City

- The U.S. Constitution provides for a federal system: the federal government and the state governments;
- The states then set up their own systems of local governments, which result in the creation of existing 87,525 local governments in the U.S.;
- Local government fragmentation and service duplication coexist in many metropolitan areas;
- The city is a municipal corporation, whereas the county is a political subdivision of the State.

General Understanding about the County and the City (Cont.)

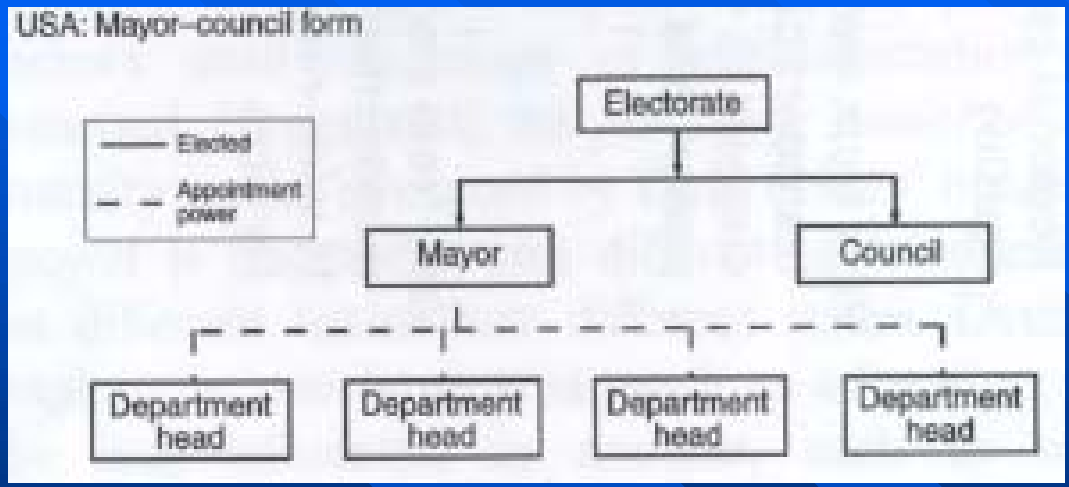
- In the State of California, there are two types of cities:
  - general law cities are subject to the State Constitution with authorities delegated by the State; and
  - chartered cities have city charters with relatively more discretionary powers.
- All cities possess at least three types of powers: police power (regulating people's behaviors), corporate power (collecting revenue and expending money for the public interests), and eminent domain (taking private property with just compensation for the public interests).

General Understanding about the County and the City (Cont.)

- All cities are governed by city councils with various management structures (mayor system, city manager system, mayor-city manager system, and other hybrid structures). Meanwhile, counties act on behalf of the State by providing the services in the unincorporated areas besides assuming its countywide functions. Counties are normally governed by the Boards of Supervisors with county charters.

Mayor-Council Government

- **Mayor-Council government** is one of two variations of government most commonly used in modern representative municipal governments in the United States. It is also used in some other countries. The Mayor-Council variant can be broken down into two main variations depending on the relationship between the legislative and executive branches.


USA: Mayor–council form
Elected
Appointment power
Electorate
Mayor
Council
Department head
Department head
Department head
Department head

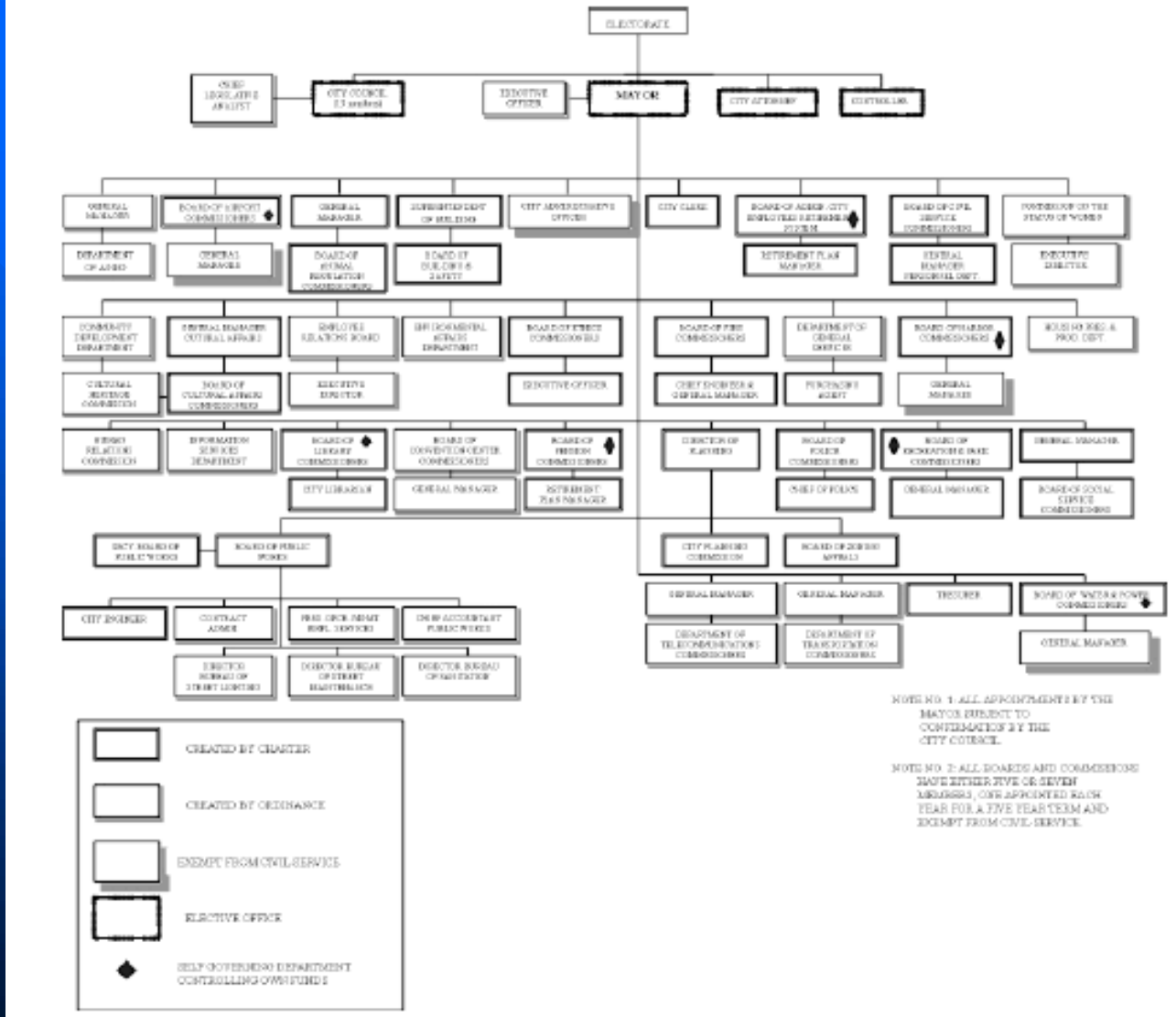
Ceremonial or Weak Mayor Form

- In this form of the mayor-council government, the council possesses both legislative and executive authority. The council may appoint officials and must approve of mayoral nominations. The council also exercises primary control over the municipal budget.

Executive or Strong Mayor Form

- In the strong-mayor form the mayor is given almost total administrative authority, with the power to appoint and dismiss department heads without council approval and little public input. Strong Mayor prepares and administers the budget, although that budget often must be approved by the city council.

City of Los Angeles Organizational Chart

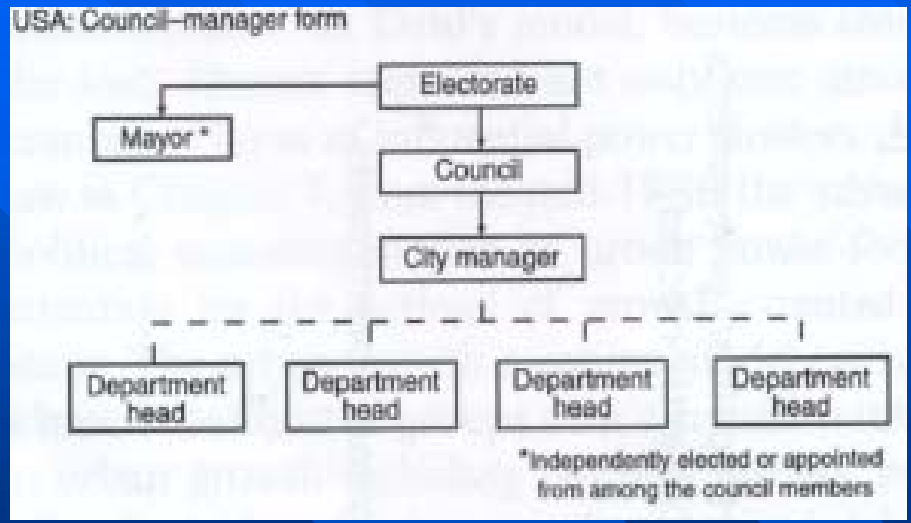


NOTE NO. 1: ALL APPOINTMENTS BY THE MAYOR SUBJECT TO CONFIRMATION BY THE CITY COUNCIL.

NOTE NO. 2: ALL BOARDS AND COMMISSIONS HAVE EITHER FIVE OR SEVEN MEMBERS, ONE APPOINTED EACH YEAR FOR A FIVE YEAR TERM AND EXEMPT FROM CIVIL SERVICE.

Council-Manager Government

- In the council-manager form of government, an elected city council (typically between 5 and 11 people) is responsible for making policy, passing ordinances, voting appropriations, and having overall supervisory authority in the city government. In such a government, the mayor (or equivalent executive) will perform strictly ceremonial duties or will act as a member and presiding officer of the council.
- The council will hire a city manager or administrator who will be responsible for supervising government operations and implementing the policies adopted by the council. The manager serves the council, usually with a contract that specifies duties and responsibilities.


USA: Council–manager form
Electorate
Mayor *
Council
City manager
Department head
Department head
Department head
Department head
*Independently elected or appointed from among the council members

City of Irvine
Organizational Chart

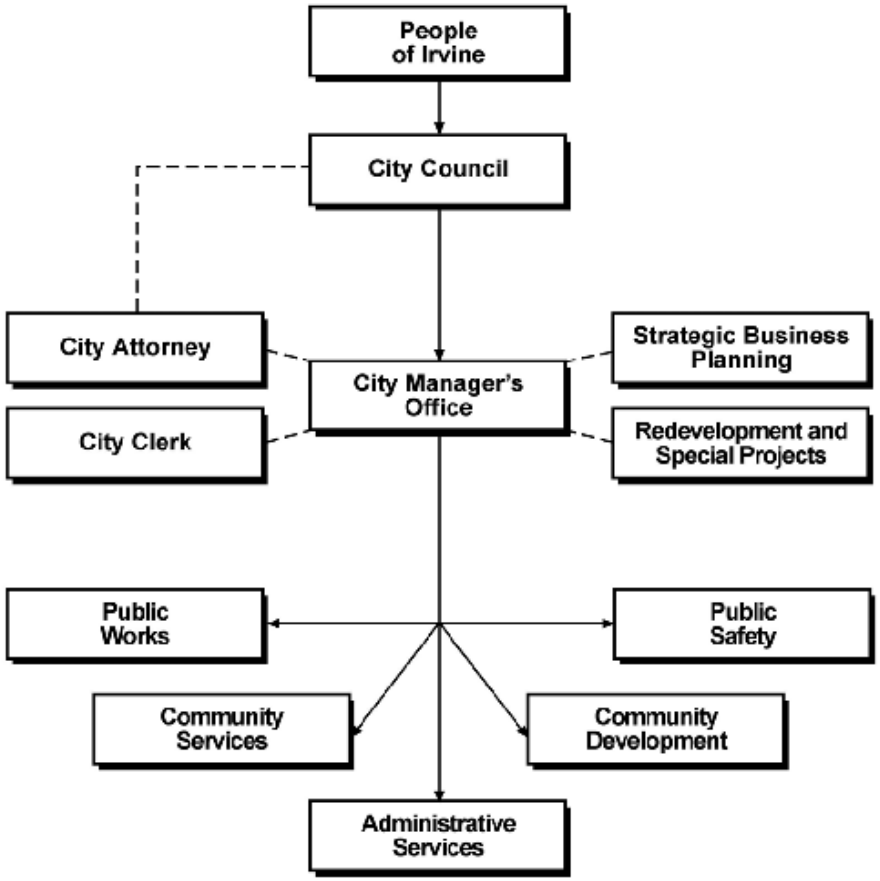
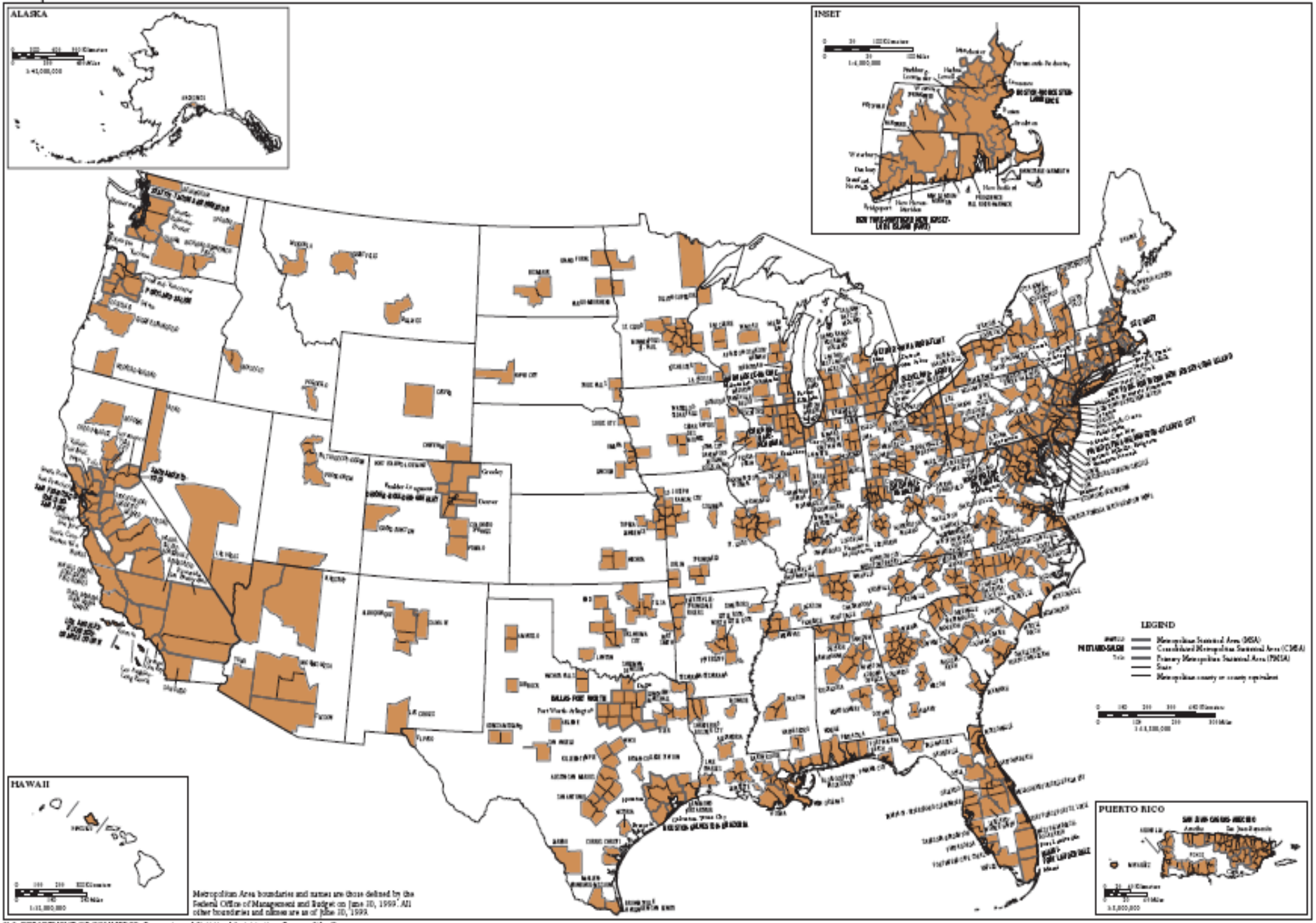


TABLE 1 Local Government-Related Definitions

Government Units	Definitions	Typical Services Provided
Counties	General-purpose governments that are subdivisions of a state and are set up to carry out traditional state functions at the local level.	Tax assessment and collection; official record keeping of property transfers; registering births, deaths, marriages; and divorce; elections; road maintenance; law enforcement and jails; health care; mass transit; pollution control; social services; and economic development.
Cities	General-purpose governments that are set up to provide urban services to more densely populated areas. Cities, as municipal corporations, are set up under state law. This usually involves citizens petitioning the state legislature to establish a municipality formally. The legislature then grants the city a charter that specifies the boundaries, organizations, and powers of the municipality.	Police; fire; sewers; garbage collection; zoning; urban renewal; parks and recreation; and roads.
Special Districts	Special-purpose governments designed to perform selected functions or services in specified geographic areas. These may be created for any purpose one can imagine, limited only by state law or the state constitution. In some instances, the state may grant city or county government the right to create special districts.	Fire; gas; water; sewers; and transit.

Source: Harrigan, John J. and Ronald K. Vogel. 2003. *Political Change in the Metropolis*. Addison-Wesley Educational Publishers Inc., Pages 14-15.

Metropolitan Areas of the United States and Puerto Rico: 1999



Metropolitan Area boundaries and names are those defined by the Federal Office of Management and Budget on June 30, 1999. All other boundaries and names are as of June 30, 1999.

U.S. DEPARTMENT OF COMMERCE, Economics and Statistics Administration, Bureau of the Census

Typical Metropolitan Governance Issues

- Local government fragmentation with a chaotic governmental structure;
- Service duplication and inefficient governmental apparatus;
- Inequitable resource allocation and diseconomies of scale;
- Anti-democratic governing process.

Metropolitan Governance Approach #1

- Advocates of radical approaches believe that the existing severe metropolitan problems can not be solved without scrapping the whole system of municipal governments and establishing a new, general-purpose metropolitan government.
- Paul Studenski argued in his book entitled *The Government of Metropolitan Areas in the United States*: a metropolitan government would be more efficient and effective.

Metropolitan Governance Approach #2

- Elinor Ostrom and Vincent Ostrom of Indiana University attacked the metropolitan government argument. They argued that the fragmented character of the governmental structure in the metropolis is not only defensible, but preferable since it stimulates competition between and among local governments and hence raises governmental efficiency.

Metropolitan Governance Approach #3

- The moderatists believe that adequate methods of governing the metropolis can be found without resorting to a metropolitan government. These people favor to make incremental changes to address specific problems that arise. The incremental changes tend to maintain the status quo and avoid any fundamental changes in the metropolitan governing process.

LOS ANGELES COUNTY AND CITY

CITY OF LOS ANGELES (Pink Color) AND COUNTY OF LOS ANGELES (Blue Color)

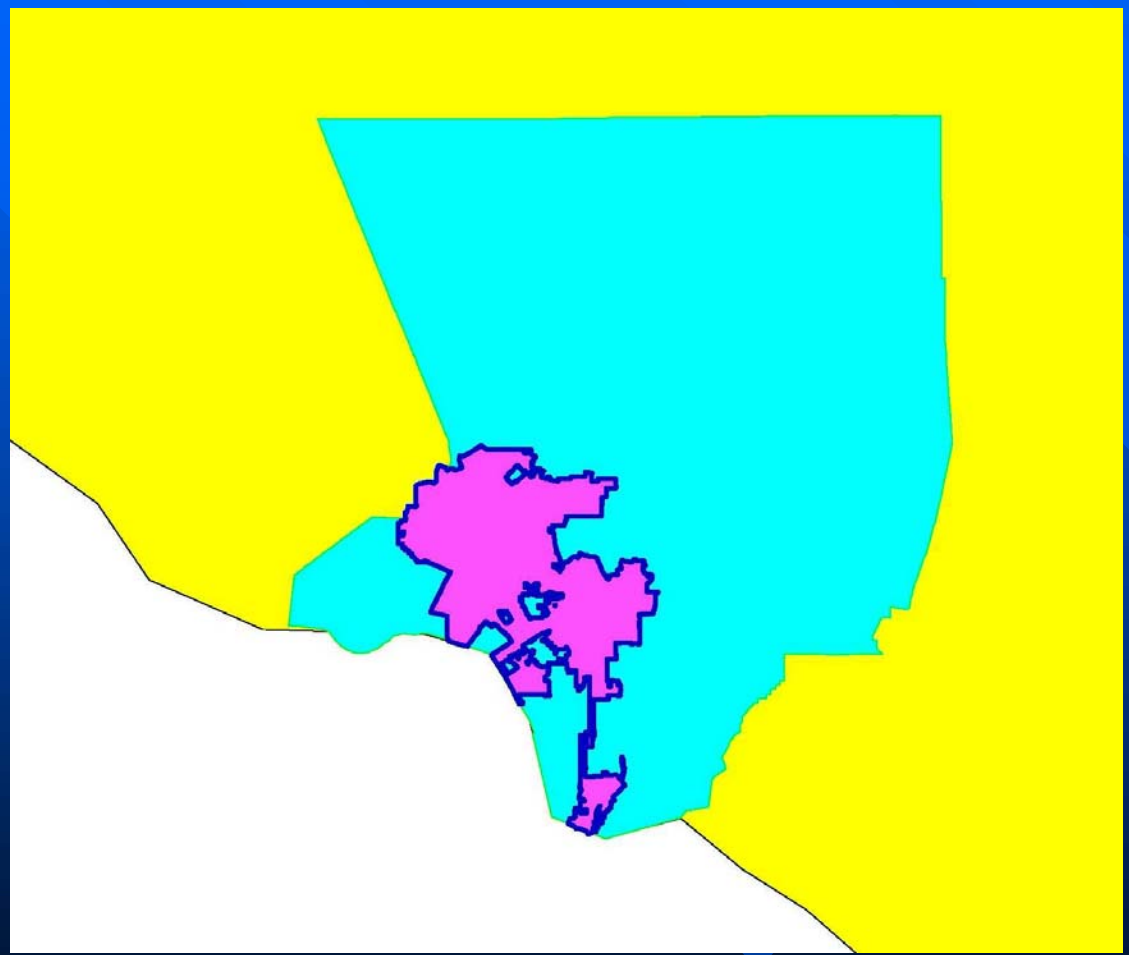


Table 1. Comparison of the Los Angeles County and the Los Angeles City Profiles

Category	Los Angeles County	Los Angeles City	City/County Ratio
Year 2000 Population	9,519,338 people	3,694,800 people	38.8%
Year 2000 Land Area	4,061 square miles	465 square miles	11.5%
Local Street Length	20,577 miles	6,400 miles	31.1%
Major, Principal & Secondary Arterial Length	3,714 miles	1,400 miles	37.7%
Collector & Local Arterial Length	16,863 miles	5,000 miles	29.7%
Freeway Length	528 miles	160 miles	30.3%
Number of Signalized Intersections	10,000 signalized intersections	4,100 signalized intersections	41.0%

Sources: Population and area information: *Los Angeles Almanac*, http://www.losangelesalmanac.com/default.htm

Street information: Los Angeles County Metropolitan Transportation Authority (MTA). 2001. *Long Range Transportation Plan for Los Angeles County*.

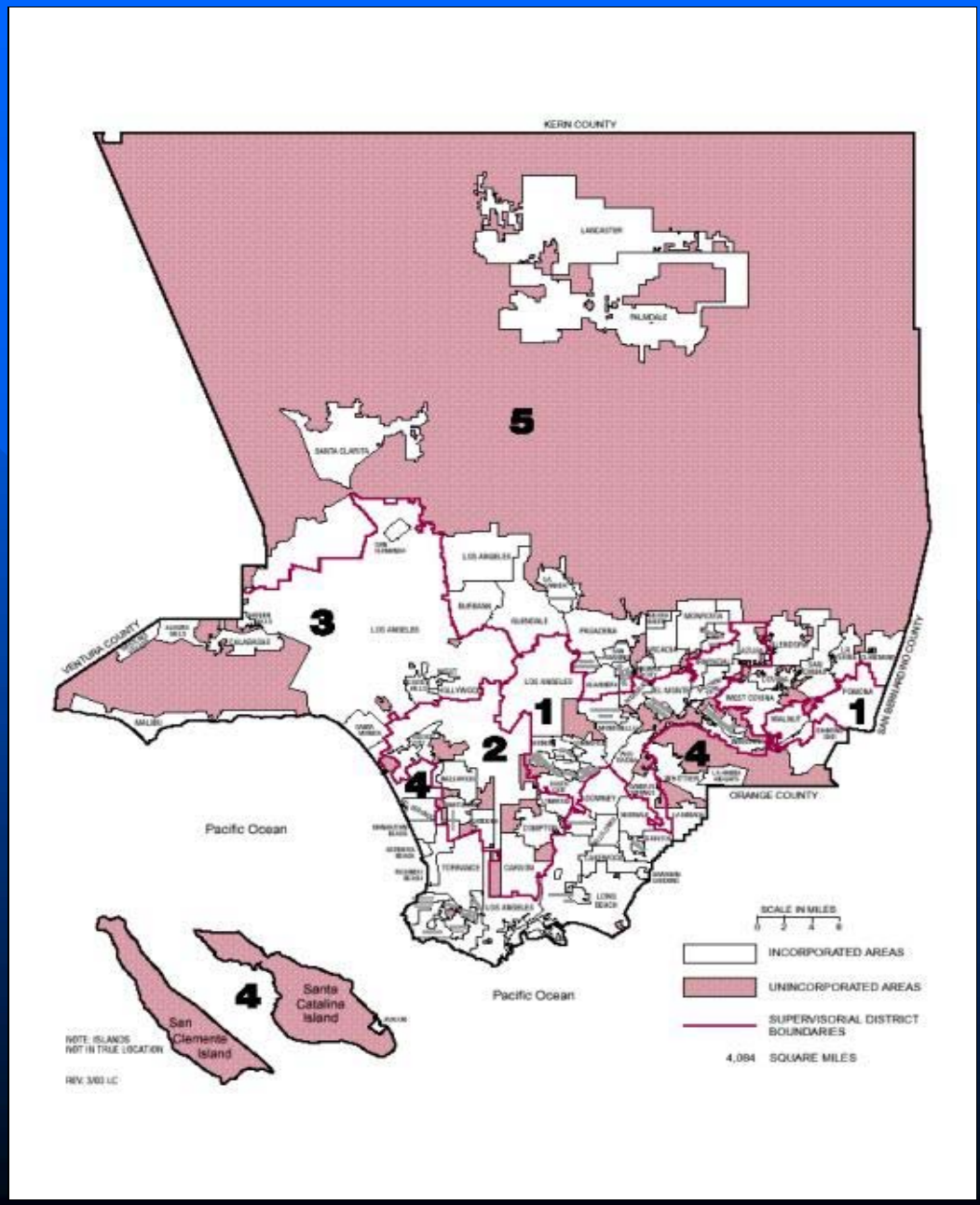
Table 2. List of Principal Transit Operators in Los Angeles County

Transit Operator	Service Area (Square Miles)	Vehicles Operated in Maximum Service in 2000	Year
MTA	1,423	2,126	2006
Foothill Transit	293	299	2000
LADOT	465	275	2006
Long Beach Transit	96	179	2006
Santa Monica's Big Blue Bus	51	140	2006
Torrance Transit	103	84	2006
Santa Clarita Transit	42	58	2006
Montebello Bus Lines	39	53	2006
Gardena Transit	40	47	2006
Antelope Valley Transit	496	46	2000
Culver City Municipal Bus Lines	26	27	2006
Norwalk Transit System	37	19	2006
City of Commerce Municipal Bus Lines	8	9	2006
La Mirada Transit	8	8	2006
Baldwin Park Transit	6	4	2006

Source: Federal Transit Administration. *National Transit Database*.

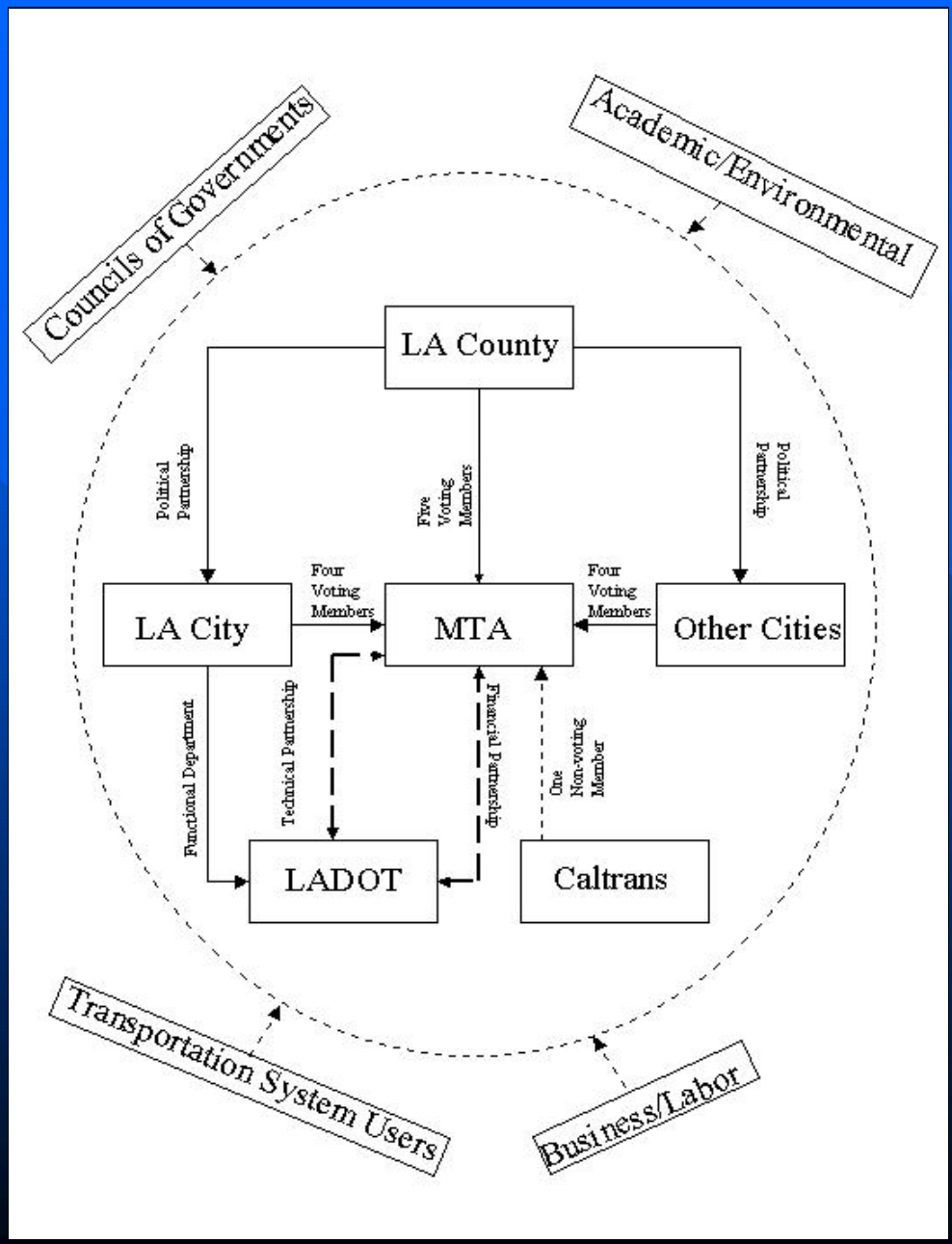
http://www.ntdprogram.gov/ntdprogram/cs?action=showRegionAgencies&region=9.

Figure 1 Los Angeles County Supervisorial District Map



L.A. City Council Districts

Figure 3 Existing Governing Structure in Los Angeles Transportation



Los Angeles County MTA

- As a Regional Transportation Planning Agency (RTPA) for the Los Angeles metropolitan area, MTA assumes four principal functions and responsibilities:
  - Planning: MTA is mandated to prepare, adopt, and implement short-range and long-range transportation plans;
  - Programming: MTA is required by federal and state statutes to prepare a Transportation Improvement Program (TIP) for Los Angeles County;
  - Design and Construction: MTA is required to design and build regional bus and rail systems; and
  - Operation and Maintenance: MTA is responsible for operating and maintaining regional bus and rail systems, and for funding 16 municipal bus operators for their transit operations;
  - 8,900 employees, $2.6 billion annual budget, 2,300 bus fleet, providing 80% of the bus services in Los Angeles County.

Structure of the MTA Board of Directors

- 13 voting members:
  - 5 LA County Supervisors
  - 4 LA City members (Mayor and his 3 appointees)
  - 4 other members representing the remaining 87 cities in the County
- 1 non-voting member appointed by Governor

City of Los Angeles DOT

- As a functional department with the City of Los Angeles, LADOT:
  - has centralized authority over the conceptual planning and operation of the City's street system;
  - is responsible for the installation and maintenance of traffic signals, parking meters, and other traffic control devices;
  - regulates taxicabs, ambulances and other for-hire vehicles;
  - administers provisions of franchises;
  - manages off-street parking facilities and regulates off-street parking, intersection control, parking enforcement and provides crossing guard services;
  - plans, implements and administers the City's transit programs;
  - is the second largest transit operator in LA with a fleet of 400 buses and 2,100 employees.

Political Partnership #1 between the County and the City

- Appointment of Governing Officials:
  - Los Angeles City exerts its immense influence through controlling four votes within the 13-member MTA Board of Directors;
  - Even though Los Angeles County has five votes, it is more fragmentary due to the competing interests of five supervisorial districts;
  - The County and the City forms a political partnership in jointly controlling the MTA's transportation decisions.

Political Partnership #2
between the County and the City

- The City's Participation in the MTA's Planning Process:
  - In developing its countywide long-range transportation plan, MTA works closely with a City of Los Angeles team, including representatives from the Transportation Department, Planning Department, Chief Legislative Analyst's Office and the Mayor's Office to analyze and prioritize the City's transportation issues as a whole;
  - The City actively participated in MTA's transportation planning process.

Financial Partnership #1 between the County and the City

- Funding Allocation by MTA:
  - As a transportation programming agency in Los Angeles County, MTA has been allocating local Propositions A and C funds to subsidize the LADOT transit programs. Through the past Calls for Projects, MTA funded over $31 million worth of LADOT transit capital projects (including new bus acquisition and transit center construction) and over $28 million worth of LADOT bus signal priority and bus speed improvement projects.

Financial Partnership #2 between the County and the City

- City's Funding Contribution:
  - Take Los Angeles Metro Red Line Segment 1 project for example. This project has a total capital cost amounting to $1.418 billion, with 9% of funds contributed by the City of Los Angeles. Additionally, for any City projects applying for funding to MTA through the bi-annual Call for Projects processes, the City needs to provide at least 20% of local match in order to be qualified.

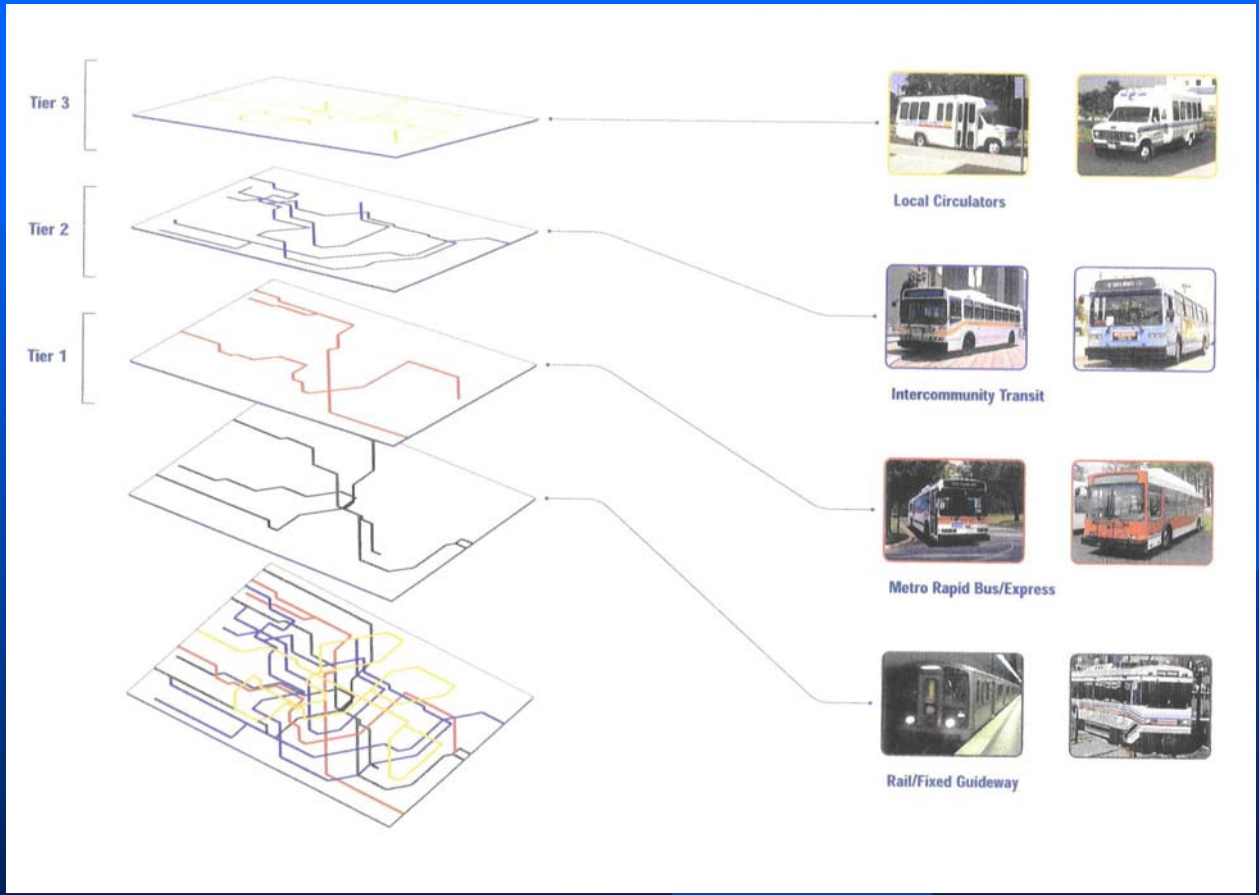
Technical Partnership #1 between the County and the City

- Technical Assistance by LADOT:
  - Throughout the past several years, LADOT has been providing technical assistance and engineering support to MTA on numerous MTA-sponsored projects due to the City's transportation engineering expertise. For example, the tremendous success of the Los Angeles Metro Rapid Bus Demonstration Program is attributable to the close inter-agency partnership.

Technical Partnership #2 between the County and the City

- Transit Project Implementation:
  - According to the 2001 Long Range Transportation Plan (LRTP), the countywide public transit improvements will focus on implementing a three-tiered service approach to address countywide, interconnecting, and neighborhood travel needs;
  - The existing LADOT transit programs fit into the MTA's three-tiered service framework very well. The City's Commuter Express (CE) lines provide Tiers 1 & 2 services, and its DASH lines provide Tier 3 services.

FIGURE 4 Three-Tiered Service Approach of the Los Angeles County Public Transportation



Example of the MTA-LADOT Partnership: the Successful Los Angeles Metro Rapid Bus Project

Why Metro Rapid in Los Angeles?

- Public is dissatisfied with slow bus service;
- LACMTA average bus speeds have declined by 12% since mid-1980s;
- LADOT found that 50% of the time a bus is in service it is stopped; and
- LACMTA and LADOT formed Metro Rapid Program.

RAPID BUS

- Objective: faster service along major corridors.
- Key features: signal priority; color coded buses, low floor/high capacity vehicles, fewer stops; enhanced stops, and off-loading fare collection from the vehicle.
- Demonstration: two bus lines in June 2000.

Metro Rapid Attributes

CURITIBA KEY ATTRIBUTE	Phase I Demonstration	Phase II Expanded System
1. Simple Route Layout	Yes	Yes
2. Frequent Service	Yes	Yes
3. Headway-based Schedules	Yes	Yes
4. Less Frequent Stops	Yes	Yes
5. Level Boarding and Alighting	Yes	Yes
6. Color-coded Buses and Stations	Yes	Yes
7. Bus Signal Priority	Yes	Yes
8. Exclusive Lanes	No	Yes
9. High Capacity Buses	No	Yes
10. Multiple Door Boarding & Alighting	No	Yes
11. Off-Vehicle Fare Payment	No	Yes
12. Feeder Network	No	Yes
13. Coordinated Land Use Planning	No	Yes

Metro Rapid Buses

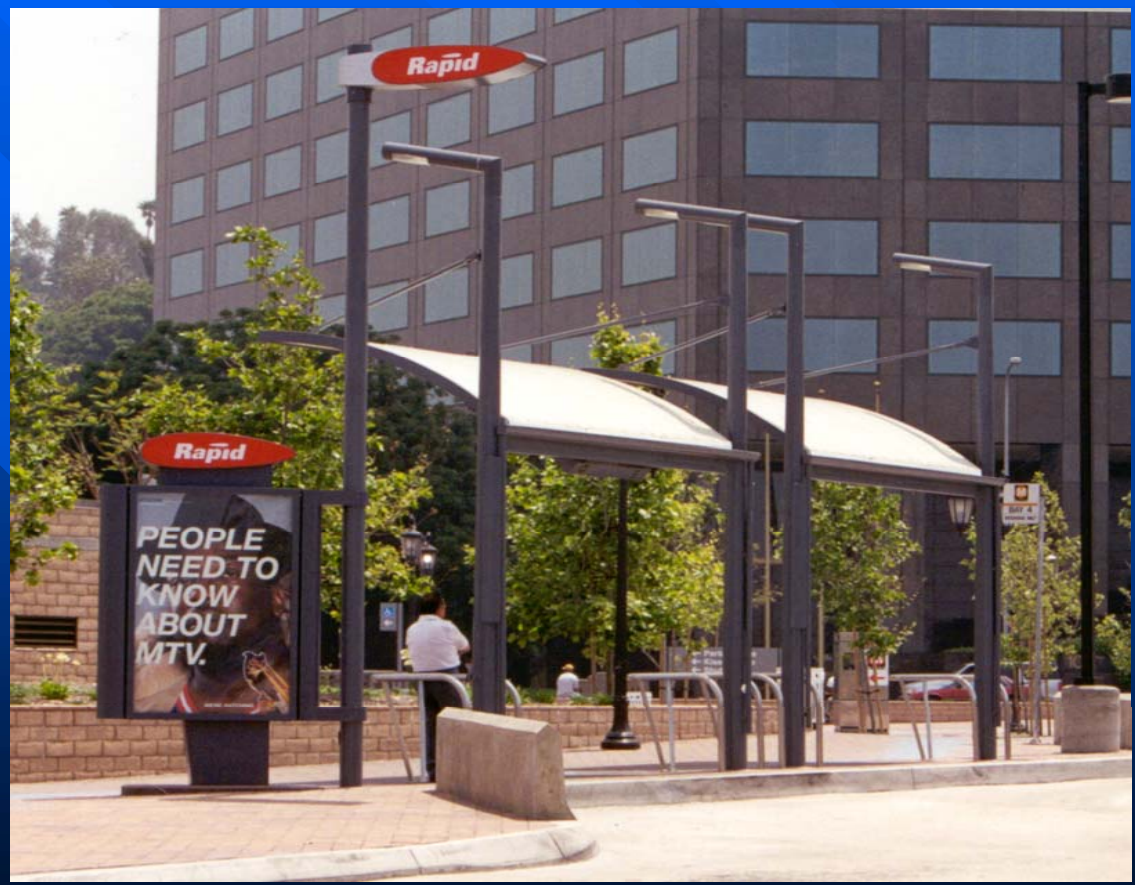
- CNG, low-floor, 40-seat bus
- Special exterior image

Exclusive Lanes

- Two approaches are normally proposed:
  - Short segments where warranted by congestion delay, e.g., queue jumpers at intersections;
  - Transitways either on arterials or in dedicated rights-of-way

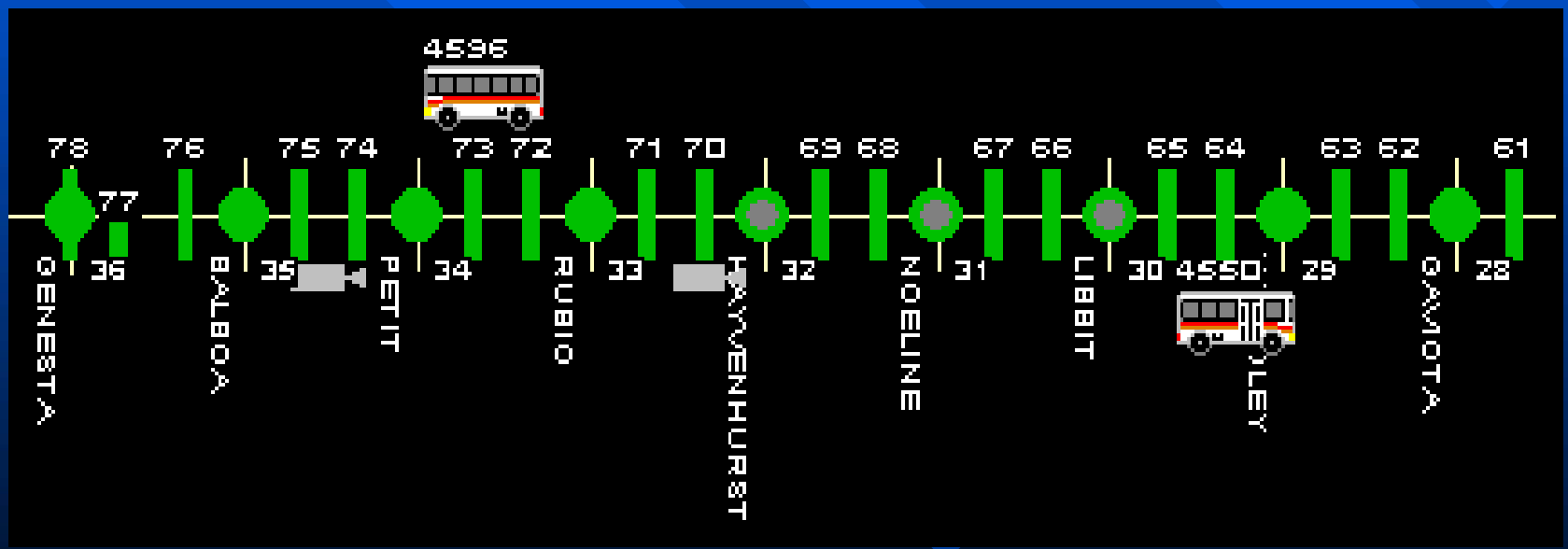
Metro Rapid Stations – Double Canopy

- Provide overhead protection without blocking sidewalks or interfering with adjacent properties
- “Next-bus” display



LADOT Bus Signal Priority System

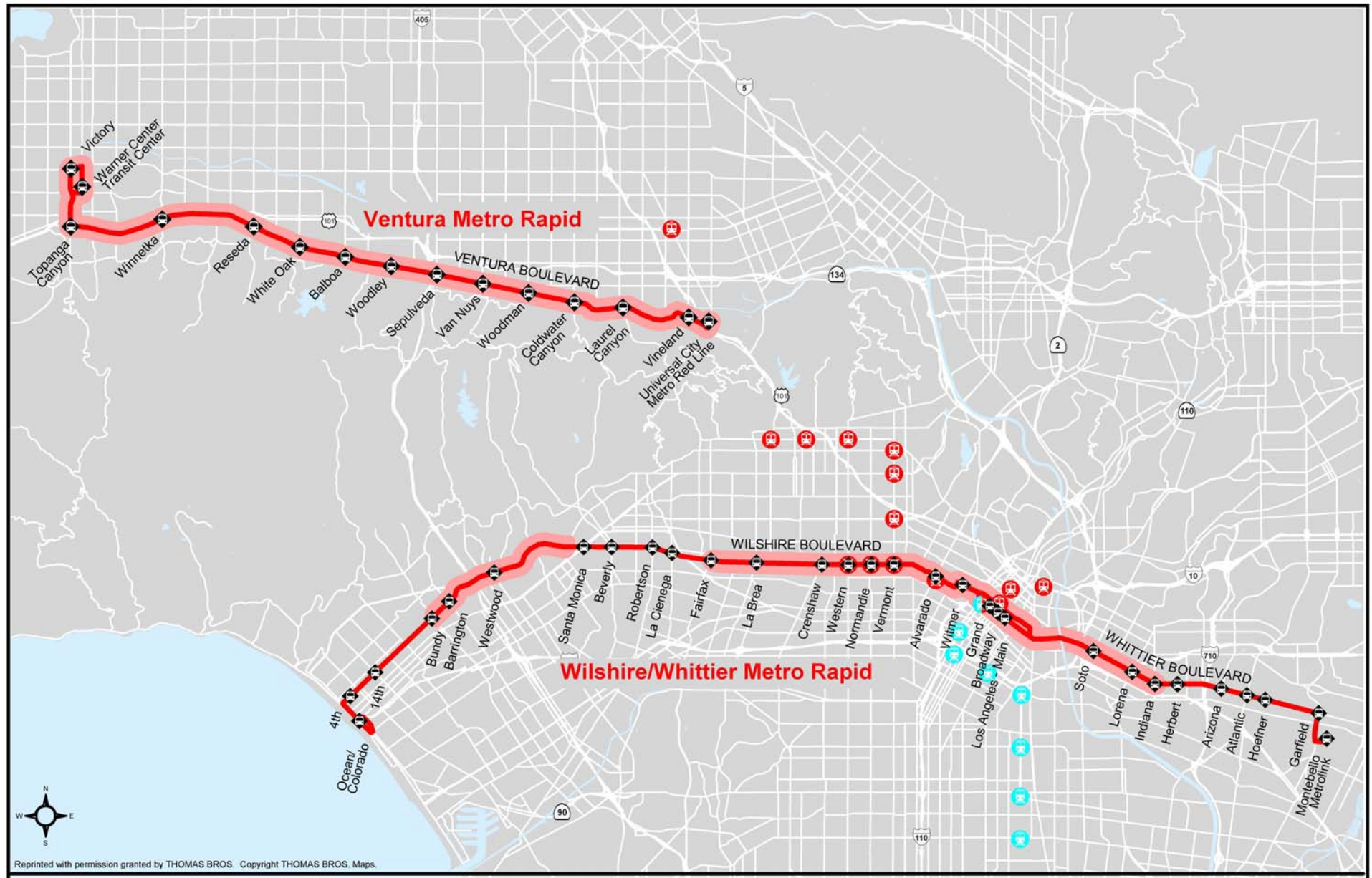
- Automated bus detection using loops and transponders
- Reduces bus delay and assists in maintaining bus spacing
- Minimizes impact on automobile cross-traffic




Ride The Red Bus
Faster Service
Metro Rapid
METRO
LACMTA
LADOT
ATSAC

Metro Rapid Stations – Display

- Accurate to within one minute
- Displays “Next Bus Delayed” after 3 minute delay



Metro Rapid
LOS ANGELES

Demonstration Routes

Red Line Station

Blue Line Station

Planned Metro Rapid Station

Bus Signal Priority Demonstration Zone

Prepared by: Transportation Management & Design, Inc.

May 2000

Ventura Rapid

PLAN

- Warner Center to Universal City
- 16 miles long, 15 stations
- 16 weekday peak buses
- 10 minute peak; 12 minute off-peak & weekend service

EXPERIENCE

- Weekday corridor ridership up 26%
  - Approximately 17,000 corridor boardings
  - Approximately 10,000 Metro Rapid boardings
- 22 weekday peak buses
- 10 minute peak frequency retained

Wilshire-Whittier Rapid

PLAN

- Santa Monica to East Los Angeles
- 26 miles long with 30 stations
- 58 weekday peak buses
- 3 minute peak; 10 minute off-peak & weekend service

EXPERIENCE

- Weekday corridor ridership up 33%
  - Approximately 100,000 corridor boardings
  - Approximately 60,000 Metro Rapid boardings
- 71 weekday peak buses
- 2½ minute peak frequency

Metro Rapid Achievement

- Reduce Passenger Travel Times
  - Wilshire/Whittier Corridor – reduce travel times by 29%
  - Ventura Corridor – reduced travel times by 23%
- Increase Corridor Ridership
  - Wilshire/Whittier Corridor – ridership has increased by 33%
  - Ventura Corridor – ridership has increased by 26%

Demonstration is a Success

- Metro Rapid Program has been successful
  - All 7 program objectives have been met
    - **Reduce Passenger Travel Times**
    - **Increase Corridor Ridership**
    - **Attract New Riders**
    - **Increase Service Reliability**
    - **Improve Fleet and Station Appearance**
    - **Improve Service Effectiveness**
    - **Build Positive Community Relations**
  - Ridership and service performance continue to improve

DEFICIENCIES OF THE EXISTING LOS ANGELES METROPOLITAN TRANSPORTATION GOVERNANCE

Local Government Fragmentation

- Los Angeles County has very severe local government fragmentation problems. The County has 88 incorporated cities, plus the unincorporated areas. The city size can be as large as City of Los Angeles with a huge population of 3,694,800, or can be as small as City of Vernon with a tiny population of 91, according to the year 2000 population census. Aside from MTA as a regional transit operator, there are dozens of municipal transit operators in the County, competing against each other for transportation dollars and parochial interests.

Local Government Fragmentation (Cont.)

- The severe local government fragmentation has caused the predicament of “too many governments and not enough government” in Los Angeles County: very weak governments that lack the capacity actually to address problems. The region lacks a strong leadership and a clear vision in transportation development.

Service Duplication

- Within the boundary of Los Angeles City, MTA and LADOT have been providing duplicative services along certain bus routes. This has wasted scarce transportation resources and required lots of unnecessary planning and coordinating efforts.
- MTA and LADOT have jointly conducted several bus restructuring studies in the City's subregions in order to improve bus route alignments, and better match transit supply with demand. But, service duplication problem still persists.

Low Transit Service Delivery Efficiency

- MTA needs to allocate transportation funds to various city governments through the bi-annual Call for Projects processes, which typically take more than six months of time;
- The transportation projects successfully funded through the MTA Call for Projects processes will be included in the County Transportation Improvement Program (TIP), and in subsequent Regional TIP, State TIP, and federal TIP. Numerous funding agreements need to be executed among local governments, MTA, and state & federal governments.

Low Transit Service Delivery Efficiency (Cont.)

- When the fund programming year finally arrives, local cities need to work with MTA, Caltrans, California Transportation Commission, and federal government to get funding allocations, request for time extension, and obtain work authorization.

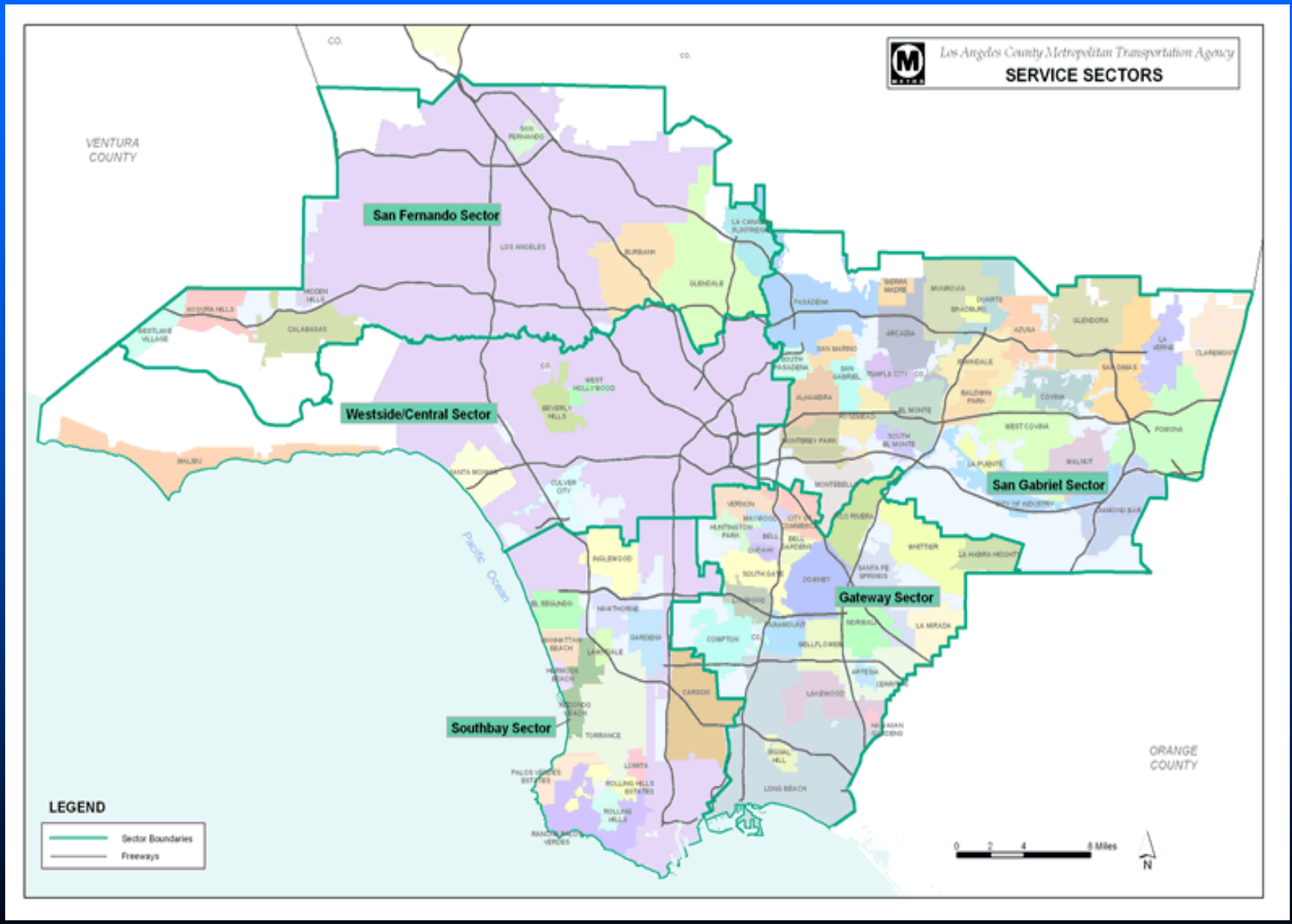
Inequitable Transit Resource Allocation

- Due to its dominance in every aspect, the City of Los Angeles has a much larger influence than smaller cities in Los Angeles transportation decisions and fund allocations. This has caused geographic inequity issues among various local jurisdictions;
- Furthermore, social equity issues always exist in Los Angeles County. Typical examples include the Bus Riders Union's lawsuit against MTA, consent decree, bus versus rail debate, light rail versus bus rapid transit debate, etc.

Diseconomies of Scale

- Diseconomies of scale may occur when a transit operator is either too large or too small.
- For example, in 1997, MTA had a top systemwide cost per bus service hour of $98/hour, but the smaller Foothill Transit had a much lower top systemwide cost per bus service hour of $58/hour. MTA has recognized this diseconomies of scale problem, and reorganized its bus service operations into the five geographically-based service sectors, each with 400-500 buses;
- But, there are still so many small transit operators yet to be consolidated into larger transit operators in order to achieve economies of scale.

FIGURE 5 Bus Service Sector Boundaries in Los Angeles County



ALTERNATIVES TO IMPROVING THE LOS ANGELES METROPOLITAN TRANSPORTATION GOVERNANCE

Alternative #1: Do-Nothing Alternative

- Under the do-nothing alternative, the future local transportation governing model will be the same as today:
  - MTA and its five service sectors will provide most of the transit services in Los Angeles County;
  - Municipal transit operators will provide transit services to serve the local residents; and
  - The existing governance deficiencies will get worse due to fast population growth, more transit dependent people, and limited transit investment.
- This paper does not recommend this alternative, as this will make future transit service delivery worse that today.

Alternative #2: Low-Cost Alternative

- This alternative will leave MTA and its five service sectors as they are, but create more transportation zones in qualified areas to improve economies of scale, provided that the following guiding principles are followed:
  - to improve the cost effectiveness of providing transportation services in Los Angeles County;
  - to increase local control of transportation services;
  - to increase the amount of transportation services in Los Angeles County; and
  - to preserve other transit services in the County.

Alternative #2: Low-Cost Alternative (Cont.)

- This alternative entails the merger of small municipal operators into relatively large transportation zones (similar to Foothill Transit) to yield economies of scale while preserving local control.
- This requires a consensus-building process among small jurisdictions in revenue and cost sharing and political representation.

Alternative #3: Moderately High-Cost Alternative

- All existing municipal transit operators, including LADOT transit programs and Foothill Transit, will be abolished, and their transit services will be transferred to MTA bus service sectors, following the three-tier transit service concept;
- This alternative intends to realize economies of scale, improve transit operating performance, and streamline transit service delivery process. The MTA headquarter will have the sole responsibility for operating such regional transit services as Metro Rail, Metro Rapid Bus, and express bus service, i.e. Tier 1 transit service. And the countywide Tier 2 and Tier 3 transit operation (local customer service) and the designated Tier 1 transit operation will be provided by service sectors.

Alternative #3: Moderately High-Cost Alternative (Cont.)

- In the short run, this alternative may be opposed by existing municipal transit operators. But, in the long run, this alternative will yield better economies of scale, and improve transit service delivery efficiency. In the meantime, MTA Board of Directors should increase its memberships to include more representatives from former municipal transit operators and transportation zones to encourage their participation.

Alternative #4: Very High-Cost Alternative

- This alternative calls for city/county consolidation, i.e., abolishing all municipal governments including the City of Los Angeles government. This will entirely eliminate the functional duplication between the County and the City. The MTA can be transformed from a special transit district to a functional county department of transportation;
- The most visible governmental change in consolidated governments is perhaps the creation of a new, countywide council to replace the previous city councils and county board of supervisors.

Alternative #4: Very High-Cost Alternative (Cont.)

- The shift from the existing two-tier government structure (county and city) to one-tier government structure (county only) will face strong political obstacles from local cities. But this shift may ultimately eliminate service duplication, save tax payers' money, and improve transit service delivery efficiency, at the sacrifices of local autonomy and home rule. This is the politically most difficult alternative.
- To ease potential political oppositions from suburban residents, special districts or zones in selected suburban areas may be established. This is a variant of Alternative #4.

Alternative #5: New Innovative Alternative

- This new innovative alternative calls for implementing more privatization measures. Typical privatization measures include contracting out bus operating services, company merger and reorganization, establishment of comprehensive responsibility system, and conversion of state-owned enterprises into shareholder-owned enterprises;
- Contracting out bus operating services seems to be the most popular transit privatization measure in the U.S. MTA directly operates its own buses with little contracting-out, but LADOT contracts out all of its transit operations. Table 3 suggests that LADOT bus operation is more efficient than MTA bus operation because of that.

Table 3. Comparison of MTA and LADOT Bus Operating Performance in 2001

Performance Indicators	MTA Bus Operation	LADOT Bus Operation
Directly operated buses	1,891	0
Contract-out buses	135	205
Operating expense per vehicle revenue mile	$7.72	$4.60
Operating expense per vehicle revenue hour	$94.83	$57.81
Operating expense per unlinked passenger trip	$1.84	$1.42
Unlinked passenger trips per vehicle revenue mile	4.19	3.23
Unlinked passenger trips per vehicle revenue hour	51.44	40.60

Source: Federal Transit Administration. 2001. *National Transit Database*.

Recommended Alternative: An Incremental, Hybrid Alternative

- In the short run, this paper suggests to merge small operators into locally controlled transportation zones (outside of MTA) to ease local opposition. In the long run, all transit services transferred to MTA service sectors may take place;
- County/city consolidation seems very unlikely for the time being, due to its very high political cost and legal mandates. More privatization measures should be introduced if possible to reduce bus operating costs. Economic efficiency and social equity goals should be properly balanced. For those economically unprofitable but socially desirable bus routes, government agency still needs to provide financial subsidies. A lifetime allowance may be provided to low-income riders.

CONCLUSION

- In delivering local transit services, Los Angeles County and Los Angeles City have formed very close political, financial, and technical partnerships through MTA and LADOT, yielding some successful projects;
- However, the existing County/City partnership and metropolitan transportation governance in Los Angeles County still pose severe problems, including local government fragmentation, service duplication, low transit service delivery efficiency, inequitable transit service allocation, and diseconomies of scale, and many others;

CONCLUSION (Cont.)

- This paper recommends to implement an incremental, hybrid alternative. Under this alternative, the three-tiered transit service concept and the MTA's service sector concept remain the same, but municipal transit operators would gradually be abolished with their transit services being either consolidated into larger transportation zones or transferred to MTA's service sectors;
- Additionally, MTA may need to implement appropriate privatization measures to further increase transit operating efficiency and improve transit service quality.

Any Questions?

Thank you and have a nice day!