

A CRITICAL REVIEW OF LOS ANGELES METRO'S 28 BY 2028 PLAN

Preface

The Los Angeles County Metropolitan Transportation Authority (Metro) is the surface transportation planning and funding agency for the largest county (by population) in the United States, and is the operator of the nation's third largest public transit system.

The Metro Board has adopted the *28 by 2028 Plan* (the *Plan*), which comprehends the completion of 28 major transportation construction projects prior to the beginning of the 2028 Los Angeles Summer Olympics. This proposal accelerates eight projects for completion by 2028 in addition to the 20 specified in measure M, the 2016 County transportation half-cent sales tax ballot measure. The plan was presented to the Metro Board of Directors and approved at the Board's February 28, 2019 meeting.

Metro has a long history of over-promising and then failing to deliver on such projects, ultimately making conditions worse for Los Angeles transit users. The *28 by 2028* proposal appears to continue this pattern.

This paper is the "Directors' Cut" of a series of summaries of the critiques of individual aspects of the *Plan* originally commissioned and published by Reason Foundation¹. While many of the contents are identical, the differences include:

- This Directors' Cut is presented in a single document, which some users will find easier to use for their purposes.
- Some recent events were incorporated.
- Some errors were corrected.
- Some graphics were improved.
- Lists of tables and figures are provided.
- Tables and figures are numbered consecutively throughout the paper, rather than restarting for each chapter.
- The graphic cover page for each chapter was eliminated.

This document examines Metro's record, and those of its predecessor organizations, over the past several decades. This history, additional facts, and economic logic show that *28 by 2028* is unlikely to succeed. Metro's proposed attempt to accomplish too much too fast has a high likelihood of making transit in Los Angeles County worse for transit riders and other users of the local surface transportation system. The implications are worst for the most vulnerable group: the very large number of low-income and otherwise disadvantaged residents who are strongly dependent on public transit in their daily lives.

For a brief summary of the various problems and issues that the authors discuss, we direct you to the table of contents and the chapter headings.

1. Thomas A. Rubin and James E. Moore, II, *A Critical Review of Los Angeles Metro's 28 by 2028 Plan*, Reason Foundation, March-May, 2019,

About the Authors

Thomas A. Rubin, CPA, CMA, CMC, CIA, CGFM, CFM has over four decades of experience as a transit industry senior executive, consultant, and auditor, including serving as the last Controller-Treasurer (chief financial officer) of the Southern California Rapid Transit District at the time of the merger that formed the Los Angeles County Metropolitan Transportation Authority in 1993. He was also the chief transportation and financial expert for the plaintiffs in *Labor/Community Strategy Center v Los Angeles County Metropolitan Transportation Authority (L/CSC v MTA)*. the Federal Title VI (discrimination in the utilization of Federal funding) to resulted in the Consent Decree that significantly increase Metro ridership for the decade beginning in 1996. Over his career, he has served well over 100 transit operators, metropolitan planning organizations, state and the Federal Departments of Transportation, and various industry suppliers and industry associations, and written and presented well over 100 papers at industry and trade associations.

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Mr. Rubin and Prof. Moore have been collaborators and co-authors for well over two decades, and have previously cooperated on over a dozen publications, including several commission papers for Reason Foundation, as well as refereed publications.

Acknowledgement

This manuscript has been usefully improved by the contributions of Tadd Long, an undergraduate student in the University of Southern California Viterbi School of Engineering. The authors gratefully acknowledge his assistance and help in the completion and dissemination of this work.

Table of Contents		
Chapter	Title	Page
	Preface	1
	Table of Contents	3
	List of Tables	5
	List of Figures	6
1.	Introduction, Overview, and the Birth of Transit in Los Angeles	8
2.	The Rise of the Los Angeles County Metropolitan Transportation Authority (Metro)	11
3.	The Metro Methodology —In order to get the funding it needs to be approved by the voters, Metro proposes new taxes, along with project lists and timing that prove impossible, followed by a new tax/project list that follow the same pattern.	15
4.	Metro's Transit Ridership is Declining —Metro ridership is down 24%t from its 1985 peak and is continuing to decline significantly.	19
5.	Metro's Long-Range Plans Overpromise and Underdeliver —Each of Metro's four half-cent sales taxes approved by the voters were accompanied by a long-range plan that showing the construction of large numbers of new passenger rail lines—most of which were delayed or never built.	24
6.	Improving Bus Service and Reducing Fares Have Greatly Increased Transit Service in Los Angeles Three Times	30
7.	Why Has Metro Been Losing Ridership Since 2007 and What Can It Do To Reverse This Trend?	35
8.	<i>Labor/Community Strategy Center v Los Angeles County Metropolitan Transportation Authority</i> —In the only U.S. judicial system decision of its type, the Special Master ruled that expanding bus service is more effective than rail spending.	39
9.	Metro Consistently Significantly Overstates Sales Tax Revenues —Even after optimistic projections of future sales tax revenues have consistently failed to occur, Metro continues to project high revenues.	43
10.	Metro Frequently Understates Transportation Project Costs —Metro frequently underestimates the costs of major construction projects and then uses accounting and budgetary gimmicks to conceal these overruns.	53
11.	Metro's Congestion Pricing Revenue Estimates Are Not Creditable —Metro is advancing congestion pricing as an important potential funding source (which we support), but Metro is projecting huge revenues that are too large to be creditable. Implementing congestion pricing will require more years than Metro is projecting, new legislative authority, coordination with multiple government agencies at all levels, and a focused campaign to promote public acceptance.	60

Table of Contents (Continued)		
Chapter	Title	Page
12.	Metro’s Public-Private Partnership (P3) Revenue Estimates Are Not Creditable —Metro is advancing P3 as a tool to reduce costs (which we support), but Metro is projecting far larger savings than will be possible and for P3 projects to be delivered much faster than will be feasible.	69
13.	Metro Will Not Have the Revenues Nor the Debt Capacity to Undertake Many of the Proposed 28 Projects —Metro has overstated future sales tax and other revenues, understated the costs of major transportation capital projects, and relived upon long-range plans that will fail to produce the set of major rail transit construction projects	77
14.	Metro’s Plans and Proposals Are Built on Questionable Assumptions and Errors —Besides the several various major issues described in their own Chapters, the <i>Plan</i> has multiple other problems.	82
15.	Metro Has a History of Evading Legal Requirements to Which It Does Not Wish to Be Subject, Potentially Ignoring the Law	92
16.	Metro’s Congestion Eradication and Fareless Transit Proposals Are Unrealistic —The most audacious promises on which Metro bases <i>28 by 2028</i> —including “eradication of congestion” and fareless transit—are infeasible and operationally impossible.	97
17.	Metro Bus is Very Productive and Cost-Effective, Rail is Not, but Metro Favors Rail Over Bus —Metro has a long history of not only presenting rail transit in a very positive light, but in making Metro’s very high performing bus system appear poorly.	105

List of Tables			
Chapter	Number	Title	Page
2	1	Los Angeles County Population by Race and Ethnicity, 1970 and 1990	12
2	2	Southern California Rapid Transit District—Boardings by Fiscal Year	12
2	3	SCRTD Current-Year and Inflation Adjusted Full Adult Cash Fares, FY74-FY80	13
6	4	Bus vs. Rail Costs, Subsidies, and Ridership, FY20 Adopted Budget	33
9	5	Metro Measure M Projections for FY18 and FY19	47
9	6	Metro Measure M Projections for FY18 and FY19	48
10	7	Passenger Rail Construction Projects –Original Cost Projections and Actual or Most Recent Projected Costs	58
11	8	28 by 2028 Congestion Pricing Alternatives	61
11	9	Cordon Pricing—Comparison Of The London Congestion Charge Zone And The Proposed Los Angeles And New York City Congestion Zones	64
12	10	Metro's Estimates of Potential P3 Savings for Three Projects	71
13	11	Metro Bus Budgeted Service Provided and Consumed, Adopted Budgets FY07 and FY20	79
17	12	Metro Bus and Rail Operating and Financial Statistics, FY20 Budget	116

List of Figures			
Chapter	Number	Title	Page
4	1	Metro Unlinked Passenger Trips by Mode—Fiscal Years 1980-2019	20
4	2	All-Mode Unlinked Passenger Trips and Population, 1980-2019	20
4	3	Average Weekday System Ridership by Month, January 2009-June 2019	21
5	4	Proposition A Map—Rail Rapid Transit System	25
5	5	Post-Proposition C Rail Projects & Candidate Corridors: <i>Fundable Plan—10 Year Implementation Program</i>	27
7	6	Metro FY2007 Capital Subsidy, Operating Subsidy, And Operating Revenue per New Passenger Trip	35
9	7	Los Angeles County Proposition A Sales Tax Revenues—Current-Year Dollar, Inflation-Adjusted, and Inflation/Population-Adjusted, FY83-FY18	44
9	8	Los Angeles County Transportation Commission—1986 Bond Issue Sales Tax Revenue Projection and Actual, FY86-FY16	44
9	9	Los Angeles County Half-Cent Sales Tax Collections and Forecasts	45
9	10	Measure M Projected Sales Tax Revenues and Corresponding Average Annual Growth Rates, FY18-FY57	46
9	11	Year Over Year Measure A Sales Tax Growth Rates, FY84-FY18	49
9	12	Los Angeles County Population, Actual and Projected, 1983-2060	50
9	13	Actual (FY83-FY18) Measure A and Projected (FY18-FY57) Measure M Sales Tax Revenues	51
12	14	Historical P3 Capital Cost Savings (Percent of Estimated Pre-Bid or PSC Capital Cost)	71
15	15	Non-Measure R/Measure R Bus Budgeted Operating Spending FY09-FY17 (Inflation-Adjusted)	96
16	16	U.S. Urbanized Areas Over 1,000,000 in 2011—Growth in Unlinked Passenger Trips per Capita, 1985-2011	99
16	17	Los Angeles-Long Beach-Anaheim Urbanized Area: Texas A&M Transportation Institute Travel Time Index 1982-2016	101
17	18	Enterprise Fund Operating Deficit: Ten-Year Forecast FY13 Adopted Thru FY22 Forecast	106
17	19	Funding Available for MTA Operations Subsidies and Percent Utilized	106
17	20	Metro's Fares Are Amount the Lowest of Any Major Transit Agency in the World	107

List of Figures (Continued)			
Chapter	Number	Title	Page
17	21	Metro's Load Factor Is the Lowest Among Peer Agencies in the U.S.	108
17	22	Metro FY14 Adopted Budget and FY12 Load Factors	109
17	23	Metro's Fares Cover the Lowest Percentage of Operating Cost of Any Major Transit Agency in the World	109
17	24	FTA "Top 50" Transit Operators (45): Bus + Heavy Rail + Light Rail Farebox Recovery Ratios	110
17	25	FTA "Top 50" Heavy Rail Operators (11) Farebox Recovery Ratios	111
17	26	FTA "Top 50" Light Rail Operators (21) Farebox Recovery Ratios	111
17	27	FTA "Top 50" Bus Operators (43) Farebox Recovery Ratio	112
17	28	FTA "Top 50" Transit Operators Subsidy/Passenger and Passenger-Mile	113
17	29	FTA "Top 50" Heavy Rail Operators Subsidy/Passenger and Passenger-Mile	113
17	30	FTA "Top 50" Light Rail Operators Subsidy/Passenger and Passenger-Mile	114
17	31	FTA "Top 50" Bus Operators Subsidy/Passenger and Passenger-Mile	114

1. Introduction, Overview, and the Birth of Transit in Los Angeles

A brief history of the important events in Los Angeles transit history is a useful foundation for the discussion of the *Plan* that follows. Much of the history of transportation and real estate development in Southern California in the first part of the 20th century involved Henry Huntington: the Los Angeles Railway (LArY), the Yellow Car streetcar system that was used for shorter trips and the Pacific Electric Railway (PE, or PERy), the Red Car electric interurban system that was used for longer trips. These rail networks provided fast and consistent access to the downtowns of the region from suburban residential areas, and were directly responsible for much of the area's distributed real estate development².

Southern California did not have a heavy rail, or subway, transit system similar to the lines that operated in New York City, Chicago, Boston, or Philadelphia since the early years of the 20th century. Many Angelenos moved from these rail-heavy cities and wanted Los Angeles to build a rail system. Between 1911 and 1978, there were at least 18 different attempts to implement an extensive heavy rail transit system in Los Angeles County, including at least four that failed at the ballot box, the last of these in 1978³.

A Short History Of Public Transit In Southern California

The LArY and PERy systems were among the most extensive urban passenger rail systems in the world. PERy peaked at 1,061 route miles⁴; but, similar to most local and regional passenger rail systems in the U.S. and much of the rest of the world, both were surpassed and replaced by the private automobile and the motor bus. By the mid-1970s, there were only nine metropolitan areas that operated local/regional passenger rail service in the U.S.: Boston, Chicago, Cleveland, New Jersey, New York City, New Orleans, Philadelphia, Pittsburgh, and San Francisco.

While the story of General Motors Corporation (GM), National City Lines (NCL), and the "great conspiracy" to destroy the U.S. streetcars industry has become a staple of American conspiracy theorists and folklore⁵, the true story is that widespread local passenger rail networks were a technology for which their time came ... and went. Streetcars later transitioned to light rail (or something reasonably close to light rail) in five of the eight (Boston, Cleveland, Philadelphia, Pittsburgh, San Francisco) U.S. metropolitan area listed above that had once had them. Chicago's and New York City's streetcar systems ceased operating earlier in the 20th century, and New Orleans streetcar system continues to operate today very much as it always had.

Streetcars were still viable and useful in a handful of older cities, but for the most part, within a few years after the first introduction of buses in the second decade of the 20th century, buses had demonstrated significant advantages in terms of lower capital, capital renewal, replacement, and operating costs, as well as far greater flexibility.

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2. Wachs, Martin. "Autos, Transit, and the Sprawl of Los Angeles: The 1920s." *Journal of the American Planning Association*, 1984, 50(3):297-310, <https://doi.org/10.1080/01944368408976597>
 3. Green, Maria L. "A History of Rail Setbacks." *Mass Transit* magazine. September 1985.
 4. *Pacific Electric Railway: Comfort, Speed, Safety*, American Rails.com., <https://www.american-rails.com/pacific-electric-railway.html>
 5. Walt Disney Pictures. "Who Framed Roger Rabbit?" 1988.

The demise of local passenger rail networks was a natural economic outcome. Streetcar systems were abandoned in more cities where NCL never had a presence than those where it and other consolidators had operated. Streetcars disappeared from cities all over the world, such as London. The famous NCL anti-trust action⁶ did produce a verdict against GM and the other NCL owners, but it was based on the legal theory of creating a monopoly of the sales of buses and bus system supplies, not on the elimination of streetcars. GM was fined \$5,000 and its treasurer was personally fined \$1⁷. The trial judge remarked in his later Senate testimony, "I am very frank to admit to counsel that after a very exhaustive review of the entire transcript in this case, and of the exhibits that were offered and received in evidence, that I might not have come to the same conclusion as the jury came to were I trying this case without a jury⁸."

Indeed, a strong case can be made that, if NCL and the other local transit operators that replaced rail with buses had not done so, there would have been major problems in local transportation during the industrialization of the U.S. in its role as the World War II Arsenal of Democracy. It would have been particularly difficult to transport workers to locations such as aircraft assembly plants, that, by their nature, must be located away from city centers where runways can be constructed and operated.

By 1953, LARy and PERy were taken over by Metropolitan Coach Lines. The Los Angeles Metropolitan Transit Authority (LAMTA, not to be confused with the contemporary agency Metro, the Los Angeles County Metropolitan Transportation Authority) was formed by the State of California in 1951 to study the feasibility of monorail service (it concluded it was not), then later to evaluate and propose a multi-county transit system, and finally, in 1957, to take over the transit services of Metropolitan Coach Lines, which had long since ceased to be profitable and were unable to provide for capital renewal and replacement of vehicles and right-of-way. Under LAMTA, the last remaining SoCal passenger rail lines were taken out of service in 1963.

Conclusions

1. Los Angeles has a long-standing investment in public transit. Rail transit has a long history in the region.
2. It is a myth that Los Angeles' original rail transit system was destroyed by GM and NCL. The demise of Los Angeles rail transit in the early 1960s was largely a result of market forces. These same forces operated in cities worldwide. Streetcar systems were abandoned in the vast majority of U.S. cities that had had them.
3. Economic and demographic changes amplified the demand for public transit in Los Angeles during the 1970s and 1980s. These sources of change still operate. The demand for public transit in Los Angeles remains strong. LA's transit system is large and vital to the local economy.

Foundation Documents Detailed Here

The following short descriptions, used hereinafter, refer to the Metro documents that, collectively, are the foundation for *28 by 2028*:

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6. United States v National City Lines. 334 U.S. 573 (1948).
 7. Cliff Slater, "General Motors and the Demise of Streetcars," *Transportation Quarterly*, Vol. 51, No.3. Summer 1997, 45-66.
 8. Senate Subcommittee on Antitrust. "The Industrial Reorganization Act; hearings, Ninety-third Congress, first session, on S. 1167.," *hathitrust.org*. U.S. Government Printing Office.

<i>Plan</i>	PowerPoint™ presentation, <i>28 by 2028 Financial Plan—Laying the Groundwork</i> , December 2018 ⁹
<i>White Paper</i>	<i>Twenty-Eight by '28 Program Financing/Funding White Paper</i> , Board Report attachment ¹⁰
<i>Remarks</i>	Metro staff presentation remarks and Board Member and public comments from the December 6, 2018 meeting ¹¹
<i>FY19 Budget</i>	Metro, <i>Adopted Budget</i> , July 1, 2018-June 30, 2019 (Fiscal Year 2019, FY19) ¹²
<i>Measure M</i>	Proposed Ordinance #16-01, Measure M—Los Angeles County Traffic Improvement Plan ¹³
<i>Board Report</i>	The Re-imagining of LA County: Mobility, Equity, and the Environment (Twenty-Eight by '28 Motion Response), Regular Board Meeting, January 24, 2019, Agenda Number 43 ¹⁴
<i>Re-imagining</i>	The Re-imagining of LA County: Mobility, Equity, and the Environment, attachment to <i>Board Report</i> ¹⁵

“Plan” is also used in this paper to refer to the entire body of documents and actions by Metro Board and staff members to get the *28 by 2028 Plan* approved and underway.

9. <http://metro.legistar1.com/metro/attachments/e48e3ad9-7f42-4011-849c-5666ed4f0cc6.pdf>

10. <http://metro.legistar1.com/metro/attachments/18984512-fa10-4b43-aa52-524cfd8bb69a.pdf>

11. http://metro.granicus.com/MediaPlayer.php?view_id=2&clip_id=987. The recording for this portion of the meeting is audio only. The *Plan* presentation begins at approximately 37:00. Board Member comments begin at approximately 1:13:00. Public comments begin at approximately 1:44:00. This agenda item concludes at approximately 1:49:30.

12. http://media.metro.net/about_us/finance/images/fy19_adopted_budget.pdf

13. http://theplan.metro.net/wp-content/uploads/2016/09/measurem_ordinance_16-01.pdf

14. <https://boardagendas.metro.net/board-report/2019-0011/>

15. This is available through links at the meeting agenda web page, item 43:

http://metro.legistar1.com/metro/meetings/2019/1/1472_A_Board_of_Directors_-_Regular_Board_Meeting_19-01-24_Agenda.pdf

2. THE RISE OF THE LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY (METRO)

In 1964, after the Los Angeles Metropolitan Transit Authority (LAMTA, not the contemporary agency Metro, the Los Angeles County Metropolitan Transportation Authority) failed to make any substantial progress towards a regional rail transit network, the State established the Southern California Rapid Transit District (SCRTD), which took over all of LAMTA's transit operators, plus eleven other failing bus transit operators serving Los Angeles, Orange, Riverside, San Bernardino, and (to a limited extent) Ventura Counties. The operations in the other counties were almost entirely spun off to newly established transit systems in those counties within a few years, leaving SCRTD to operate the Los Angeles County bus transit system, and plan for the desired rail system.

Local changes were influenced by international events and their impact on the national economy and road users. Following the reduction in sales of oil to Western nations imposed by the Arab members of the Organization of Petroleum Exporting Countries (OPEC) after the 1973 Yom Kippur War, there were both widespread oil shortages and major price increases at the pump. From 1972 to 1981, the average inflation-adjusted price of a gallon of gasoline increased 117%.¹⁶ In many locations, gasoline was often difficult to find at any price.

During this same period, Los Angeles County demographics changed dramatically¹⁷. Table 1 shows the shift in the racial and ethnic composition of the County between 1970 and 1990. This massive demographic change has continued, accompanied by population growth. By 2017, the County Hispanic population reached 48.6% of the total population of 10.16 million¹⁸.

The combination of very rapid growth (212% over two decades) of a demographic component with relatively low household income, together with the rapid increase in the price of gasoline and other factors, produced the SCRTD¹⁹ ridership changes shown in Table 2. Boardings increased by a 101.9% in the decade between 1970 and 1980. This rate of increase is over six times the 16.8% increase for the U.S. transit industry in total, and the 16.0% increase for national bus boardings over this same period²⁰.

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16. State of California, Energy Commission, Energy Almanac, "California Gasoline Prices Adjusted for Inflation," https://listserv.arb.ca.gov/msprog/clean_cars/clean_cars_ab1085/cec%20almanac%20gasoline%20prices.pdf
 17. State of California, Department of Finance, Demographic Research Unit, "E-3: Race/Ethnic Population Estimates, Components of Change for California Counties, 1970-1990:" <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/>
 18. U.S. Census Bureau, 2017 American Community Survey (1-year estimates)—Race and Hispanic/Latino—California, Counties and Places with 65,000+ Population, http://www.dof.ca.gov/Reports/Demographic_Reports/American_Community_Survey/#ACS2017x1
 19. SCRTD, "Total Annual Boardings."
 20. American Public Transportation (*nee* Transit) Association, *2017 Public Transportation Data Book*, Appendix A, Table 1, "Unlinked Passenger Trips by Mode."

Component	1970		1990	
	Count	Percentage	Count	Percentage
Asian/Pacific	231,676	3.3%	914,361	10.3%
Black	752,169	10.7%	933,356	10.6%
Hispanic	1,079,453	15.3%	3,367,875	38.0%
Native American	22,915	.3%	28,997	.3%
White	4,969,587	70.4%	3,615,611	40.8%
Totals	7,055,800	100.0%	8,860,200	100.0%

The combination of very rapid growth (212% over two decades) of a demographic component with relatively low household income, together with the rapid increase in the price of gasoline and other factors, produced the SCRTD²¹ ridership changes shown in table 2. Boardings increased by 101.9% in the decade between 1970 and 1980. This rate of increase is over six times the 16.8% increase for the U.S. transit industry in total, and the 16.0% increase for bus boardings over this same period²². Indeed, the SCRTD increase accounted for one-fourth of the national increase in bus ridership, and almost one-sixth of the national increase in total transit ridership.

Fiscal Year	Boardings	Change from Prior Year	Change from FY1970
1970	196,621,000	N/A	N/A
1971	190,290,000	(3.2)%	(3.2)%
1972	198,934,000	4.5%	1.2%
1973	204,843,000	3.0%	4.2%
1974	217,700,000	6.3%	10.1%
1975	309,800,000	42.3%	57.6%
1976	282,100,000	(8.9)%	43.5%
1977	315,900,000	12.0%	60.7%
1978	344,700,000	9.1%	75.3%
1979	352,600,000	2.3%	79.3%
1980	397,000,000	12.6%	101.9%

Fortunately, a combination of funding sources made it possible for Los Angeles to expand bus service and keep up with demand. The California Transportation Development Act of 1971 created a State-mandated quarter-cent sales tax, primarily for transit, that was collected in and returned to each County. The Urban Mass Transportation Act of 1964 created the first major Federal transit grants for capital projects. And, finally, the National Mass Transportation Assistance Act of 1974 provided the first Federal funds for transit operating subsidies.

21. SCRTD, "Total Annual Boardings."

22. American Public Transportation (nee Transit) Association. 2017 Public Transportation Data Book. Appendix A. Table 1. "Unlinked Passenger Trips by Mode."

Table 3 shows the pattern of full-adult cash fares by fiscal year during this period, which was one of high inflation. The nominal fare almost doubled in this interval; but after adjusting for inflation, the real fares were remarkably constant, with the exception of the two-year period, FY75-FY76, when there was a substantial fare reduction.

Fiscal Year	Nominal Fare	Consumer Price Index²³	FY74 Constant-Dollar Fare
FY74	30.0¢	48.2	30.0¢
FY75	25.0¢	53.3	22.6¢
FY76	25.0¢	56.9	21.2¢
FY77	35.0¢	60.8	27.7¢
FY78	40.0¢	65.3	29.7¢
FY79	45.0¢	72.3	30.0¢
FY80	55.0¢	83.7	31.7¢

However, SCR TD was unsuccessful in securing approval for a rail system. In 1976, California created County Transportation Commissions for each county, including the Los Angeles County Transportation Commission (LACTC), which had legislated powers that SCR TD did not. The most important of these was the ability to place a transit sales tax on the ballot for the County electorate to approve funding transit, including rail transit.

The first LACTC ballot issue in 1978 failed by a 2:1 margin; but the second, Proposition A in 1980, received majority approval: 54% to 46%. However, California State Proposition 13 had passed in 1978, and it appeared that a simple majority would not suffice for passage, and a two-thirds majority would be required. LACTC decided not to begin collections until the courts had determined whether a simple majority was sufficient to pass the new tax. The California Supreme Court ruled in May 1982 that, for this specific fact set, a 50%+1 majority was sufficient²⁴. Almost every large population county in California quickly placed a similar half-cent sales tax on the ballot in the hope that a 50% +1 majority vote would secure approval. But when this question again reached the California Supreme Court in 1995, the Court effectively reversed itself and declared that a two-thirds majority would be required for this type of tax measure²⁵. This ruling affected new votes only, and the taxes previously approved by majorities of at least 50%+1 were allowed to remain in place.

Proposition A was the first of what eventually became four Los Angeles County half-cent transportation sales taxes, on top of the original, State-initiated, quarter-cent transportation sales tax. All are perpetual, they never expire, except as noted otherwise:

- 1971—(State) Transportation Development Act of 1971—quarter cent.
- 1980—Proposition A—half cent.

23. U.S. Department of Labor, Bureau of Labor Statistics, CPI-All Urban Consumers, Los Angeles-Long Beach-Anaheim, CA, <https://data.bls.gov/pdq/SurveyOutputServlet>
Values shown are for the calendar years.

24. Wendell Cox, "Background on the Proposition A Rail Amendment (1980), <http://www.demographia.com/db-propa.pdf>

25. *Santa Clara County Local Transportation Authority v. Guardino* [No. S036269. Sep 28, 1995.], <https://law.justia.com/cases/california/supreme-court/4th/11/220.html>

- 1990—Proposition C—half cent.
- 2008—Measure R—half cent for thirty years.
- 2012—Measure J—to extend the 30-year term Measure R another 30 years (failed).
- 2016—Measure M—new half cent and to, essentially, to make Measure R perpetual by increasing the Measure M half cent to a full cent after the Measure R proper tax lapsed.

Strong conflicts developed between SCRTD and LACTC for many political reasons, despite the fact that the governing boards of the two agencies were appointed, to a large degree, by the same people and governmental units. In many cases, the same people sat on both boards. After the California Supreme Court approval of proposition A, SCRTD moved heavily into the planning, design, and construction of what was originally known as the Red Line, which now includes the Purple Line, the heavy rail/subway system for Los Angeles. LACTC began planning for regional rail transit, including the planning, design, and construction of light rail lines, beginning with what became the Long Beach-Los Angeles Blue Line. The Green Line followed quickly. Due to State statutory requirements, LACTC was required to fund the Red Line, a circumstance that LACTC used to exercise oversight over SCRTD. At the same time, SCRTD was not allowed much of a role in the design of the light rail lines that also by statute, it would operate when completed.

Additional conflicts between the SCRTD and the LACTC emerged. This was in part because the powerful, conservative County Supervisor representing the San Gabriel Valley, Peter Schabarum, was a political opponent of SCRTD; particularly, its unions, which he believed (with some justification) to be operating relatively expensive transit service. LACTC implemented a practice of shifting funding away from SCRTD to smaller Municipal and Included transit operators and penalizing SCRTD (and only SCRTD) for failing to meet service metrics imposed by LACTC. Supervisor Schabarum was also the chief sponsor of the Foothill Transit Zone, which was formed to take over most of the former SCRTD bus lines in his San Gabriel Valley district.

Eventually, this conflict became so heated that a political compromise was enacted in the form of a State statute merging SCRTD and LACTC, effective April 1, 1993, into the agency that became Metro. The merger was challenging for political and operational reasons.

Conclusions

1. SCRTD was created in 1964 to address the intensifying demand for transit services, a demand the agency met successfully with bus services.
2. LACTC was formed in 1976 with new authority to pursue creation of a Los Angeles rail system, and to finance the system with local sales taxes, something SCRTD could not do.
3. LACTC's fiscal role positioned it to exercise oversight over SCRTD, which SCRTD resisted. The two agencies were merged to form Metro in 1993 to diminish squabbling and improve coordination.
4. Metro is very well funded by four local half-cent sales tax measures, and a quarter cent State sales tax measure.

3. THE METRO METHODOLOGY

Unlike most of the papers in this series, this one will be light on data, tables, figures, and footnotes, but, instead, heavy on analysis and commentary—namely, how Metro has developed and perfected its methodology to advance its true objective, advancing large transportation capital projects to construction as swiftly as possible while developing new sources of revenue to pay for them.

Unfortunately, as we point out in the next chapter (4. Metro's Transit Ridership is Declining), this prime directive has actually led to transit ridership markedly decreasing.

Metro is the third largest transit operator in the nation by ridership and the largest West of Chicago. It is also the County-wide transportation planning and funding agency; is responsible for coordination of transit and street/road projects and services; funds the other County transit operators and the Los Angeles County share of Metrolink (the commuter rail operator for Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties) costs; and is the principle LA County coordinating agency with the California High Speed Rail Authority.

Metro has many sources of funding, including substantial Federal and State of California grants, some for capital expansion projects, such as new passenger rail projects, some for capital renewal and replacement of existing infrastructure. There are also flexible funds, which Metro, at its option, can use to subsidize transit operations or for capital purposes. Metro also receives farebox and other operating and non-operating revenues, such as advertising, rents, and interest.

However, the majority of its funding comes from four “evergreen,” i.e., eternal, half-cent, and one evergreen quarter-cent, sales taxes on the entire County—which, for fiscal year 2019 (FY19), Metro budgeted to bring in \$3.798 billion, or 57%, of the total \$6.611 billion²⁶ for the year.

In addition to the large direct tax revenues it receives, Metro also bonds heavily against most of these sales taxes. As of the beginning of FY19, Metro had \$4,823 million in Total Outstanding Debt Principal Balance²⁷; with \$452 million in Total Funding Demand Debt Service to be paid out this year to service the pre-existing and new debt; and \$1,169 million in Bond Proceeds, TIFIA & Prior Year Carryover budgeted to go for FY19 capital expenditures²⁸. (“TIFIA” refers to the Federal Transportation Infrastructure Financing and Innovation Act, which in this case means previously approved Federal loans for the Crenshaw/LAX, Regional Connector, and the Westside Purple Line Extension Section 1 projects²⁹; for our current purposes, this can be regarded as just another type of long-term debt secured by Metro sales tax revenues.)

Obviously, even with \$1,001 million in Capital Grants Reimbursements³⁰, the continual inflow of large amounts of Metro sales tax revenues is the key to keeping the Metro capital program going—which brings us to the question, how did Metro get to where it could get the Los Angeles County decision-makers, residents, taxpayers, voters, and users of the County surface transportation infrastructure to approve additional sales tax measures at the ballot box?

26. *FY19 Adopted Budget*, page 28.

27. *Ibid.*, page 42.

28. *Ibid.*, page 28.

29. Metro, *Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2017*, page 27, https://media.metro.net/about_us/finance/images/fy17_cafr.pdf

30. *FY19 Adopted Budget*, page 28.

Although this suggestion may appear outrageous to some, we propose that, for purposes of review of this and the following papers in this series, the reader agrees to give fair consideration the proposition that the real objective of Metro and its supporters is to maximize major capital projects—and, further, not only is there no connection between the construction of expensive new transit projects and increases in transit utilization, but that there is actually a strong historical connection between Metro transit capital projects and spending increasing and transit ridership *decreases*.

In the next chapter, we show that Metro transit ridership, and the total for all transit operators in the county, has been decreasing significantly; what we will show in subsequent papers is that the combination of:

1. Metro scheduling too many major construction projects too soon
2. Overestimating revenues
3. Underestimating construction costs, which collectively leads to
4. Projects with financial shortfalls that have to be acknowledged within a few years, which leads to
5. Some projects already underway being delayed and the “next up” projects being delayed and
6. A requirement to find for funds for capital projects, which leads to
7. Fare increases, which do not generate much in the way of new revenues, but does drive away transit riders, which
8. Provides a justification for Metro to reduce the level of bus transit services provided, which
9. Reduces transit ridership, but
10. Supports Metro's prime objective, which is the planning, design, and construction of as many major capital projects as soon as possible.

In simple terms, carrying transit riders interferes with construction of large-scale transit capital projects—and Metro has always prioritized major capital projects over carrying transit passengers.

First, it is important to understand that the creation of a new tax and its placement on the ballot is an intensely political process and, for such measures to reach the ballot, the political decision-makers engage in “Christmas-Treeing.” That is, there must be a big present under the tree for everyone, or the new tax will never make it to the ballot. The problem here will be multiple players, all of whom want “their” project, want it done big, and want it done soon—and there is no way that everyone can possibly be fully satisfied. But, to get as close as possible, the players branch into alternate reality, in order to make as many promises to as many power players as possible, and to do so by making what are, in retrospect, clearly overaggressive assumptions. These assumptions are rather easy to detect as overaggressive well in advance, which is exactly what we do here, but the power players in Los Angeles, as in most other governmental units, are very skilled at denying reality when it is not consistent with what they want to do. The job of staff in this process is to make the political decision-makers happy; literally, staff is instructed to jump the revenues sufficiently to make things happen and the only acceptable response is, “how high?”

Once the list of the projects to be completely quickly is formulated, then comes, how do we get the voters to approve it, particularly in California, where there is a two-thirds majority

requirement for passage of most new taxes? Keep in mind that the vast majority of voters, particularly in Los Angeles County, have absolutely no interest in using the transit system themselves.

The answer is, give the voters what they really want—to improve their driving conditions. The Los Angeles-Long Beach-Anaheim urbanized area is well known as being almost always at the top of list for having the worst traffic congestion in the U.S.³¹—the usual political reality is that a good sales job, including a government-funded “information” program and a paid political advocacy campaign will have a good shot at getting the new tax approved.

This is despite the solid consensus of transportation professionals that adding transportation system capacity will not relieve congestion in any major way for more than a relatively brief period of time. This applies to both adding roadway capacity, as Anthony Downs and others have been articulating for decades³², as well as public transit³³.

However, hope springs eternal in every human breast—namely, the hope that, while the person voting for a transit tax has no plans to ever use the transit system him/herself, they hope that other people will, thereby creating more space on the freeway and road systems for their own driving. Perhaps the best piece ever written on this phenomenon is the classic *Onion* satire, “Report: 98% of U.S. Commuters Favor Public Transportation for Others³⁴.”

As the next paper in this series will examine in more detail, Metro, and its predecessor organization, the Los Angeles County Transportation Commission, have now passed four new transportation sales taxes from 1980 to 2016 and, for each, they have gone through the following steps:

1. Propose a new transportation sales tax, mainly to fund construction of new rail lines; specify the various projects and programs to be included, being careful not to make legally binding commitments that cannot be broken.
2. Include some highly visible road projects in the implementation list and carefully word the legal description and promotional materials to emphasize the highway and street improvement aspects of the new tax proposal.
3. Include various dedicated allocations of revenues to satisfy interest groups that are thought to be critical to passage of the measure, either to get their support or to neutralize potential opposition.
4. Overstate revenues of the new tax and understate costs to include as many projects as needed to gain political approval to put the tax on the ballot and passed; be aggressive in

31. Texas Transportation Institute, Texas A&M University, *2015 Urban Mobility Scorecard*, “National Congestion Tables. Refer, for example, to Table 1, page 2, “What Congestion Means to You,” where LA-LB-Anaheim is ranked number 1 (worse) for Travel Time Index,

<https://static.tti.tamu.edu/tti.tamu.edu/documents/ums/congestion-data/national/national-table-all.pdf>

32. Anthony Downs, *The Triple Convergence* (this is an excerpt from *Stuck in Traffic*, 1992);

<https://walkablestreets.wordpress.com/1994/08/18/the-triple-convergence/>

33. Thomas A. Rubin & Fatma Mansour, *Transit Utilization and Traffic Congestion: Is There a Connection?*, Reason Foundation, 2013, https://reason.org/wp-content/uploads/files/transit_utilization_traffic_congestion.pdf

(Note Los Angeles case study chapter.)

34. *The Onion*, November 29, 2000, <https://www.theonion.com/report-98-percent-of-u-s-commuters-favor-public-trans-1819565837>

projecting funding from other programs, including State of California and Federal grant and loan programs.

5. Include a "local return" segment of funds distribution, where the Los Angeles County cities (and the County Supervisors for the unincorporated areas of the County) will receive significant new funds for the respective city council (and individual Supervisors) to determine how to spend—which tends to gain support of the tax measure among most County supervisors and city mayors and councilperson.
6. If inconvenient, ignore legal requirements that could conflict with what is desired; if potential legal problems occur after the measure is passed, first attempt to ignore the problem.
7. Start with an aggressive schedule for construction of each rail line; start construction on some ASAP and promise everyone what they want to hear.

Conclusions

1. The prime activity of Metro is planning, designing, funding, and constructing major transportation capital projects, particularly passenger rail lines.
2. In order to gain new tax funding for these projects, Metro will do what it believes is politically necessary, including proposing lists of projects that are impossible to complete with the funds that will be generated in the time period presented.
3. If carrying transit passengers interferes with the prime activity, funding for transit operations will be limited in order to devote more funds to construction.

4. Metro's Transit Ridership is Declining

Metro has many responsibilities. The largest is providing transit service, which represents over 90% of the agency's expenditures and staffing³⁵. While Metro has important funding, planning, and coordination roles with respect to highways and roads, it does not generally directly construct either of these. Metro provides the majority of transit services in the County. It plans, designs, and constructs most of the transit capital projects in the County. Metro funds, coordinates, and oversees the transit services it does not operate itself. Metro's non-transit activities are important, but its transit function is central to its mission, and vitally important to Los Angeles County residents.

Ridership Trends

Understanding transit ridership figures means distinguishing between linked and unlinked passenger trips ("UPT"). For example, if a rider gets on a bus near her home that goes to a rail station, boards a train, and exits the rail station to her job, this creates two *unlinked* passenger trips, one each on bus and rail, and one linked passenger trip. The technology did not exist for most transit agencies to track linked trips until recently. Consequently, unlinked trips have been what transit operators measure and report by default. This summary focuses primarily on unlinked trips, with some discussion of linked trips at the end.

Metro's ridership record, along with that of its predecessor agencies, shows large variations in annual boardings. Most recently, as shown in figure 1, the trend is mainly down³⁶. Metro's Fiscal Year 2018-2019 ("FY19") ridership is down 24% from the FY85 all-time peak, and also slightly less from the more recent FY07 peak. Between the peak transit ridership year of FY85 and FY19, rail UPT has grown from zero, when SCRTD was an all-bus system, to 102.8 million per year. However, while rail ridership has grown—mostly from conversion of former bus riders), bus ridership has fallen during this same period from 497.2 million to 273.6 million. This is a loss of 45%, or 223.6 million, a value 118% larger than the increase in rail ridership. *For every rail passenger added, Metro has lost more than two bus passengers.*

The ridership trend is starker if population growth is taken into account. Figure 2 shows that Los Angeles County population increased 25% from FY85 to FY19³⁷ while Metro total UPT dropped 24%. Metro UPT *per capita* was thus down almost 40%.

Metro's rail ridership has stopped growing. FY19 rail ridership was 9% lower than the FY13 value of 113.2 million, even though Metro opened two rail extensions during this period, the Expo Line to Santa Monica and Gold Line Foothill Extension to Azusa.

35. *FY19 Budget*, calculations from data on pp. 30, 31, and 42 for expenditures and pp. 46-47 for staff.

36. Data through FY17 from U.S. Department of Transportation/Federal Transit Administration National Transit Database ("NTD"); <https://www.transit.dot.gov/ntd> FY18 and later data, and rail line data, from Metro, "Interactive Estimated Ridership Statistics," <http://isotp.metro.net/MetroRidership/Index.aspx>

37. State of California, Department of Transportation, Demographic Research Unit, *Population Estimates for Cities, Counties, and the State*, 1980-1990 and 2010-2019 ("E-4"); <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/>

Figure 1
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
Unlinked Passenger Trips (Millions) by Mode—Fiscal Years 1980-2019

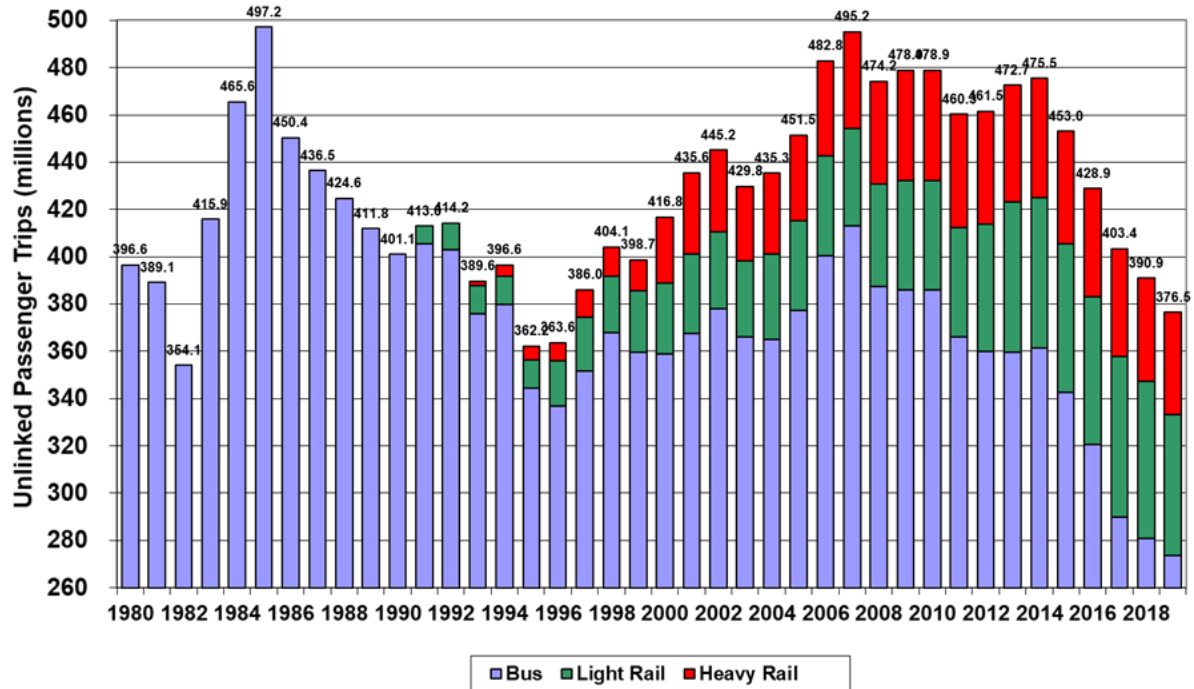


Figure 2
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
All-Mode Unlinked Passenger Trips and Population (Millions), 1980-2019

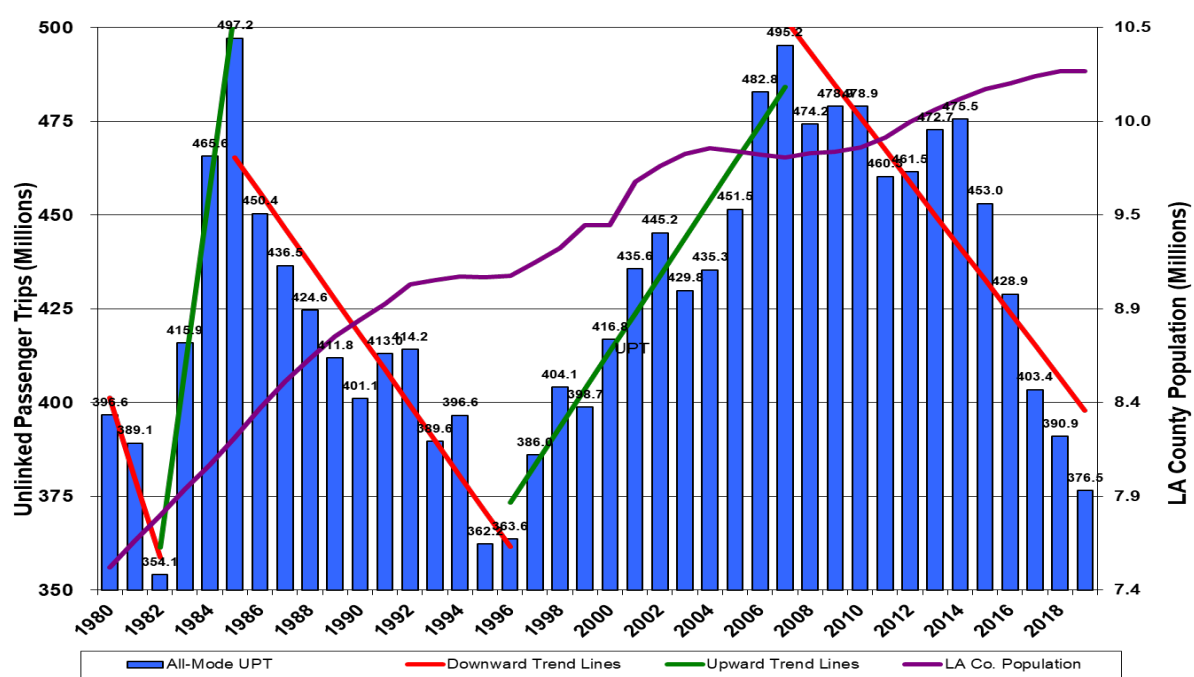
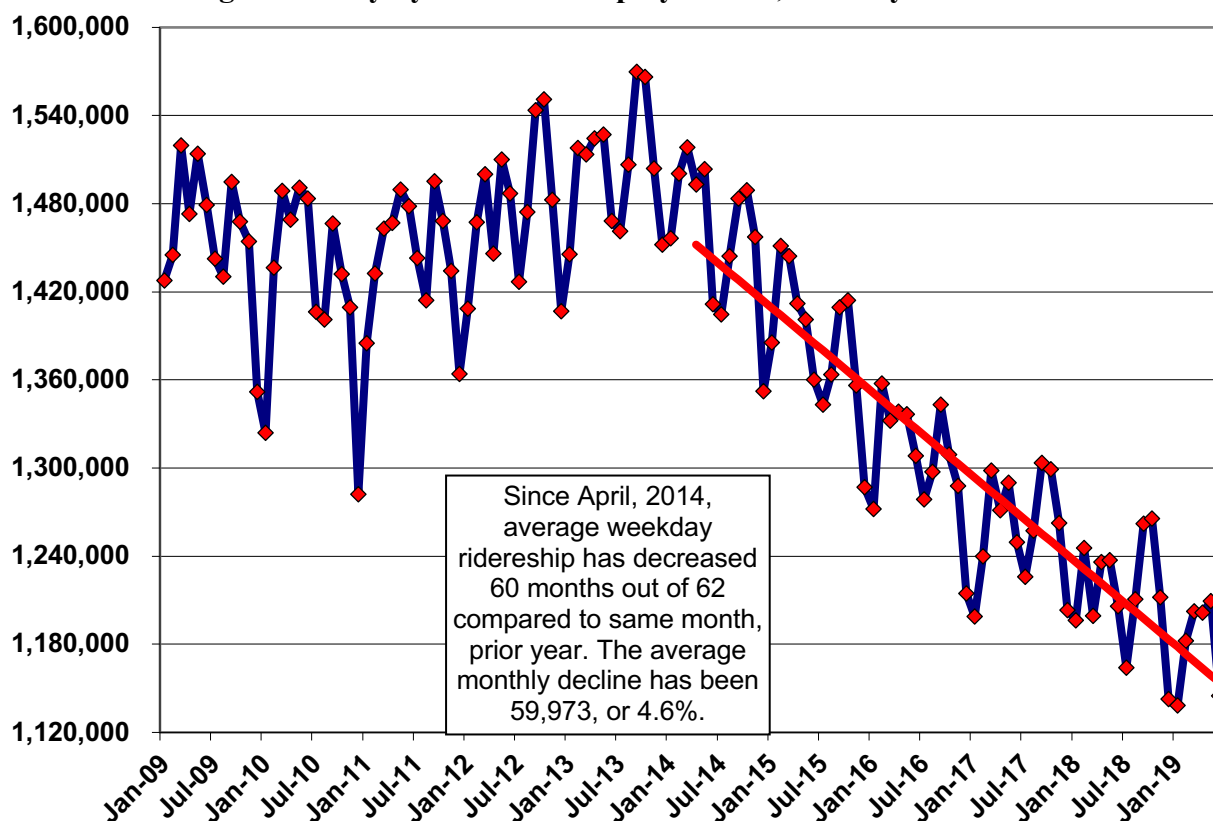


Figure 3³⁸ shows that the recent detail record is even more disheartening. Metro’s most recent peak average daily UPT is 1.569 million in September 2013. Since then, ridership has fallen, current-month-vs.-same-month-previous-year, almost continuously. The April 2019 UPT was down 293,631, 20% from the June 2014 peak, and there appears to be no end in sight for this decline.

Figure 3
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
Average Weekday System Ridership by Month, January 2009-June 2019



Transfers

It is important to consider the effect of transfers on Metro’s ridership. The agency’s shift from an all-bus system, which began with the opening of the Long Beach Blue Line train in July 1990 (the beginning of FY91), to a multi-modal system changed the ratio of unlinked to linked passenger trips in a way that reduces the quality of service for riders.

Pre-rail, much of the SCRTD bus network operated on arterial streets that were aligned on a grid system of major North-South and East-West streets spaced approximately one mile apart. Many of the riders who could not take a single bus directly from their origin to their destination could complete their linked trip with a single transfer from an East-West route to a North-South route, or vice versa.

38. Metro, “Interactive Estimated Ridership Statistics.” Data utilized is “Systemwide (Bus and Rail) Estimated Weekday Ridership:” <http://isotp.metro.net/MetroRidership/Index.aspx>. Hereinafter “Metro Ridership Stats.”

The county's rail network increases the number of transfers. There are approximately 26,000 bus stops in Los Angeles County³⁹, but only 93 Metro rail stations⁴⁰, and 27 Los Angeles County Metrolink stations.⁴¹ These counts exclude duplicates for stations that serve more than one line. This means that far fewer Los Angeles County transit users are within walking distance of a rail station at either end of their trip than they are proximate to a bus station. As a result, rail riders are far more likely than bus riders to need to make multiple transfers to complete their linked trips.

The SCRTD bus network was subject to only relatively minor changes between FY 1985 and FY 1993, chiefly the transfer of San Gabriel Valley bus lines to the Foothill Transit Zone between 1989 and 1992, and changes to serve as feeder/distributor routes to the Blue Line light rail and Metrolink regional rail services, both of which began service in July 1990. In calendar years 1991-1993, the only SCRTD rail line in operation was the Long Beach-Los Angeles Blue Line. Trains carried less than 3% of the system's total UPT at the end of this period, and the ratio of unlinked to linked trips was 1.65:1⁴². By the early 2000s, the ratio had increased to a weighted value for the system as a whole of approximately 2.30:1⁴³. Assuming no further change, this means that each unlinked trip is associated with 28% fewer (1.65/2.30) linked trips. Applying this factor to the almost 40% reduction in Metro UPT *per capita* from FY85 to FY19, the reduction in Metro linked trips *per capita* is over 55% ($[1-.4] \times [1-.28] = 43\%$ of the start point). Metro is now serving under half the daily riders it was during the FY85 peak.

It seems that Metro no longer queries riders about transfers in its annual passenger surveys. The last record of such data collection was in a 2005 report⁴⁴ that produced a 3.13:1 ratio between unlinked and linked trips. This figure is unreasonably high relative to all other Metro surveys over multiple decades and industry experience with urban transit and is likely inaccurate.

Due to the deliberate policy changes and decisions initiated by LACTC and continued under Metro, there has been a significant shift of ridership from SCRTD/Metro to the other Los

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39. Chip Hazen, Metro, "Bus Stop Usability Study," presented to the Los Angeles County Commission on Disabilities, January 18, 2012, Slide 10, <https://www.transit.dot.gov/ntd/data-product/2016-annual-database-service-0>
 40. Authors' analysis of Metro Rail and Busway Map, <https://media.metro.net/documents/8f0fe43e-da3b-4a10-bd8e-4cfd54e30eb3.pdf>
 41. Authors' analysis of Metrolink Map, <https://www.metrolinktrains.com/rider-info/general-info/stations/>
 42. SCRTD, Passenger Survey Results ("FOCUS" Report).
 43. Metro, *FY 2002 On-Board Bus Weekday Survey Report*, Volume I, Table 3, "Number of Buses/Trains Used on One-Way Trip (Weekday), page 8, which reported 2.26:1; *FY 2002 On-Board Bus Weekend Survey Report*, Table 4, "Number of Buses/Trains Used on One-way Trip (Weekend), page 8, which reported 2.27:1; *2004 Rail On-Board Survey Report*, Table 3.2, "Train/Bus Use per Trip," page 14, which reported 2.45:1. http://media.metro.net/projects_studies/research/images/reports/2002_on-board_bus_weekday_report_vol_1_&_2.pdf; http://media.metro.net/projects_studies/research/images/reports/2002_on-board_bus_survey_weekend_report.pdf; http://media.metro.net/projects_studies/research/images/reports/metro_rail_2004_on-board_survey.pdf
 44. Metro, "Combined Customer Satisfaction Survey—Spring 05," question 25., "How many buses/trains will you use to complete **THIS** [emphasis in the original] one-way trip?" http://media.metro.net/projects_studies/research/images/annual_survey_results/System_Results_Spring_2005.pdf

Angeles County transit operators. For FY85, SCRTD carried 87.9%⁴⁵ of all County riders (this estimate excludes 12 million annual boardings on lines shifted from SCRTD to other County transit operators, chiefly the Foothill Transit Zone, so that the before and after statistics are as comparable as possible). By FY16 (later year data not easily available), this share had been reduced to 77.1%, including the 40% of Metrolink regional rail boardings assumed to be made by Los Angeles County residents⁴⁶.

Adjusting for this shift of transit trips away from Metro increases the estimate of current Los Angeles County linked transit trips to approximately half of what they were in FY85, when SCRTD ridership was at its peak:

$$45\% \times (87.9\% / 77.1\%) = 51\%.$$

By any standard measure, transit use in Los Angeles County has dropped under Metro's watch. In subsequent summaries, we review in more detail how this decline has occurred, including why and how Metro's actions appear to have significantly contributed to this shift.

CONCLUSIONS

1. Metro is losing ridership, despite population growth in Los Angeles County. Ridership measured in UPT is down 20% from 2013. Metro UPT *per capita* is down 37% from Metro's all-time peak ridership in 1985 and, for all Los Angeles County transit operators, linked trips *per capita* are down 42%.
2. Far more riders are disappearing from buses than show up on rail. Rail ridership has stopped growing, and is now in decline, despite the addition of new lines.
3. Reconfiguring bus lines to feed rail lines increases the number of transfers needed to complete a trip, and diminishes the competitiveness of Los Angeles transit, contributing to reductions in ridership. Metro's surveys show the number of transfers needed to complete a trip are far above the national average and are so high that they are difficult to believe. In any event, the number of Los Angeles transfers is far above the norm.
4. The more rail service Metro delivers, the fewer riders it can expect—at least, until it begins to pay appropriate attention to the needs of its riders and potential riders.

45. Authors' calculation from data obtained from Florida Transit Information System, Integrated National Transit Database Analysis System, <http://www.ftis.org/INTDAS/Reports.aspx>, and based on T. Rubin's research while SCRTD CFO.

46. Authors' calculation based on data from NTD, 2016 reporting year, "Annual Database Service" spreadsheet, <https://www.transit.dot.gov/ntd/data-product/2016-annual-database-service-0>

5. METRO'S LONG-RANGE PLANS OVERPROMISE AND UNDERDELIVER

Long-range plans have been used to justify each of Metro's four successful half-cent transportation sales taxes. Although there have been variations on the theme, these ballot measure campaigns have included a proposed program of projects to be funded. In three cases out of the four, these programs were published prior to the public vote. These plans were updated periodically to reflect necessary changes driven by the imbalance between the financial resources necessary to perform on all of Metro's original promises, and what revenues actually become available. The nature of transportation planning requires that long range plans be continually updated. This segment focuses on the most significant of these plans, and their failures, past and yet to come.

1980 PROPOSITION A

Figure 4 provides the Rapid Rail Transit map from the plan provided with 1980's Proposition A, the first successful County-wide sales tax⁴⁷. Rail advocates have been planning and promoting a "modern" rail transit system—more modern than the Red and Yellow Cars, that is—since 1911, involving at least eighteen prior attempts to fund a system⁴⁸.

The key section of the Proposition A Ordinance describing the scope of LACTC's rail plans is:

"D.2.c. The System will be constructed and operated in substantial conformity with the map (hereinafter referred to as "Map") attached hereto as Exhibit "A." The areas proposed to be served are, at least, the following:

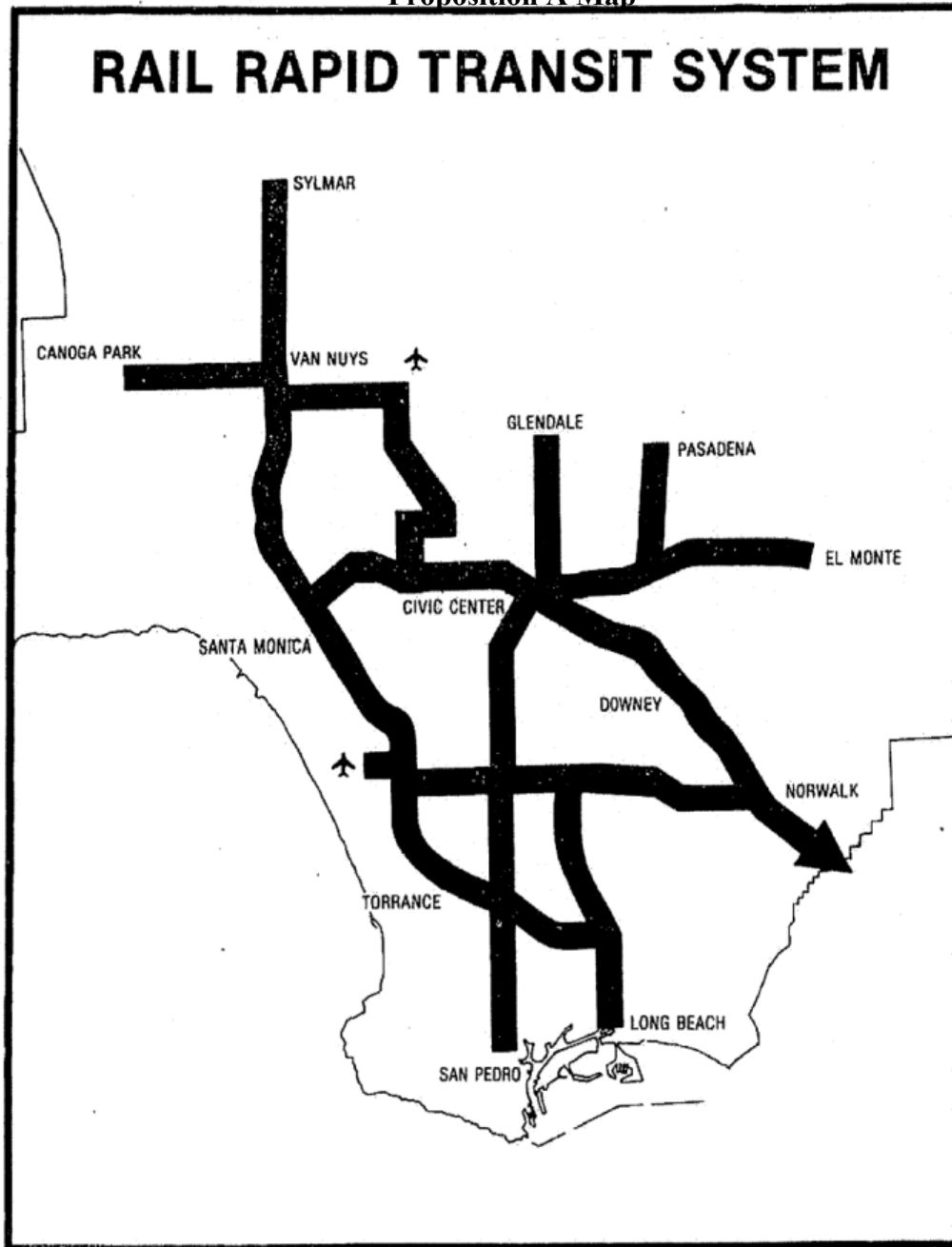
- San Fernando Valley
- West Los Angeles
- South Central Los Angeles/Long Beach
- South Bay/Harbor
- Century Freeway Corridor
- Santa Ana Free (sic) Corridor
- San Gabriel Valley"

The "Map" referenced in section D.2.c. is figure 4. A notable feature of the Map in figure 4 is that the lines don't provide exact routings, but rather general service areas. This lack of specificity combined with lines drawn to appear two miles wide to produce a map implying that more residences, businesses, and other destinations would be closer to the rail lines than could ever actually be the case once the lines are constructed.

47. Metro, Los Angeles County Transportation Commission, Ordinance 16, http://media.metro.net/projects_studies/taxpayer_oversight_comm/proposition_a_ordinance.pdf

48. L. Green, "A History of Rail Setbacks," *Mass Transit* magazine, September 1985.

Figure 4
Proposition A Map



Of the eleven rail lines on the map:

- One, the Long Beach Blue Line, was completed with Proposition A funding.
- Two, the Red/Purple Line (MOS-1 and MOS-2) and the Green Line, were started with the intention of full funding from proposition A but needed proposition C funding to be completed. Neither of these lines has been fully completed.
- Three, the El Monte Line, the South Bay/Harbor Line, and the San Fernando Valley Line, were completed as busways. The El Monte Busway was completed prior to the

origin of Proposition A. There is a plan to convert the San Fernando Valley Line to light rail decades from now. There are no plans to convert the other two lines.

- One, the Glendale Line, is subject to no current plans for completion.
- Two, the Pasadena Gold Line and the Red Line to the Valley, have been completed with a combination of Proposition A and C funds.
- Two, the Santa Ana Freeway Corridor/West Santa Ana Branch and the I-405 Line, are being planned for construction with a variety of funding sources, including Proposition A, but little to nothing has been constructed to date.

While LACTC had expansive plans for rail construction from Proposition A funding, by 1989 the revenue generated was too limited to fund the entire project list. One line, the Long Beach-Los Angeles Blue Line, was almost completed and would be fully funded by Proposition A. The Red Line and Green Lines were under construction, but there was insufficient funding available to complete even these two lines.

Today, nearly four decades after the passage of Proposition A, and after the passage of three additional half-cent sales taxes in the years since, five of the eleven rail lines in figure 4—El Monte, Glendale, San Fernando Valley, Santa Ana Freeway Corridor, and South Bay/Harbor—do not have a single mile of rail transit on them. Being very generous, a sixth, the I-405 Corridor, has passenger rail on a few miles, if you so consider the North-South/Northwest-Southeast portion of the Green Line at its extreme Western end, a mile or so West of I-405, as meeting this criterion.

Thus, the Proposition A plan failed to produce the passenger rail lines promised to voters for three reasons: LACTC/Metro overestimated revenue generated by sales taxes, underestimated project costs, and failed to ensure adequate project management.

1990 PROPOSITION C

Proposition C, the second half-cent Metro sales tax, was placed on the November 1990 ballot and approved by Los Angeles voters. Unlike the other three LACTC/Metro sales tax measures, there was no detailed program of projects prepared as part of the ballot measure. Following its passage, LACTC began a planning and promotion process that eventually produced the agency's *30-Year Integrated Transportation Plan*, which, after many iterations and meetings, was approved by the LACTC Commission at its April 22, 1992 meeting.

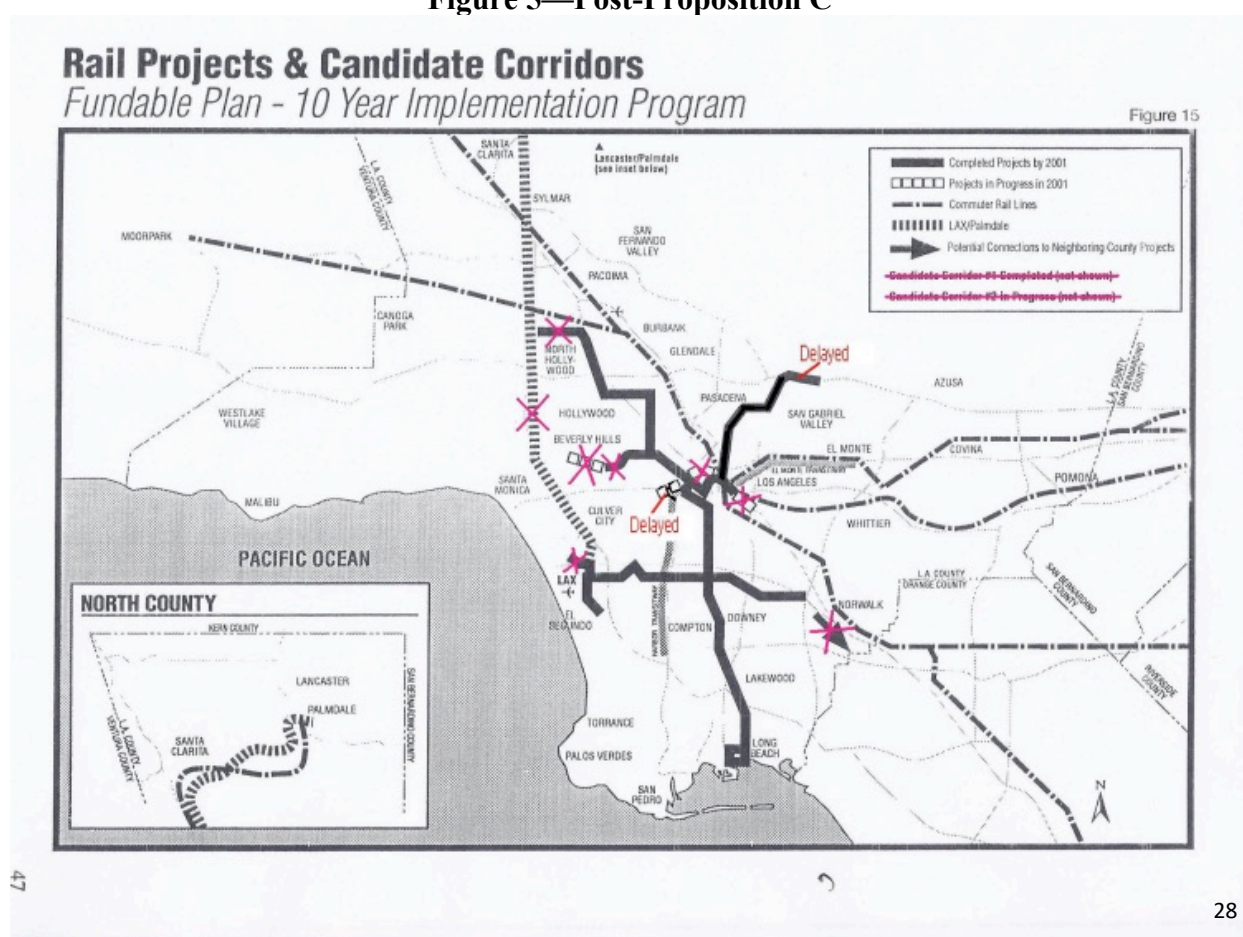
This document included a very long list of projects that were to be completed over its three-decade horizon, more than what is needed to be fully analyzed here. The highest priority projects identified to be completed within the first ten years of the plan are detailed in figure 5. This map was developed and first presented during 1991, so the ten-year implementation period to which it corresponded ended in 2001.

In total, there were twelve Metro lines or extensions that were scheduled for completion prior to the end of 2001 that did not meet that schedule. Some of these projects were to have been placed into revenue service earlier than 2001, but the calculations below all assume 2001 as the scheduled revenue service date:

- One (LAX-Palmdale) has been entirely cancelled.
- One (East Santa Ana Branch) has yet to begin construction. If completed as currently scheduled, it will be 27 years late.

- One (San Fernando Valley East-West Subway Segment 1) was completed as the Orange Bus Rapid Transit line four years late. Segment 2 was completed at the same time.

Figure 5—Post-Proposition C



- One (Red Line MOS-3 Eastside) was changed from heavy rail to light rail and was completed two years late.
- One (Pasadena Gold Line) began passenger service in 2003, two years late.
- One (Expo Line to USC) was completed approximately eleven years late, but included eight more stations than what was contemplated in 1991,
- One (Downtown Light Rail Regional Connector) is scheduled to be completed 21 years late.
- Two (the Purple Line extensions) are under construction on different alignments; and, if completed on the current schedule, will be a combined total of 46 years late.
- Two (Expo Line Phase 2 to Santa Monica, Pasadena Gold Line Foothill Extension), effectively Candidate Corridors 1 & 2, were completed a combined total of 30 years late.
- One (Green Line LAX Connector) has been taken over by Los Angeles International Airport and will be completed at an unknown date. It is 18 years late and counting at this date.

The LACTC's 30-Year Integrated Transportation Plan failed for a variety of reasons, but one of the most important of these is the agency's optimistic financial projections. When it was adopted,

the plan's financial element projected \$100 billion of revenues over the plan period. Two-and-one-half years later, when the MTA Board was presented with the next regularly scheduled revision to the plan, the estimated revenues over the same period were \$64 billion—a reduction of \$36 billion in 30 months—which turned out to be too high.

2008 MEASURE R

Over the 18 years between Proposition C and Measure R in 2008, few new Metro rail line construction projects were begun, although there were extensions to previously completed lines. Construction for the Bus Rapid Transit Orange Line began and was completed, and the Gold Line Eastside entered construction and was nearing completion by 2008. Several other projects were well into planning and design, but Metro was broke. The agency needed more money, and a new tax, to proceed.

In 2008, the economy was booming after the recovery from the burst of the dot.com bubble, and Metro concluded this made it a good time to ask the voters for more funding. Metro placed a new tax proposal, its third, on the November 2008 ballot.

- The plan included:
 - Funding for eleven new, or accelerated, passenger rail and three busway construction projects and bus capital projects;
 - Local return funding, a political goal of elected city officials and County Supervisors;
 - Funding for 17 road and highway projects, designed to gain the favor of drivers who had no interest in using transit themselves; and
 - Funding for bus operations, to (try to) quiet the *L/CSC v MTA* and other plaintiffs.
- After polling showed that the voters were apprehensive about imposing an eternal tax, Metro stipulated a 30-year term. This added a few key percentage points to the “likely to vote for” response showing up in polls.
- Then-Senator Barak Obama made his initial run for U.S. President in this election. Polling indicated he had strong support among minority voters who would be likely to vote at this election, whom Metro believed to strongly favor such a new tax for transit.
- Measure R was the object of strong campaigns by contractors, equipment suppliers, and professionals who contributed to the formal campaign to sway the voters.

Measure R passed with 67.22% in favor, barely a half percentage point over the two-thirds voter approval required to pass. Regrettably for Metro, the timing of Measure R proved very unfortunate. The economy began to falter in the middle of the campaign. By the time the winning vote was certified, Metro staff understood that their sales tax revenue projections could not be achieved. Metro did not have the revenue for a rainy-day fund, instead leveraging the increased revenue projections of the prior years as much as possible. Sales tax collections for Proposition A increased from \$526 million for FY02 to \$686 million for FY07, more than 30% over five years, but then sunk to \$568 million for FY10, down 17% over three years (these are current year values, not inflation-adjusted values; the downturn was larger if expressed in real dollars). The FY07 receipts were not exceeded again until collections of \$687 million in FY13, not inflation-adjusted⁴⁹.

49. Metro, Proposition A & C and Measure R Sales Taxes. <https://www.metro.net/about/financebudget/taxes/>

The impact of the Great Recession on Metro's planning and operations was dramatic. The downturn in sales tax revenues not only significantly reduced Metro's ability to finance major transportation construction projects, but it forced major reductions in expenditures for transit operating subsidies (See chapter 15 for discussion of Metro's significant failure to meet what appears to be the statutory requirement to maintain transit operating levels of service).

In 2012, four years after the approval of Measure R, Metro went back to the voters and put Measure J on the ballot to try to extend Measure R for an additional 30 years. However, for the first time, Metro's timeline extended too far into the future, and Measure J was defeated by a narrow margin, with the 64.72% positive vote falling short of the two-thirds majority by less than two percentage points.

It is now apparent that measure R was a failure because it fell far short of delivering on the promises that were made to the voters. Metro's efforts to try to get measure J passed only four years after measure R, and then, four years later, orchestrating measure M's passage, are obvious and irrefutable evidence. Metro itself understood measure R was a failure.

2016 MEASURE M

It is too soon to draw empirical conclusions about the success or failure of measure M, or of *28 by 2028*, which is an acceleration of the original measure M implementation schedule, but history, context, and past performance indicate that Metro is unlikely to accomplish its goals.

To a degree the *28 by 2028 Plan* is a restatement of the measure M plan.

CONCLUSIONS

1. Each long-range transportation construction program that Metro has adopted has fallen far behind schedule in delivery of projects, failing to accomplish what was promised.
2. These failures result primarily from overestimation of sales tax revenues and underestimation of construction costs.
3. In 2019, almost 40 years after the passage of Proposition A, and after the passage of three additional half-cent sales taxes, of the eleven rail lines shown on the 1980 Proposition A Map, fewer than half have been completed anywhere close to as promised and only three (Long Beach-Los Angeles Blue Line, Pasadena Gold Line, and Red Line to San Fernando Valley) have been completed in full as rail lines.

6. IMPROVING BUS SERVICE AND REDUCING FARES HAVE GREATLY INCREASED TRANSIT SERVICE IN LOS ANGELES THREE TIMES

Metro has an interesting history of ridership changes. In three instances, relatively simple, inexpensive, and risk-free steps have substantially increased unlinked passenger trips on Metro's system. Increases of 36% to 101% have been achieved over only a few years by increasing the number of buses in service and the hours and miles they operate; improving the quality of bus service provided, which in Los Angeles starts with operating enough bus service to relieve the extreme overcrowding that has characterized LA transit service for decades; and reducing fares or avoiding fare increases. However, despite this record of success, Metro has consistently resisted emphasizing bus transit, pursuing instead the construction of new passenger rail lines; despite demonstrably far higher taxpayer costs to attract new rail riders, or even to serve existing riders.

Metro's Ridership History

Consider table 2 from chapter 2 and figure 1 from chapter 4. Both describe Metro unlinked passenger trips (UPT), but for different time periods.

The methodology for ridership data collection and reporting changed for Fiscal Year 1978-1979 (FY79) forward. Prior to FY79, there was no mandatory national standard for collecting and reporting ridership data. Most large transit agencies, including SCRTD, relied on generally similar methodologies to collect this data, which they used to report to the American Public Transit Association (APTA, now the American Public Transportation Association). APTA used these data to provide confidential peer reports to the agencies submitting the data, and national summary reports to the public.

Beginning in FY79, all U.S. transit operators receiving Federal grant funding, which was almost all of them, were required to conform to uniform requirements for collecting and submitting data to the U.S. Department of Transportation (USDOT)/Urban Mass Transportation Administration (UMTA, now the Federal Transit Administration—FTA). These were compiled in the National Transit Database (NTD⁵⁰). The two collection methods produce similar results. The totals were virtually identical for FY80, but there were differences across the series and they are not easily combined, and are presented separately here.

Metro's Sources of Change

Taken together, the two series reveal important ridership trends from 1970 to the present.

1970-1980—Ridership was mostly stable from FY70 through FY73, up 4% over this period. Beginning in FY74, a combination of two impacts led to an increase in transit ridership. The oil embargo imposed by the Organization of Petroleum Exporting Countries (OPEC) significantly increased the price of motor fuel and frequently made gasoline very difficult and time-consuming to find. The inflation-adjusted average price for a gallon of gasoline in California increased 117% from calendar year 1972, pre-oil embargo, to 1981. In addition, Los Angeles County experienced a large and rapid demographic shift that included increased numbers of

50. National Transit Database (NTD), Service Supplied and Consumed Tables, referenced years, <https://www.transit.dot.gov/ntd>

lower-income residents who had limited options with respect to automobility. Many of these residents rely on transit. The SCRTD UPT increased 102% between FY70 and FY80.

During this period, SCRTD's inflation-adjusted full adult cash fare remained relatively constant, increasing 6% over the decade. Unfortunately, accurate and consistent data on changes in the amount of service provided are not available, but indications are that there were significant service increases during this period.

1980-1982—Funding shortfalls led to an increase in SCRTD cash fares from \$.55 for FY80 to \$.65 for FY81 and then to \$.85 in FY82⁵¹. Other fares changed approximately proportionately, leading to an 11% reduction in UPT, between 1980 and 1982. Low-income transit users are predictably price sensitive.

1982-1985—Following the passage of Proposition A in 1980, Los Angeles County's first half-cent sales tax primarily for transit, SCRTD adult cash fares were reduced from \$.85 to \$.50⁵² for the three-year period, 1983-85. Other fares were reduced proportionately in accordance with the terms of the Proposition. The \$20 full adult fare monthly pass became heavily used, with individual riders taking an average of ~100 trips/month. The introduction of a \$4 Elderly and Handicapped (now Senior and Disabled) monthly pass also increased ridership. Total UPT increased slightly over 40%, with peak period ridership up over 36%, indicating that the number of people who were riding also strongly increased. Vehicle revenue miles increased, but only by 1.5%; and as a result, the average passenger load of 21.2 during FY85 appears to be the highest ever reported to NTD for urban bus service. The national average at the time was 12.7⁵³. Funding this fare reduction required under 20% of the half-cent sales tax collections during this period⁵⁴.

1985-1996—During this period, and also in accordance with the terms of Proposition A, LACTC ceased using a portion of the Proposition A funds for the SCRTD fare reduction program; and shifted its prime emphasis to planning, design and construction of rail transit. Two light rail lines and part of the heavy rail system went into service during this period. Adult cash fares increased from 50¢ in 1985 to 85¢ in 1986, \$1.10 in 1988, and \$1.35 in 1994. SCRTD UPT declined by approximately 27%. Rail ridership increased significantly, from none prior to FY91 to 26.8 million in FY96; but bus ridership fell by 160.3 million, six times the rail ridership increase. Bus vehicle revenue miles decreased by 19%, and Metro's average passenger bus load fell to 16.6 against a national average of 9.9. This dropped Metro down the rankings all the way to only the second most crowded bus system in the U.S.

1996-2007—The 1994 fare increase passed by the MTA Board included the elimination of monthly passes. These were extensively utilized by the most transit-dependent riders; and, in combination with the other changes, their elimination amounted to approximately doubling Metro's average fares. Opposition to this change generated a major Federal Title VI (discrimination in the utilization of Federal funding) legal action, *Labor/Community Strategy Center v MTA*⁵⁵. This suit resulted in a consent decree (CD) that went into effect from December

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51. Thomas A. Rubin and James E. Moore, II (1997) "Better Transportation Alternatives for Los Angeles (Part 4 of a Series on the MTA)" Policy Study No. 232, Reason Foundation, Los Angeles, CA.
 52. James E. Moore, II, Thomas A. Rubin, and Shin Lee (2000) "Market-Based Transportation Alternatives For Los Angeles," *Planning & Markets* <<http://www-pam.usc.edu/>>, 3 (1): 31-35.
 53. National Transit Database.
 54. Thomas A. Rubin's research during his service as SCRTD Controller-Treasurer.
 55. *Labor/Community Strategy Center et al v Los Angeles County Metropolitan Transportation Authority et al* [United States District Court—Central District of California, Case No. CV 94-5936 TJH (MCX)].

1996, approximately half-way through Metro FY97, and which remained in force for approximately eleven years.

The CD required Metro to reintroduce the \$42 monthly transit pass and institute a new \$11 weekly pass, which was very popular with the large share of Metro bus riders who had difficulty ever putting \$42 together at any one time, particularly at the beginning of the month when rents are usually due. The CD also required Metro to increase bus service and thus reduce extreme bus overcrowding, replace the large number of old buses with far more reliable (and cleaner) new ones, and add additional bus lines.

Bus revenue vehicle miles increased 19% over this period. Service was peak-heavy, and the peak buses required increased by 534, or 34%, and Metro's large inventory of buses that were past their useful operating lives was replaced by a newer, greener fleet.

After eleven years of Metro losing an average of twelve million UPT a year, the Consent Decree requirements immediately reversed this trend, ultimately producing an average annual *increase* of twelve million UPT for a 36% increase over the period the CD was in force.

Metro rail ridership increased significantly during the 1996-2007 period, but 58% of the total ridership increase consisted of bus riders, and approximately 70% of the new rail riders were former bus riders. Rail ridership also benefited from the reduction in transit fares and from the improved rail station access provided by the increase in bus service.

2007-2019—When the term of the CD concluded, Metro returned to its pre-CD practices, major spending on rail construction while reducing bus service and increasing fares. The results have been predictable:

- Rail annual ridership was up significantly by 20.6 million⁵⁶ over this period, a 25% increase.
- Bus ridership was down over this period—by almost seven times rail's increase, 139.3 million, or 34%.
- Total ridership was down 118.7 million, or 24%. It has been down very consistently, every month but two from April 2014 through June 2019, by an average by 60,000 every workday from the same month the previous year.
- Bus Vehicle Revenue Miles decreased 22%⁵⁷ over this period.
- Fares increased to \$1.75 for full adult cash fare and to \$100 for a 30-day pass, from \$1.35 and \$42.00, respectively.

Characterizing Periods of Metro Ridership Change

It is straightforward to identify what the periods of increase have in common, and in opposition; and what the periods of decrease have in common. Periods of ridership increases are characterized by fares that were either held constant or reduced, improved bus level of service, and an elevated financial emphasis on the bus system. Fares were held relatively constant over the FY70-FY80 period while ridership was up 102%. Service likely increased significantly. Data is not available, but it would have been all but impossible for ridership to double over this period without a major increase in service provided. Fares were significantly reduced in the period between FY82-FY85 and FY96-FY07. There was a minor increase in level of service between

56. All ridership data from Metro Ridership Stats.

57. Metro, *Adopted Budgets* for FY07 and FY19.

FY82 and FY85, a 1.5% increase in bus vehicle miles⁵⁸. There was a major increase between FY96 and FY07, with bus vehicle miles up 19.4%, light rail up 209.7%, and heavy rail up 630.6% for a grand total of 32.2%⁵⁹ up.

During the periods FY70-FY80 and FY82-FY85, Metro had no rail service in place. During the period FY96-FY07, the CD forced Metro to devote a larger portion of its financial resources to bus than it otherwise would have. The rail construction program still continued, although at a reduced pace. The Red Line MOS-2 to Wilshire/Western and Hollywood/Vine, MOS-3 to North Hollywood, Pasadena Line, and Orange Line (Bus Rapid Transit) all went into service. Construction on the Expo Line commenced while the CD was in effect.

Periods of ridership decreases are characterized by fares increases, bus level of bus service reductions and increases in rail level of service, and a budgetary emphasis on rail projects. Table 4 shows that, from the Metro FY20 Adopted Budget, at present rail is 71% of total bus and rail subsidies. Rail service is much more capital intensive than rail service yet offers no advantage with respect to operating efficiency. Metro's rail mode accounts for 31% of the agency's operating expenditures; but carries only 28% of unlinked passenger trips, and 37% of passenger-miles.

Description	Bus	Rail
Operating Expenses	\$1,268.6	\$542.8
Operating Revenues	(239.5)	(82.3)
Operating Subsidies	1,029.1	460.5
Capital Expenditures	254.7	2,306.0
Debt Service	4.1	422.7
Total Subsidies	\$1,287.9	\$3,189.2
Unlinked Boardings	273.4	107.4
Passenger Miles	1,143.3	685.3
Operating Subsidy/Unlinked Boarding	\$3.63	\$4.38
Operating Subsidy/Passenger Mile	\$.90	\$0.69
Total Subsidy/Unlinked Boarding	\$4.71	\$29.69
Total Subsidy/Passenger Mile	\$1.13	\$4.65

Conclusions

- There are three periods during which SCRTD/Metro transit ridership increased very significantly. During:

58. NTD.

59. FY96, Integrated National Transit Database, <http://www.ftis.org/iNTD-Urban/SelectSystems.aspx> FY97, NTD.

60. Metro, *FY20 Adopted Budget*, pp. 34, 42, and 50, http://media.metro.net/about_us/finance/images/fy19_adopted_budget.pdf

- FY70-FY80, ridership was up 102% over ten years.
- FY82-FY85, ridership was up 40% over three years.
- FY96-FY07, ridership was up 36% over eleven years.
- There have been two recent periods in which ridership showed significant decline. During:
 - FY85-96, ridership was down 27% over eleven years.
 - FY07-19, ridership was down 24% over twelve years.
- Metro's total ridership tends to increase with reductions in bus fares and improvements in the quality and quantity of bus service.
- Metro's total ridership tends to decrease with increases in bus fares, reductions in bus service quality and quantity, and a budgetary emphasis on the rail system.
- More rail service means more rail riders but shifting resources from bus service to rail lines means many more riders disappear from Metro's buses than appear on its trains. Therefore, the more rail Metro emphasizes rail construction, the fewer riders it carries.

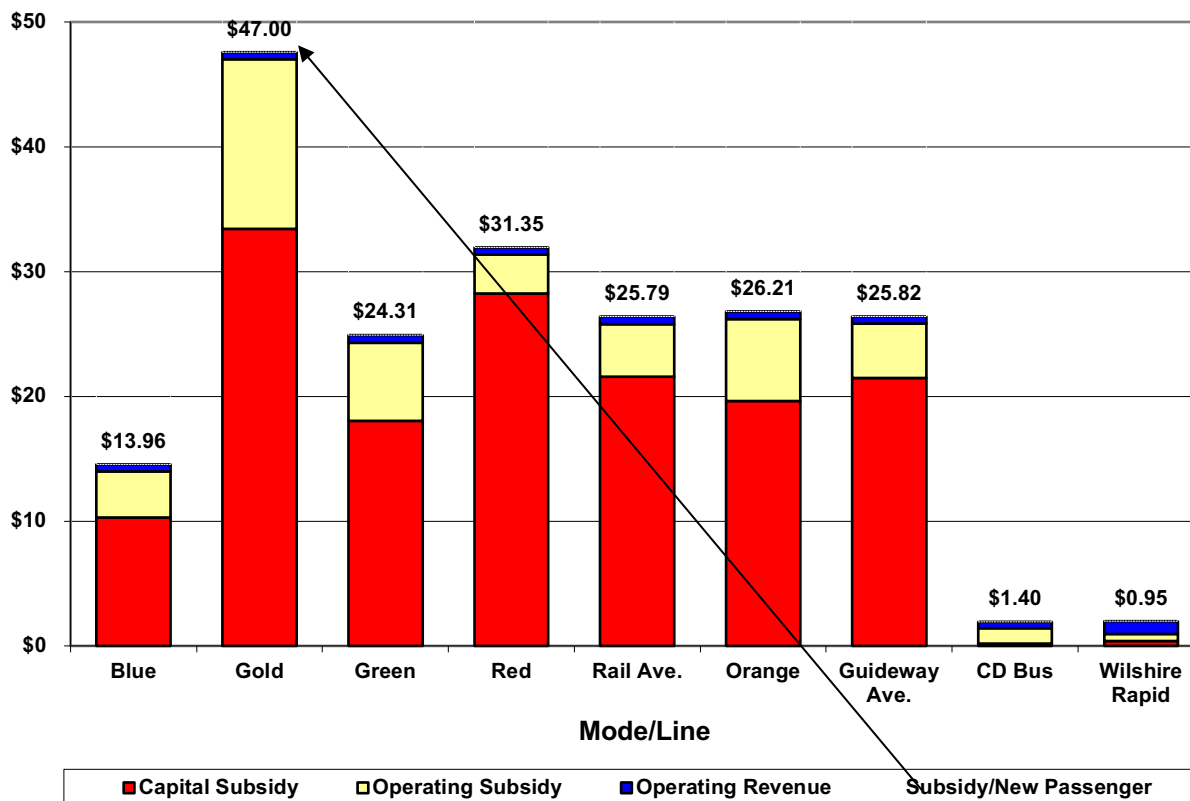
7. WHY HAS METRO BEEN LOSING RIDERSHIP SINCE 2007 AND WHAT CAN IT DO TO REVERSE THIS TREND?

Given the relative costs of attracting new transit passengers through investments in improved bus service vs. new rail lines, it is instructive to examine the opportunities Metro faced in FY07, the last year before agency was released from the terms of the consent decree (CD).

Comparing Metro's Bus and Rail Subsidies

Figure 6 relies on the Federal Transit Administration (FTA) new starts methodology for annualizing costs as it existed at that time. The average taxpayer subsidy per new passenger at the end of the CD period, expressed in FY07 dollars, was \$1.40 for the bus riders added by the consent decree vs. an average of \$25.82 per new rider for the guideway transit lines Metro has added to its system (the Blue, Gold, Green, Orange, and Red Lines). This is a taxpayer subsidy per new passenger ratio of 1:18.4 for bus vs. rail. That is, adding an average transit trip via bus under the terms of the CD required a taxpayer subsidy that was just 5.4% of the cost to taxpayers of adding an average transit trip via rail or dedicated busway rapid transit.

Figure 6
Metro FY2007 Capital Subsidy, Operating Subsidy, And Operating Revenue per New Passenger Trip



If Metro staff and board members reviewed the data and the history, did this basic analysis, and prioritize providing transit service, it would have been difficult to justify continuing to devote as large a share of the agency's total available funding to rail as Metro's has for the past several decades.

To be clear, passenger rail is not an inherently bad idea. Properly planned, designed, constructed, and operated, rail transit can be a very important and productive component of a metropolitan area's transportation system, including that of Los Angeles. However, the current balance of funding allocation favoring rail construction and the narrow attention of top management and Board Members towards rail is very questionable and deserves scrutiny. If the objective is using scarce public resources to provide as much transit service as possible, any unbiased analysis indicates that Metro should make a major shift of dollars and attention to bus, and to other cost-effective transportation options.

What Is Metro Missing?

The Metro staff and board may fundamentally misunderstand the depth of the demand for bus transit in Los Angeles. Metro took positions while negotiating terms of the Consent Decree that point to this. During the negotiation of the *L/CSC v LACMTA* CD, the plaintiffs began by asking for specific guarantees with respect to the number of buses that would be placed in service and the hours and miles of revenue service that would be operated. Metro, the defendant, refused to discuss these specific requirements, and instead proposed a series of load factors that evolved into requirements based on the number of riders carried past the peak load point on individual bus lines during peak periods. Metro offered to specify that the load factor would be reduced in three steps down to 1.20 (that is, on a 40-seat bus, any passenger load over 48 passengers would be a violation of the CD requirements). This metric was to be applied to twenty-minute intervals during the peak periods and to one-hour periods otherwise, as determined by the average of all buses on a route travelling past a point during the appropriate period. It would be up to Metro to size its fleet and deliver the miles of service needed to meet this standard.

The plaintiffs were very surprised by this offer, but also very pleased. One of the principal reasons their legal action had been initiated was the extreme overcrowding occurring on Metro buses. At the time, Metro had a maximum (scheduling) bus load factor standard of 1.45 that was rarely, if ever, achieved and which was very greatly exceeded on heavily utilized lines every day. One of the greatest complaints from bus riders was the frequent past-bys they were subjected to, which occurred when the bus does not stop to pick up people waiting at a bus stop because the coach is already so overcrowded that there is no room for more standees. The plaintiffs had absolutely no expectations that the ultimate outcome of the CD negotiations would be so favorable for their position. After the negotiations concluded, these new load factor standards were incorporated into the final accepted version of the CD. The plaintiffs were concerned that enforcing the terms of the CD would require a large on-the-street data collection effort, which did prove to be a problem, but it was overcome.

At the first meeting of the joint plaintiff-defendant CD implementation group, Metro staff offered a proposal to expand bus service that it had costed out at over \$400 million. The plaintiff representatives responded to the Metro staff that their own calculations showed this would be very insufficient. This first meeting concluded with the two parties agreeing that specific steps to meet the load factor standard would need more discussion, and that, ultimately, the amount of service required would be determined by the number of bus runs needed on each route to carry the actual ridership and meet the load factor standard—and the two sides far apart on the quantity of buses and hours and miles of service that would ultimately be required.

The preliminary financial projection was presented at the next meeting of the Metro Board of Directors. One of the Board Members expressed great surprise at the staff's cost figure, and

questioned it, noting that this was not the information presented to the Board during its executive (non-public) session where the details of the CD were presented and the board approved the terms. After the meeting, Tom Rubin sought out this board member, who told him that the board members were informed during the executive session that the cost of complying with the CD would be \$20 million. Later, in a discussion with a staff person for another Board Member who was also in that executive session meeting, the staffer informed Rubin that the Board was told there would be no cost for complying with the CD. (Given the size of Metro's budget, it is possible that the Metro board and staff members view \$20 million as not much different from nothing.)

Given the increase in bus vehicle revenue miles of 19% from FY96 to FY07, and the 31% increase in buses required to operate the requisite service, it is possible the Metro staff members who offered the new load factor standards when the terms of the CD were being negotiated did not fully realize all that meeting this standard would entail. In particular, they seemed unaware that these improvements to bus service would generate a large increase in bus ridership, which would require even more resources for Metro to adhere to the new standards.

The simplest explanation is that both the Metro staff and the Metro board were acting under the firmly held belief that there was no great demand for bus transit services in Los Angeles County. Had they believed that there was much in the way of demand for improved bus services, this reality would have posed a huge conflict with their determination to expend the larger portion of available funding on rail line construction.

Somehow, despite the ridership shifts before, during, and after the terms of the CD were applied, this inaccurate perception seems to persist. Metro does not appear to understand the genuine, substantial mobility-demand-driven demand for bus transit service presented by the Los Angeles economy.

Looking Beyond Los Angeles For Lessons

As discussed in chapter 6, the three increases in SCRTD/Metro ridership appear to be three of the four largest increases in transit ridership for mature transit operators post-World War II *for the nation*. The fourth was accomplished by Metropolitan Transportation Authority-New York City Transit (MTA-NYCT), where UPT increased 83% between 1993 and 2007⁶¹.

The story behind this increase is complex. For a period up through approximately the late 1970's, New York City was in a state of increasing financial distress, which led to underinvestment in infrastructure, including the extensive greater New York City area transit systems, which combined generate 40% of all transit utilization in the U.S.

NYCT, which operated the New York subway system and most of the bus service within the City, was particularly hard hit. The system had unreliable service, frequent breakdowns and delays, unclean vehicles and stations, a massive graffiti problem, major security issues, etc. As a result, ridership showed a long downward trend from 1984 to 1993, with UPT down 39% over this period.

61. Thomas A. Rubin & Fatma Mansour, *Transit Utilization and Traffic Congestion: Is There a Connection?*, Reason Foundation, 2013, https://reason.org/wp-content/uploads/files/transit_utilization_traffic_congestion.pdf
New York City Case Study, pp. 47-53.

During the last part of this period of declining ridership in New York, there were major investments made in putting the system back in order. These included finally making substantial reductions in deferred maintenance, fielding new vehicles, and methodically cleaning up graffiti one rail car at a time by not allowing cleaned rail cars to go into service if any new graffiti had been added.

During the same period, NYCT undertook a large investment in modernizing its fare collection system, not just for NYCT, but for the other major MTA system components, including the Long Island Railroad and the Metro-North Commuter Railroad. This allowed, for the first time on these systems, the use of fare media such as monthly passes and transfers, and ultimately the phasing out the *de facto* alternative New York City currency, the subway token. Transitioning from limited tests in 1993 to substantial completion by 1997-99, these multi-ride fare media allowed NYCT's unique, long-standing pay-the-full-fare-for-every-ride rule to finally be relaxed, which translated into a major fare decrease per ride that substantially reduced the costs of linked trips.

Getting NYCT back into good working order was the necessary condition, and the major fare decrease was the sufficient condition needed to produce the largest U.S. ridership increase in terms of UPT since WWII. NYCT's shift was so large that, during this period, the U.S. transit industry recorded national ridership growth of 25%, one of the largest in its history, and 72% of the nation industry ridership increase was from NYCT. Metro's ridership increase accounted for another 5% of the national increase. Thus, 77% of the national increase in transit ridership was from these two transit operators alone.

During this period, MTA-NYCT added not one mile of new rail track.

Conclusions

- The four largest increases in transit ridership in the U.S. transit industry since WWII were due, almost entirely, to expansions and improvements in existing transit service and fare reductions.
- New rail lines were a minority contributor to only one of the four increases, that for Metro from FY96-FY07. Three of these four increases were primarily bus-driven episodes in Los Angeles.
- Since 2007, the Los Angeles ridership successes have been reversed as major over-investments in new rail lines have drained resources required for maintaining well-utilized bus service, producing major and continuing reductions in transit utilization in Los Angeles.
- Metro's continued determination to expand rail transit quickly at all costs is wholly unjustified.

8. LABOR/COMMUNITY STRATEGY CENTER v LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

The following is an excerpt from the decision by Special Master Donald T. Bliss in the long-running legal battle concerning MTA's compliance with the terms of the consent decree (CD) *re Labor/Community Strategy Center v. MTA*, a Federal Title VI (discrimination in the utilization of Federal Funds) lawsuit originally filed in 1994, and settled via the CD in 1996.

The Question

The question before the special master was the amount of bus service that MTA would have to add to come into compliance with the load factor reduction elements the agency agreed to under the CD, including how many hours of bus service to be delivered, the number of buses to be purchased, and other related matters. In his rulings, Special Master Bliss gave neither side all that it was seeking; but his decisions were generally far closer to the plaintiff's positions. This was true with respect to the main issues here, the number of hours of bus service to be added and the number of buses that Metro would have to be purchase to deliver these hours.

In their presentations to Special Master Bliss, both parties argued the law of the case, but also presented extensive materials on the positive and negative equity impacts of potential decision outcomes. While his decision was made on the law, Special Master Bliss took the opportunity to explain his evaluation of the equity arguments.

Remarks of The Special Master and Their Context

The excerpt below is from a memorandum order documenting the proceedings before Special Master Bliss⁶², presented exactly as it was presented in the legal document. The concluding paragraph below is his own words. He is *not* quoting any other party.

MTA's new management apparently is not pleased with the way the consent decree entered into by its predecessors has been implemented. In his declaration, David Yale states that "the consent decree has had no benefits that could not have been achieved without the decree, and it has diverted significant financial resources in process to questionable bus service expansions," Yale Decl. 19, which are "a poor investment of scarce public funding." *Id.* 17. Moreover, according to Mr. Yale, "the consent decree has, and will continue to have, detrimental impacts on the Regional Transportation System in Los Angeles County for many years to come." *Id.* 4. Without the Decree, Mr. Yale states that the MTA "would have had additional financial resources" for highway construction. *Id.* Mr. Yale candidly acknowledges that "the MTA has carefully developed a short-range plan that balances these needs as best it can under the constraints of the consent decree" *Id.* (emphasis added). However, Mr. Yale continues, "any further unanticipated financial changes that are needed for the decree will have to be undone as soon as the decree expires in early FY 2007...." *Id.* (emphasis added).

62. *Labor/Community Strategy Center et al v Los Angeles County Metropolitan Transportation Authority et al* [United States District Court—Central District of California, Case No. CV 94-5936 TJH (MCX)] ("*Order*"), Note 22, page 32.

"Given these views on the alleged shortcomings of the consent decree presented by an MTA planning official in the record of this proceeding, it is all the more imperative that the MTA commit to a specific bus capacity expansion program that will provide lasting improvements in the quality of bus service for the transit-dependent -- in accordance with the letter and spirit of the consent decree -- beyond the expiration of this Decree. It should be noted that Mr. Yale's views present an interesting contrast to what the MTA staff apparently wrote, at least with respect to the procurement of new buses, in a briefing for the MTA Board on the Consent Decree. The staff outlined the benefits of compliance with the Decree, including the transformation of the MTA bus fleet from "the oldest to the newest fleet of major bus companies," and stated that "MTA's new buses are worth every penny." See Declaration of Thomas A. Rubin Re Consent Decree Costs at Attachment II (Oct. 14, 2003) ("Rubin Decl. Re Consent Decree Costs") (briefing update on Consent Decree prepared by MTA staff dated September 19, 2002).

Furthermore, the BRU and its expert, Thomas Rubin, who have been sharply critical of the MTA's implementation of the decree, also have presented a more positive view of the benefits achieved by the decree in improving bus service for transit-dependent riders, which is, after all, the singular purpose of the Decree. In his Declaration Re Reallocation of MTA Funds, Mr. Rubin analyzes in detail the effects of the consent decree, finding that in the six-year post-consent decree period, the MTA has gained a total of 81.6 million annual riders. Rubin Decl. Re Reallocation of Funds 23. According to Mr. Rubin, MTA ridership increased from 364 million in 1996 to 445 million in 2002, resulting in an increase in total fare revenues of \$100.5 million over the six-year period. Rubin Decl. Re consent decree Costs at 3. This in stark contrast to a loss of 133.6 million annual passengers over the eleven-year period preceding the consent decree. Rubin Decl. Re Reallocation of Funds 23. Mr. Rubin also shows that, even taking into account what he views as "extremely overstated" consent decree expenditures per new rider, the cost per new rider -- 83% of whom are bus riders - - is still far below other transit modes. Id. 25, 26, 28. Mr. Rubin describes other benefits of the consent decree: "The [consent decree] has made great progress in reducing overcrowding, and pass-by's, on MTA bus routes . . . MTA service has also become more reliable and the condition of MTA's bus fleet improved substantially as the average age has decreased. The fares to ride MTA bus and rail have been kept low for MTA's huge numbers of extremely low-income riders. The service added for CD compliance has meant shorter headways, and the reduced overcrowding has decreas[ed] running times, speeding travel for these bus riders. The Rapid Bus Program, which MTA has claimed as a [consent decree] cost . . . is another significant benefit for bus riders. Many new bus lines have begun service. The speed-up of bus replacement has meant cleaner air for all Los Angeles County residents All in all, hundreds of thousands of MTA bus and rail riders each day, and many more non-transit users, are receiving benefits in lower cost transit; a faster, higher quality, and more reliable transit experience; access to new destinations; and improved environmental quality and traffic flow—all due to the workings of the [consent decree]." Id. 27.

"Hopefully, these benefits are not the temporary results of a "short range plan" due to expire at the end of the consent decree but rather are permanent improvements in the quality of bus service that will be sustained well beyond the Decree's expiration."

* * * * *

The context of these remarks provides additional insight into the particular gravitas Bliss attaches to them:

- At the time this *order* was prepared, Special Master Bliss had been serving in that position for over seven years, working closely with the plaintiffs and defendants on a variety of matters.
- Before being appointed as the special master to administer and make decisions regarding its enforcement, Ambassador Bliss had acted as the mediator to assist in formulating the consent decree into a form acceptable to both parties at interest, their legal counsel, and the presiding judge, the Honorable Terry Hatter.
- Ambassador Bliss was a distinguished transportation attorney when he was asked to take this position, having served as Deputy General Counsel and Acting General Counsel for the U.S. Department of Transportation. During his service as Special Master, he was the Chair, Transportation Practice, for O'Melveny & Meyers, LLP, in Washington, DC.
- Other individuals who had been proposed, unsuccessfully, for this position before Ambassador Bliss was selected included a former U.S. secretary of transportation, a former United States ambassador to the United Nations, and a former president of the United States.
- From the text above, it is obvious which party's experts Ambassador Bliss found more creditable. He found the plaintiffs' experts more creditable than the defendant's, and what was true when this order was written is still true today.
- After Ambassador Bliss entered this order, Metro appealed it no less than seven times, all the way up to the Supreme Court of the United States, without any success.
- In his Marquis Who's Who® listing, under "Achievements," Ambassador Bliss' first item is:

"Special Master, US District Court Los Angeles transforming the LA bus system from one of the worst to one of the cleanest and most efficient in the world, 1996-2005."

Conclusions

1. In a situation unique in U.S. jurisprudence; the legal argument for the relative efficacy of providing and improving transit in Los Angeles *via* expansion of passenger rail vs. expansion of bus service produced a legal decision—strongly in favor of expanding and improving bus service.
2. The Special Master, a very experienced transportation specialist attorney who spent years working with the parties in this matter, recommended that the objectives of the CD be continued after its legal end date due to the CD's very positive results on the bus system—which he calls, "one of the cleanest and the most efficient in the world."

3. Metro chose instead to make good on the agency's promise to the special master that the CD "will have to be undone as soon as the decree expires." This also undid the positive results it produced.
4. Had Metro continued to deliver the elevated level of bus service required of the agency under the CD, transit ridership trends in Los Angeles would have almost certainly continued upward after 2007, as they had for the prior 11 years.
5. "Those who cannot remember the past are condemned to repeat it⁶³."

63. George Santayana, *The Life of Reason*, Volume I, *Reason in Common Sense*, 1905.

9. METRO CONSISTENTLY SIGNIFICANTLY OVERSTATES SALES TAX REVENUES

The original version of this Chapter contained an important error in computing future measure M sales tax revenue growth rates. When the Los Angeles County measure R sales tax reaches the end of its authorized thirty-year life on July 1, 1939, the Los Angeles County measure M tax rate doubles from 0.5% to 1.0%. Our analysis in the original version of this Brief failed to account for this change and contained improperly overstated sales tax growth rates for measure R. This revised version corrects this error and makes additional associated changes. We are grateful to James Law for identifying our error.

As noted in chapter 5, most of Metro's funding comes from four perpetual half-cent and one perpetual quarter-cent sales taxes on all transactions in the county. For FY19, Metro budgeted \$3,798 million from sales taxes, or 57% of the agency's \$6,611 million in revenues⁶⁴.

In addition to the direct tax revenues it receives, Metro also bonds heavily against most of these sales taxes. As of the beginning of FY19, Metro had \$4,823 million in "Total Outstanding Debt Principal Balance⁶⁵;" with \$452 million in "Total Funding Demand Debt Service" to be paid out this year to service pre-existing and new debt; and \$1,169 million in "Bond Proceeds, Transportation Infrastructure Finance and Innovation Act (TIFIA) & Prior Year Carryover" budgeted for FY19 capital expenditures⁶⁶. "TIFIA" in Metro's case means previously approved federal loans for the Crenshaw/LAX Regional Connector and the Westside Purple Line Extension Section 1 projects⁶⁷. For Metro, this is effectively another type of long-term debt secured by sales tax revenues.

A History of Unbridled Optimism

Given the importance of Metro's five sales taxes to the success of its financial plans, the agency has a record of consistently overstating the expected sales tax revenues it projects for future years. Historical sales tax receipts provide a baseline that Metro should be using for its sales tax projections. Proposition A was the first of the four half-cent taxes passed, and the revenue it provides is a good benchmark. There are revenue variations between these sales taxes in each fiscal year due for various reasons, but after the first year or two, the values tend to be very close.

As shown in figure 7, Los Angeles County sales taxes have not been a growing source of revenue, and the growth has been slowing in recent years⁶⁸. From FY83, the first full year of proposition A collections, through FY18, the compound average annual growth was 3.41%, of which 2.85% consisted of inflation, leaving real growth of only 0.55%. If this real growth is adjusted for population change, real revenue growth *per capita* has been negative for decades.

64. Metro, *FY19 Adopted Budget* ("FY19 Budget"). 28.
http://media.metro.net/about_us/finance/images/fy19_adopted_budget.pdf

65. *Ibid.* 42.

66. *Ibid.* 28.

67. Metro, *Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2017*. 27.
https://media.metro.net/about_us/finance/images/fy17_cafr.pdf

68. Annual sales tax values have been collected from a variety of sources over the years, including Metro bond Official Statements for the early years and, more recently, "Proposition A and C and Measure R Sales Tax Revenues," which has data for FY00-FY17. <https://www.metro.net/about/financebudget/taxes/>. The FY18 value was calculated from Metro, "Prop A Sales Tax Receipts (Cash Basis)," http://media.metro.net/about_us/finance/images/prop_a_sales_tax_cash_receipts_012019.pdf

Figure 7
Los Angeles County Proposition A Sales Tax Revenues
Current-Year Dollar, Inflation-Adjusted, and Inflation/Population-Adjusted, FY83-FY18

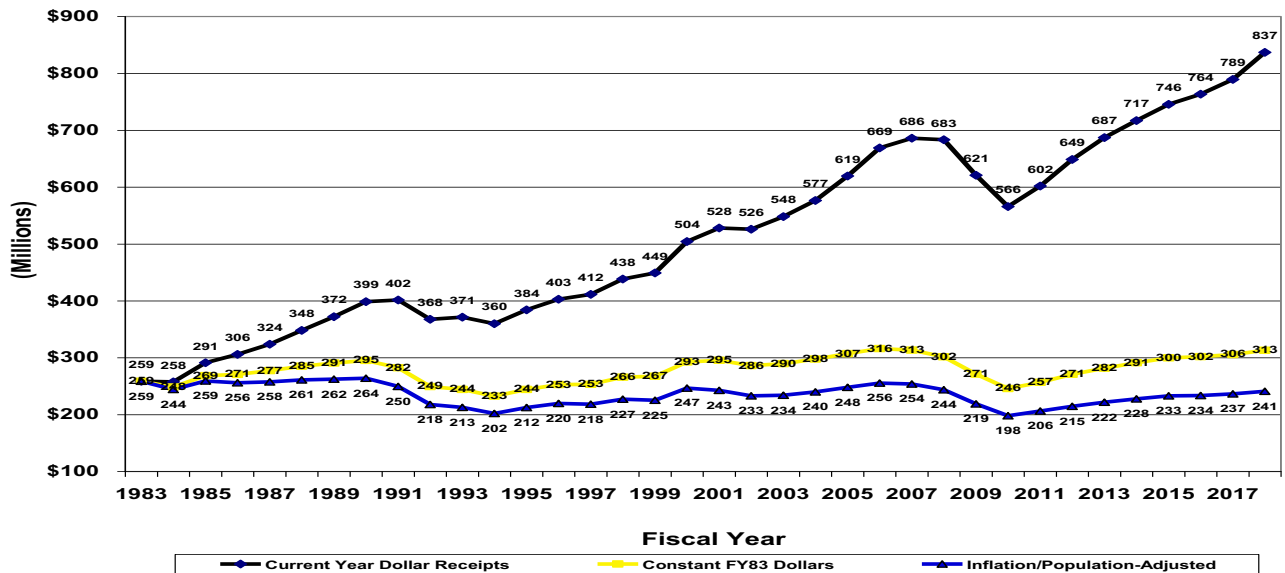
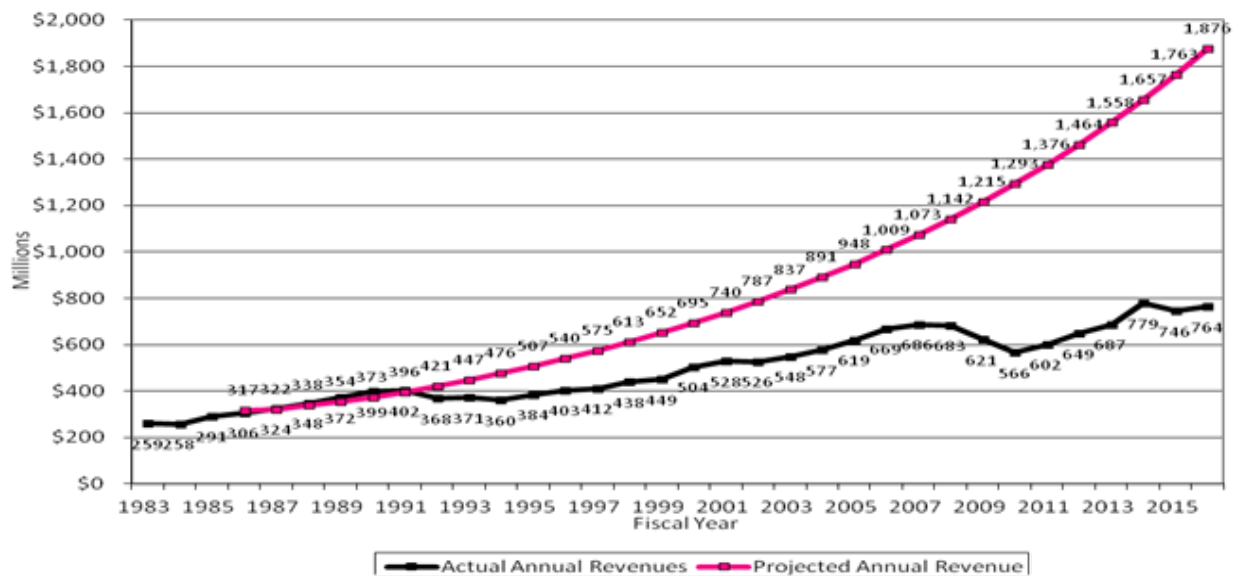


Figure 8 shows the sales tax revenue projection made for Metro's first bond issue vs. actual sales tax receipts and demonstrates Metro's practice of assuming continuing high sales tax growth rates. While this over-projection of revenues began shortly after the passage of Proposition A in 1980, figure 8 begins with data from Metro's first formally published forecast for the 1986, \$707 million proposition A sales tax revenue bond⁶⁹.

Figure 8
Los Angeles County Transportation Commission
1986 Bond Issue Sales Tax Revenue Projection and Actual, FY86-FY16



⁶⁹ Official Statement, 1986.

The projected average annual growth rate was 6.11%, however the actual growth rate turned out to be 3.10%. While the projections were reasonably accurate for the first six years, that period coincided with an extended period of economic growth in the county. When the 1991 downturn hit, the projected revenues began to fall further and further behind. By the final year, 2016, the projection was 246% of actual—which turned out to be one of the more accurate projections Metro ever accepted.

As Metro was planning for the construction of the Crenshaw/LAX light rail line, it determined that the use of a U.S. Department of Transportation (DOT) TIFIA loan could be an important component of the financing for rail projects. Figure 9 combines every Metro sales tax revenue projection through FY13 onto a single graph, along with three statistical projections for Proposition A revenues, high/medium/low, based on historical data. The thick black solid line at the bottom on the left side of the graph is the historical actual sales tax receipts updated to FY18. The other 20 upward-trending curves are the Metro sales tax projections. All follow the same pattern, though the most recent projections have been reduced to reflect assumptions of lower inflation. The three lowest lines on the right are the high/middle/low projections based on the same methodology as the TIFIA projections prepared for DOT but updated to include actual data through FY18.

Figure 9
Los Angeles County Half-Cent Sales Tax Collections and Forecasts

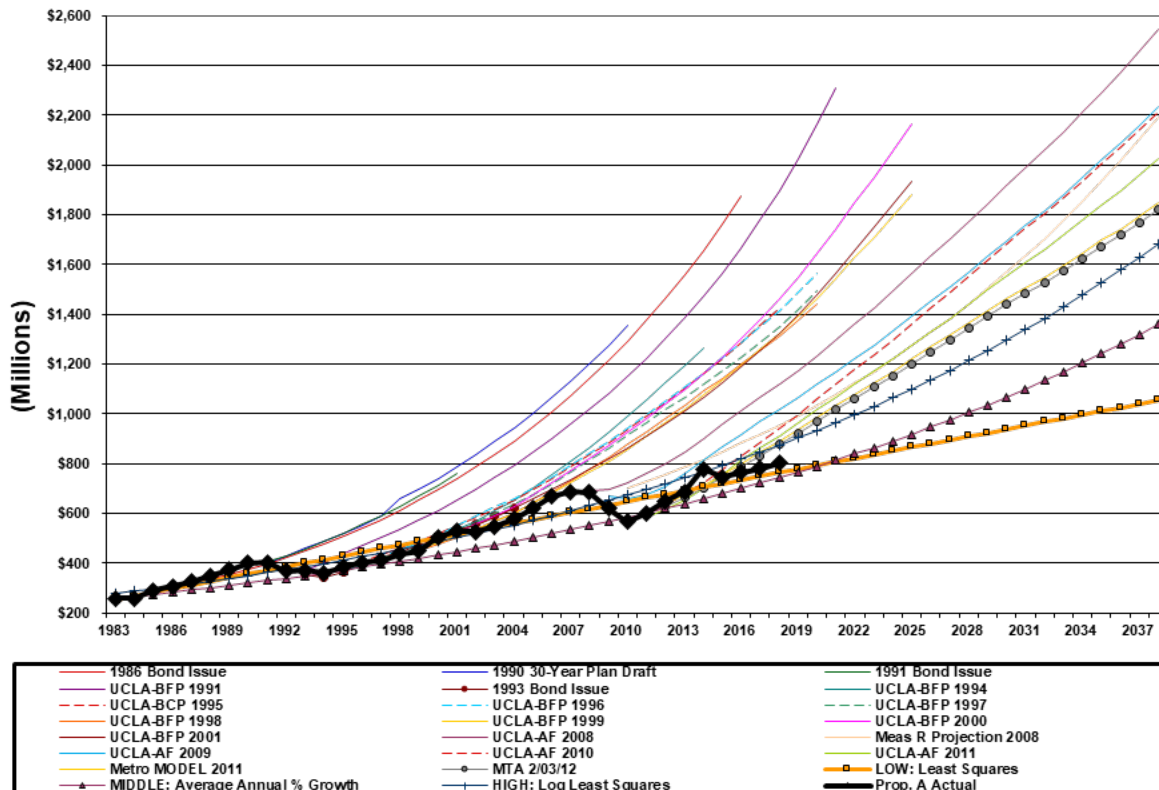
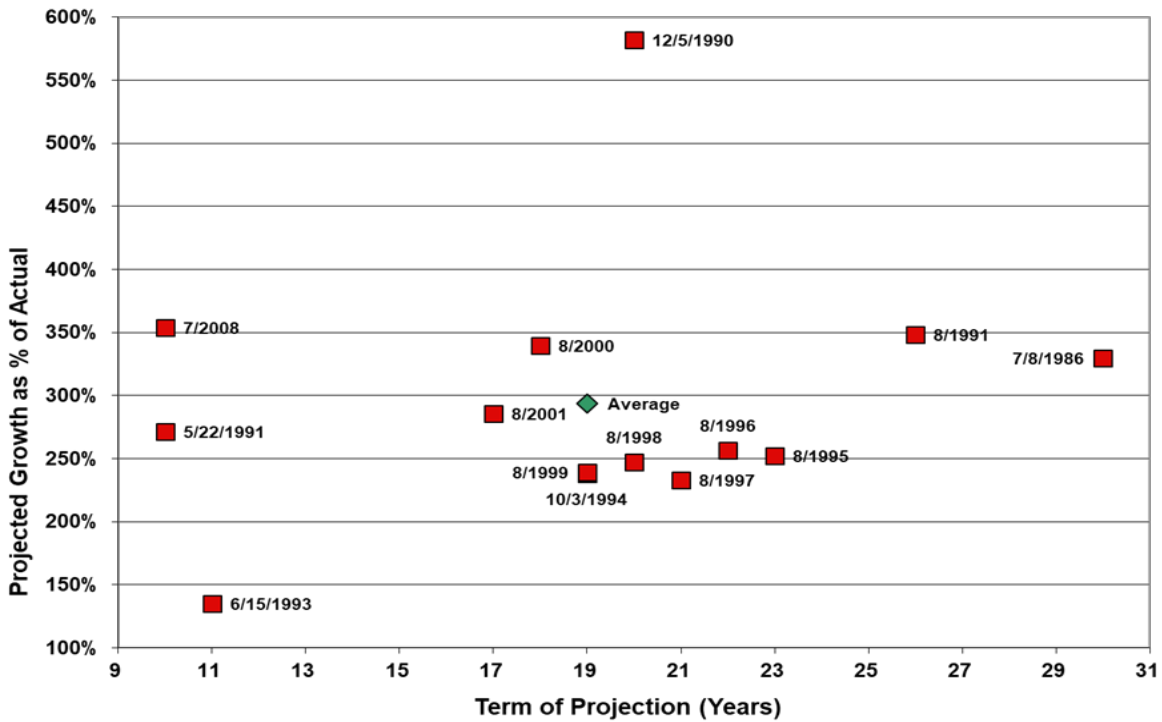


Figure 10 summarizes Metro’s historical record for accuracy with respect to projections of sales tax revenues. As of March 2019, Metro had 13 projections for periods that extended at least 10 years. For continuing projections, the forecast for 2018 is compared with actual data. For those

projections applying to periods that concluded prior to 2018, the value for the last year of the projection is compared to the actual revenues received in that year.

Figure 10
Los Angeles County Metropolitan Transportation Authority
Sales Tax Forecasts—Projected Growth as Percentage of Actual Growth



Of these 13, the best projection was 35% over actual revenues 11 years out. The forecast was this good only because it was made for a relatively short interval and was made at the beginning of a period of relatively high sales tax growth. Actual growth was still far below the projection. The second-best projection was 133% higher than actual collections 21 years out. The *average* of the 13 projections was 194% higher than actual collections 19 years out. In other words, Metro’s history is that its long-term projections of annual sales tax revenues are almost three times historical actual revenues.

Despite this poor record, Metro never revised its forecasting methods, and continued producing high sales tax revenue projections. As noted in chapter 5, Metro could not build all of its planned projects, in large part because sales tax revenue was insufficient. However, because of protections built into the process, the debt service payments to the holders of previously issued bonds were never at risk, so there was never any danger of an external agency forcing Metro to change its process. The downside was that Metro had to keep going back to the voters for new taxing authority; but, since most sales taxes pass in Los Angeles County, with the exception of the failure of Measure J at the polls in 2012, this was not a real impediment.

Measure M

Measure M of 2016 is Metro’s most recently approved sales tax. The only data that Metro has publicly provided for measure M revenues—the “sales tax revenue” estimates in table 5—are

provided by the measure M ordinance⁷⁰. We used these to calculate the “Average Annual Growth Rates” shown in the last column. Since Metro has not provided year-by-year Measure M sales tax projections, these rates are the basis for calculating the original Measure M expected revenues for FY19 and later years. On July 1, 2039, the Measure M sales tax rate doubles from 0.5% to 1.0% after Measure R terminates. This exogenous doubling is in effect two taxes being combined into one, and sustaining both indefinitely, which is one of the rationales for Measure M. The growth rates appearing in Table 5 exclude this pecuniary effect.

Table 5		
Measure M Projected Sales Tax Revenues and Corresponding Average Annual Growth Rates, FY18-FY57		
Time Period	Sales Tax Revenue	Average Annual Growth Rate
2018	\$860	Not Applicable
2018-2032	\$17,265	4.04%
2033-2047	\$47,070	3.36%
2048-2057	\$57,030	2.71%
2018-2057	\$121,390	3.62%

Unfortunately, the revenue growth pattern shown in **table 5** is optimistic for several reasons:

- The data include an arithmetic error. The sum of the three time periods’ dollar amounts is \$121,365 million, which is \$25 million lower than the 40-year total of \$121,390 million shown in the Ordinance. The \$35 million difference is small (0.028%), and might be a rounding error, but its presence in an important document does not inspire confidence in the agency’s procedures.
- It is difficult to predict the future. Most economic modelers, including the UCLA Anderson School, which for decades produced Metro’s sales tax projections, generally fine-tune projections only a few years out into the future. Beyond this, longer term forecasts generally rely on a single or small number of constant annual growth rate(s).
- The three calculated growth rates for the three fiscal periods in **table 5** vary considerably. The rate for the first period, 4.04%, is high compared to the historical average of 3.41%. Inflation was considerably higher in the early years of Measure A than it is now, and County population is growing at a slower rate than before. The rate for the second period, 3.36%, is slightly lower than the historical average of 3.41%. Because the highest assumed rate occurs during the first fifteen years of Metro’s projection, the lower growth rates for the subsequent periods are applied to a higher base, which has an important effect on the projection. The rate for the third period, 2.71%, is lower than the historical average, but, because it does not come into play until 2048, it has only minor impact on the realism of Metro’s projection.
- The constant annual rate of growth necessary to produce Metro’s projected 40-year measure M total is 3.62%, which is higher than the historical average of 3.41%. Even small changes in compound growth rates over long periods are important, particularly in this context. Over the first 15 years, this 0.63% difference between 4.04% and 3.41% produces a cumulative difference of \$745 million in projected revenues, or 4.5%. Over the 40 years being projected, this difference of .21% per year and the fact that the

70. Proposed Ordinance #16-01. Measure M—Los Angeles County Traffic Improvement Plan (“Measure M”). http://theplan.metro.net/wp-content/uploads/2016/09/measurem_ordinance_16-01.pdf

difference is incident to the first 15 years of the projection generates a cumulative difference of almost \$5.6 billion, or 4.6%.

- If there are shortfalls in early years, growth rates in later years must be significantly larger to achieve Metro’s projected multi-year totals. Further, shortfalls in the early years, for which Metro is projecting its highest growth rate, mean that the spending in the early years must be reduced, pushing back the schedules for projects that cannot be started and finished as originally projected.

Fiscal Year	Measure M Ordinance Attachment A	Metro FY18 Adopted Budget ⁷¹	Metro FY19 Adopted Budget ⁷²	Metro Most Recent Update
FY18	\$860 ⁷³	\$761.9	\$775.2	\$827.0 ⁷⁴ (receipts)
FY19	\$895	Not Applicable	\$844	\$894.5 ⁷⁵ (FY20)

Table 6 shows that the measure M sales tax revenues for its first two years have fallen short, or are anticipated to fall short, of the original measure M projections. The FY18 Budget value increased to \$775.2 million in the FY19 Budget because Metro has, for many years, employed a practice of revising data from prior years’ budgets when these data appear in more recent budgets, and showing the revised values as adopted budget figures for the previous years. It may be that Metro intends this practice to provide decision makers and the public with the most recent data during reviews of budget proposals.

For some reason, in its *FY18 Adopted Budget*, Metro projected measure M revenues as \$761.9 million, while Metro projected \$802.0 million for each of its other three half-cent sales taxes. Generally, first year sales tax revenues are very similar to the receipts for any existing taxes. The next year, it appears that Metro inserted what was then its then most current projected FY18 receipts into the *FY19 Adopted Budget*, and improperly labeled the result “*FY18 Adopted Budget*.” Whatever the reason, this change was not accounted for when Metro made the projection for FY18 in the *Measure M Ordinance*. Then, the actual FY18 receipts were 827.0, appearing to be only \$33.0 million under the projection in the *Ordinance*.

Metro’s current projection for FY 20, as shown in table 6, is \$894.5 million, which is almost identical to our reconstruction of the measure M ordinance projection, but \$29.2 million higher than the simple average of the four other projections in the Board presentation (\$911.6, \$868.1, \$843.5, and \$838.1 million). This analysis does not include the impacts of the recent Supreme Court decision, *South Dakota v Wayfair*, which allows states to require e-commerce vendors who do not have a physical presence in the state to collect sales taxes for that state and local

71. Metro, *FY18 Adopted Budget*. 36. https://media.metro.net/about_us/finance/images/fy18_adopted_budget.pdf

72. *FY19 Budget*. 28.

73. *Measure M*.

74. Metro, *Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2018*, page 132, https://media.metro.net/about_us/finance/images/fy18_cafr.pdf

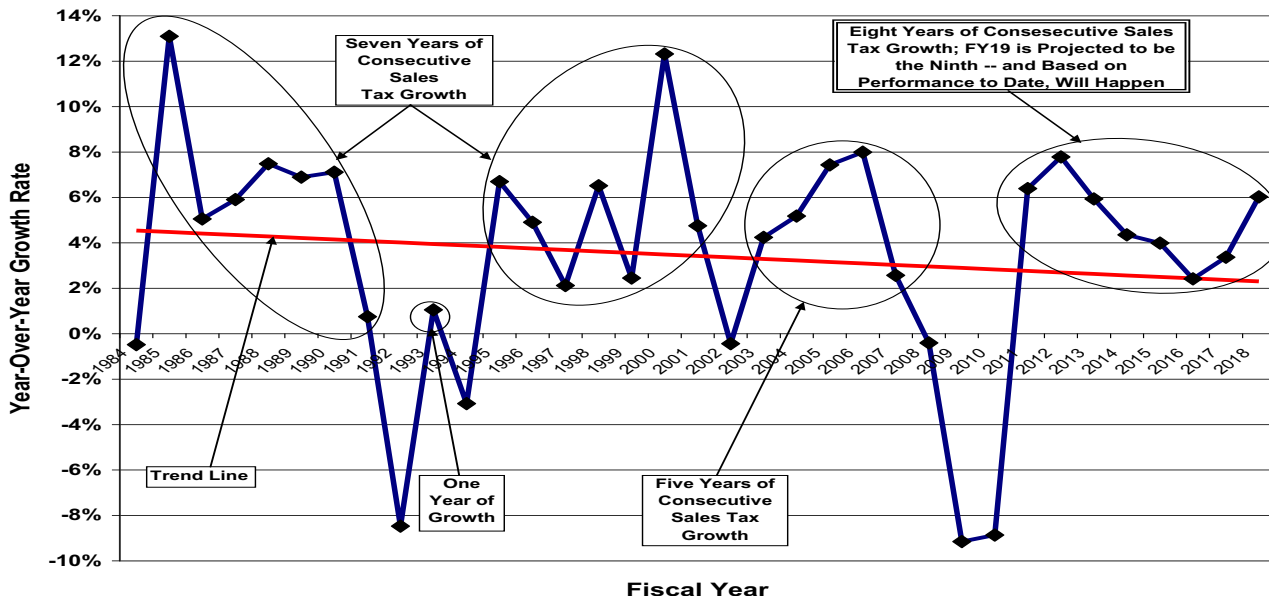
75. Metro, Board Report and Presentation to Finance, Budget, and Audit Committee, February 20, 2019, “Fiscal Year Budget Development Update,” item #09, Presentation, page 7, <https://metro.legistar.com/LegislationDetail.aspx?ID=3864536&GUID=95FC883F-DE8C-43F0-9ED7-8F4E8C55598B&Options=ID%7CText%7CAttachments%7COther%7C&Search=&FullText=1>

jurisdictions, and which Metro expects will add \$10 to \$20 million per year in revenues⁷⁶. This 1.1-2.2% increase appears possible, but Metro has decided to wait until there is data from collections before doing an impact projection for FY20. Many major e-commerce retailers have been collecting sales taxes for many states for some time. For example, Amazon has, for years, notified its customers that it “may” collect sales taxes for sales for every state and territory that has a sales tax⁷⁷. In any event, this decision and California legislation implementing it will undoubtedly have a positive impact on Metro revenues.

Even best case, and assuming that the additional *South Dakota* sales taxes are at the top of the \$20 million range, Metro will still be short \$13 million over the first two years of Measure M sales tax collections compared to the measure M ordinance projections, and would be short \$33 million if not for a U.S. Supreme Court decision that Metro could not have been anticipating when Metro made its Measure M sales tax revenue projections in 2016.

Given the high growth rates implied by the totals in the ordinance, the history of year-over-year revenue growth rates becomes very important (see figure 11). The solid red line shows that the long-term trend in the average annual growth rate in sales tax revenues is downward, although the decline is slight and there is much variation from year to year. More importantly, the historical record shows four periods of extended positive sales tax growth rates, one of five years (FY03-FY09), two of seven years (FY85-FY91 and FY95-FY01), and one, the current one, of eight years (FY11-FY18). Collections for the first six months of FY19 have been positive, so this last period is almost certain to extend to at least nine years. If this upward trend continues for FY20, this would be ten years of positive growth rates in sales taxes, which is three years longer than the next longest period of continuous sales tax growth in Metro’s collection history.

Figure 11
Los Angeles County Metropolitan Transportation Authority
Year Over Year Measure A Sales Tax Growth Rates, FY84-FY18

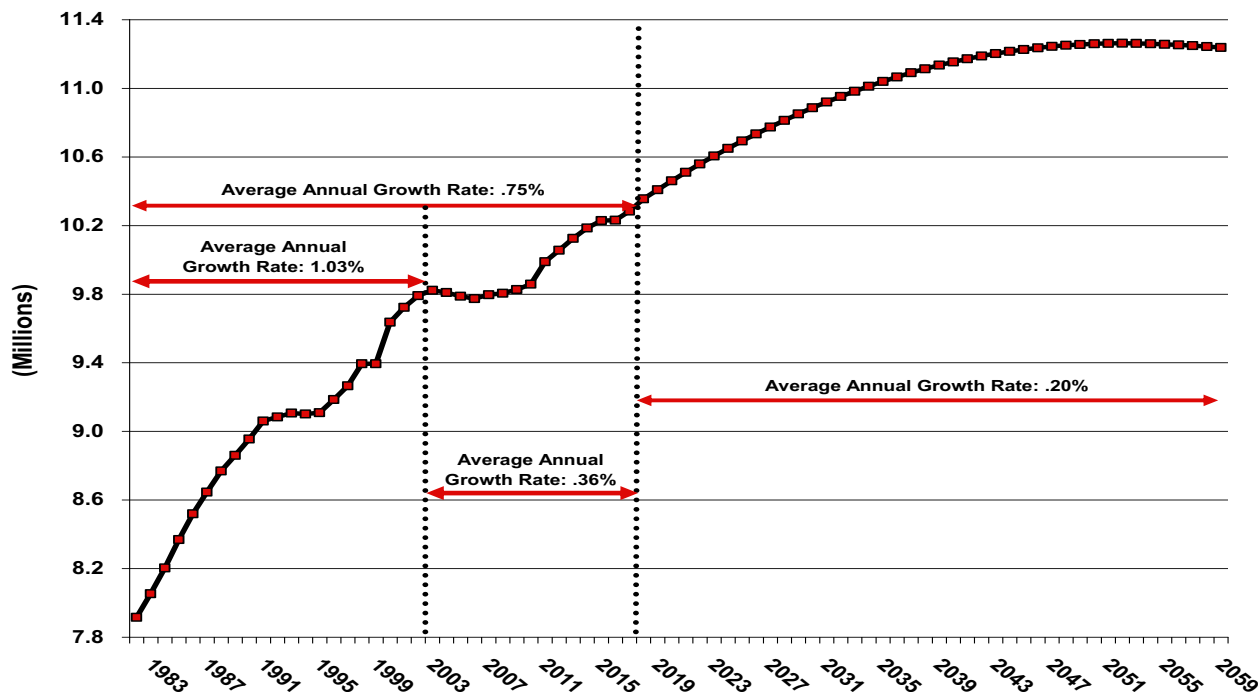


⁷⁶ *Ibid.*, Board Report, page 6.

⁷⁷ Amazon, “About Tax,” <https://www.amazon.com/gp/help/customer/display.html?nodeId=468512>

How much longer this positive cycle will continue is a primary determinant of what will happen with respect to measure M sales tax revenues. The current period of positive growth in sales tax revenues cannot continue indefinitely.

Figure 12
Los Angeles County Population, Actual and Projected, 1983-2060



Another issue with Metro’s measure M sales tax projections is the importance of population growth as a driving factor in sales tax growth rates. Los Angeles County’s population growth rate has slowed significantly since Metro’s first full year of sales tax collections in FY83 and is projected to slow further in the future. As shown in figure 12⁷⁸, county population grew faster in the earliest years of Metro sales taxes, at an average annual rate of 1.02% per year from 1983 to 2004, and then slowed to an average annual rate of only 0.36% from 2004 to 2019. Overall, this is an average rate of 0.75% per year from 1983 to 2019. The California Department of Finance Demographic Research Unit (DMU) projects a rate of 0.20% per year for 2019-2060, which is less than one-fifth of the rate experienced from 1983 to 2004. This lower rate of population growth means relatively fewer people in Los Angeles County making purchases, and lower sales tax revenues.

In fact, while the DMU projected County population growth of just over half of one percent for 2017-18 and 2018-19, the Census Bureau reported actual declines in County population for these years, -.02% and -.13%, respectively⁷⁹. While it would be a mistake to read too much into short

78. State of California, Department of Transportation, Demographic Research Unit, E-1 “Cities, Counties, and the State Population Estimates with Annual Percent Change,” P-1, “State Population Projections—Total Population by County, 2010-2060,” <http://www.dof.ca.gov/Forecasting/Demographics/>

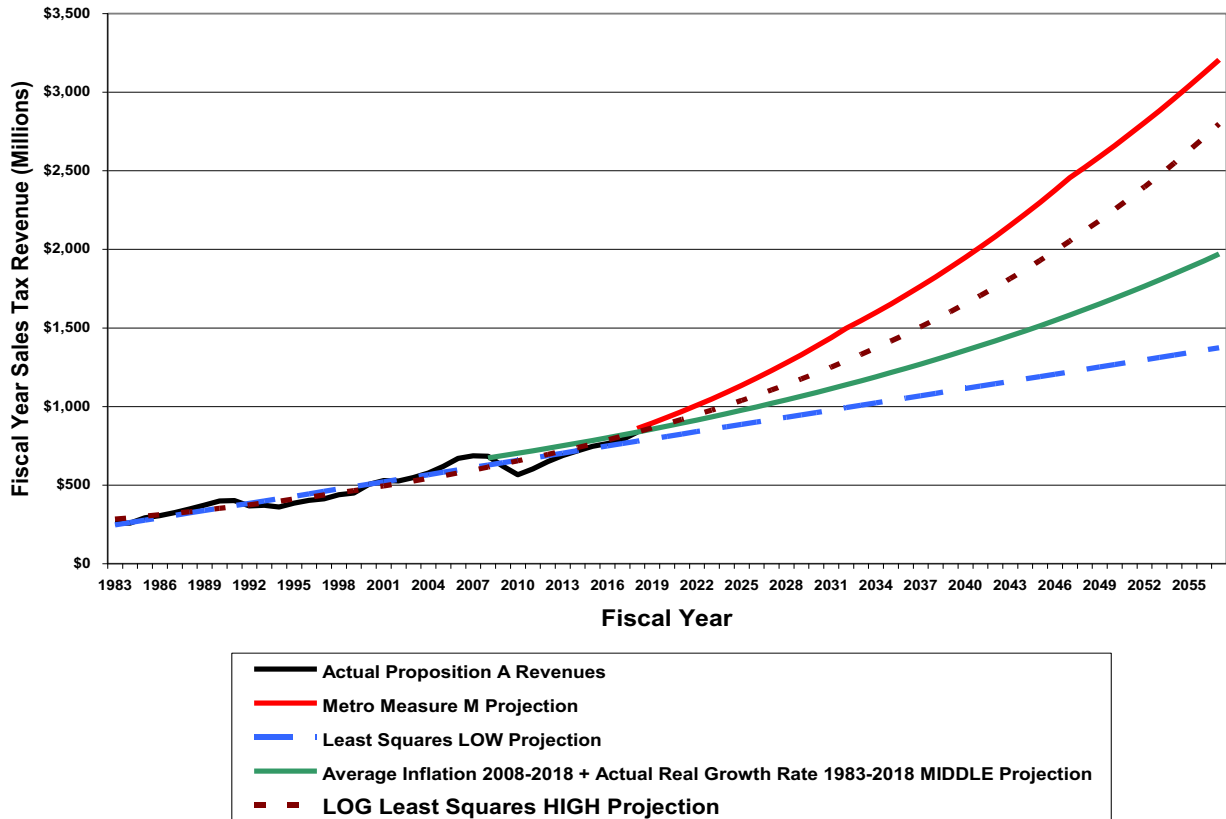
79. Jonathan Lansner, “Los Angeles County loses 13,241 residents, 4th biggest drop among largest U.S. counties,” *Orange County Register*, April 18, 2019, <https://www.dailynews.com/2019/04/18/los-angeles-county-loses-13241-residents-4th-biggest-drop-among-largest-u-s-counties/>

time period results, it is important to be aware that population growth, like economic growth, is never guaranteed.

The solid black line at lower left of figure 13 is, once again, the historical record for Proposition A sales tax revenues. Actual collections 1983-2018 grew from \$259 million to \$837 million, a total average annual growth rate of 3.41%. Recall that, of this, 2.85% was due to inflation, and 0.55% was real growth. The solid red line is the MTA Measure M 0.50% sales tax revenue projection based on the three periodic growth rates in Table 2 and projects \$3.206 billion in associated sales tax revenues in 2057 per 0.5% sales tax. The other three lines are high/middle/low projections for the same 40-year period. These other three projections are based on the same statistical procedures as in figure 9. The most optimistic of these, a LOG least squares regression estimate, projects revenues of \$2.79 billion in 2057. The middle projection combines the historic real growth rate of 0.55% with the average inflation rate for the last ten years, 1.66%, to project revenues of \$1.97 billion in 2057. Given the history of Metro sales tax projections, Metro’s Measure M sales tax projection is not credible. Actual receipts will be considerably below what the agency is forecasting.

Recall that Measure M’s sales tax rate doubles to 1.0% in FY40, when the period for the Measure R 0.50% sales tax expires. This reclassification of revenues is not displayed in figure 13, which provides projections only for the revenues collected based on the initial 0.50% tax rate associated with Measure M.

Figure 13
Los Angeles County Metropolitan Transportation Authority Actual (FY83-FY18) Measure A and Projected (FY18-FY57) Measure M Sales Tax Revenues



The quality of Metro's sales tax revenue forecasts for measure M is representative of its projections for all of the agency's sales tax revenues, the recast measure R revenues included. Accounting for the July 1, 2039 doubling of the measure M sales tax rate to 1%, Metro projects full Measure M revenues to top out at approximately \$6.412 billion in 2057. Our high range estimation procedure produces a (1.0% sales tax rate) projection of \$5.594 billion for 2057, and the mid-range procedure produces a projection of \$3.940 billion. The low range estimate, based on a least square regression of the actual data, produces a projection of only \$2.7467 billion in 2057.

Even the smallest of these shortfalls is large. The coming measure M shortfall is the tip of a fiscal iceberg. Metro generally assumes that all five of its sales taxes (for purposes of this sentence, we assume that Metro has four half-cent sales taxes through FY57) generate the same or proportionate revenues, so, if measure M revenues are projected to be \$100 million too high in a future year, after factoring in the impacts on the other three half-cent and one quarter-cent sales tax, the total impact would be a \$450 million shortfall per year for the period prior to FY40 before the measure M sales tax rate doubles.

The coming shortfall in Metro sales tax revenues impair Metro's ability to complete the measure M and 28 by 2028 projects, which will impact Metro's programs, including its bus transit program and transit dependent riders.

Conclusions

1. Sales tax revenues are budgeted to account for 57% of the agency's \$6,611 million FY19 budget, or \$3,798 million for FY19; sales taxes revenues are of central importance to Metro's financial plans.
2. Real, inflation-adjusted growth in Metro's sales tax revenues has been very small. Real revenue growth per capita has been negative for decades.
3. Metro now in the midst of the longest period of continuous year-over-year growth in sales tax revenues since Metro began collecting Proposition A revenues in 1983. This run must end sometime, particularly since Los Angeles County population growth has slowed considerably relative to the period in which Metro sales tax revenues grew most quickly and is projected to drop further in the future.
4. Metro has consistently over-estimated sales tax revenues almost from their inception, rendering the agency's long-term revenue forecasts not credible.
5. Large revenue shortfalls from all of Metro's total of 2.25% in sales taxes are looming.

10. METRO FREQUENTLY UNDERSTATES TRANSPORTATION PROJECT COSTS

Metro and its predecessor agencies, particularly the Los Angeles County Transportation Commission (LACTC), have a long history of major construction projects coming in significantly over budget.

The Long Beach-Los Angeles Blue Line

The Blue Line was the LACTC's first major capital project. In the early 1980s, LACTC staff presented a Blue Line cost projection of \$125 million to the U.S. Urban Mass Transportation Administration ((UMTA) (now the Federal Transit Administration), as part of an unsuccessful effort to persuade UMTA to classify the costs of the Blue Line as local matching funds for the construction of the Red Line subway, and thereby increase the federal share of Red Line costs⁸⁰. All values expressed here and following are in year-of-expenditure dollars, except where otherwise noted.

Jonathan Richmond, in *Transport of Delight—The Mythical Conception of Rail Transit in Los Angeles*⁸¹, traces public cost projections for the Blue Line starting at \$147 million in 1981 and growing to \$254 million to \$280 million (1982), \$350 million to \$400 million (1983), \$393 million to \$561 million (1984), \$500 million to \$600 million (1984), \$595 million (1985), and \$887 million (1990). Metro's final cost was \$863.9 million, in 2005⁸². The Blue Line was opened in three segments, the last in the summer of 1991, but the final close-out expenditures were not made until FY05 (*FY05*, page V-13). The LACTC ignored a state statute requiring it to include the costs of capitalized interest during construction, which would have added over \$100 million to the total (See discussion in chapter 15).

The Blue Line was one of the first light rail lines to be constructed in the U.S., so some degree of budget overrun is to be expected. However, the LACTC also can be expected to have learned from its Blue Line experience to better plan, design, construct, cost, and schedule future rail construction projects. Unfortunately, it has not.

The Green Line

The first public cost for the Green Line was \$174 million⁸³, and Metro's final cost was \$712.3 million (*FY05*, page V-13). However, this was not the full cost.

Metro has a long practice of establishing multiple line items for the same project, particularly when a project is going over budget. Dividing projects into multiple parts has the effect of achieving a cosmetic version of budget compliance. For the Green Line, the largest such added item was half of the \$215.3 million (*FY05*, page V-13) for the "L.A. Rail Car." The civil construction work for the Green Line infrastructure and procuring the passenger rail cars to

80. Author (Rubin) interview with an UMTA staffer who participated in this meeting.

81. This was originally his thesis for his Ph.D. at MIT, 199, see 64-65:

<http://jonathanrichmond.com/publications/transportofdelightthesis.pdf>

82. The easiest way to track costs of Metro capital projects is through its *Adopted Budgets*, which all have a single page with a title such as "Major Construction" or "Transit Construction Projects." The full set of *Adopted Budgets* can be accessed at: <https://www.metro.net/about/financebudget/>. The \$863.9 million referenced above can be found on page V-13 of the *FY05 Adopted Budget*; which will hereinafter be referred to in the style of *FY05*, page V-13.

83. LACTC, *Preliminary Official Statement, \$700 Million Sales Tax Revenue Bonds*, July 8, 1986.

operate on it were not two separate projects, and these costs should have been accounted for in a coupled way. The “L.A. Rail Car” was such an unusual procurement that it was featured on the national nightly news broadcasts of the three major television networks.

Half of these cars were used for the Pasadena Gold Line and Metro press releases⁸⁴ identified half of the rail car purchase as costs of that project. Metro never identified the other half, \$107.6 million, as Green Line costs.

The Green Line operates in the median of I-105, the Glenn Anderson Freeway. The deal between the various agency partners to complete the entire Century Freeway/Green Line project included construction of an overpass bridge for Imperial Highway at Wilmington Avenue. The Imperial Grade Separation was not part of the Green Line right of way, but the negotiated LACTC/Metro portion of the cost was \$4 million (*FY05*, page V-13), and should be identified as part of the Green Line costs.

Finally, the “Green Line Closeout” item for \$0.3 million (*FY07*, page V-9) should be included as a Green Line cost. The total cost for the Green Line comes to \$842.2 million, compared to the original cost projection of \$174 million.

A major share of the Green Line cost overrun was the result of site condition changes and scope creep:

- The original plan was for the Blue Line and Green Line to be operated together, sharing an operating/maintenance light rail yard and a rail car purchase. However, the site selected for the Blue Line Yard (Division 11) turned out to be contaminated, and only about half of the area was usable as intended. The yard was redesigned at considerable cost to make the most of the usable area, which made it difficult to perform common maintenance operations such as wheel truing. It also reduced the storage capacity of the yard, so a separate rail yard had to be added for the Green Line. This had the operational advantage of eliminating the need to deadhead empty Green Line trains along the Blue Line route to access the Green Line, and then reversing this at the end of the service day.
- LACTC's first purchase of 54 light rail vehicles was intended to be sufficient for both the Blue Line *and* the Green Line, but the ridership on the Blue Line quickly exceeded the estimates for the first years of operation. This meant that there were no cars left for Green Line service, which is a large part of the reason for the L.A. Rail Car procurement.

The Blue Line ridership spike was due in large part to the Line's change to a simple flat fare structure, with an adult cash fare for end-to-end trips of \$1.10, compared with the original zone fare with a \$3.20 end-to-end trip. SCRTD modeling showed that over half of the total ridership was due to these bargain fares, with large end-to-end ridership.

- The Green Line was extended after the original cost projection, adding the four stations on the north-south section at the west end of the alignment.
- County Supervisor Peter Schabarum had a deep dislike of the SCRTD bargaining units, which would, under the terms of State statute and the various bargaining unit agreements, gain the right to operate and maintain the Green Line. He had LACTC study running the Green Line without operators as Automated Guideway Transit (AGT). It is not possible

84. Metro. “MTA Poised to Open the Los Angeles to Pasadena Metro Gold Line to the Public on Saturday, July 26.” July 7, 2003. https://www.metro.net/news/simple_pr/mta-poised-open-los-angeles-pasadena-metro-gold-li/

to isolate the incremental costs of this intervention, and it is unclear if they appear in the Green Line total. There were informal estimates that this effort cost \$50 million before it was cancelled. Automating the line could have *increased* its operating costs due to the complex personnel requirements of AGT, and the provisions of the various SCRTD bargaining unit agreements.

THE RED/PURPLE LINE

The original construction cost projection for this subway was \$3.108 million⁸⁵. After the alignment was changed and the project delayed, the costs for the revised Red Line were \$3,024 million in 1985 dollars and \$3,762.9 million in year-of-expenditure dollars⁸⁶. By the end of the project, the total costs were:

Red Line Segment 1 (FY05, page V-13)	\$1,440,239,000
Red Line Segment 2 (FY05, page V-13)	1,795,761,000
Red Line Segment 3 North Hollywood (FY05, page V-13)	1,313,815,000
Universal City Station Site (FY05, page V-13)	5,838,000
MRL (Metro Red Line) Segment II Closeout (FT13, page 27)	22,867,000
MRL Segment III North Hollywood Closeout (FT13, page 27)	<u>22,139,000</u>
Total	<u>\$4,595,404,000</u>

This accounts for completion of the Red/Purple Line through the completion of Union Station to the Wilshire/Western and North Hollywood stations, with the last section opening in 2000, and two subsequent extensions. This total is 22% over the Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (SEIS/SEIR) year-of-expenditure projection, which is a surprisingly modest cost overrun given that the project encountered a large number of unanticipated problems:

- As construction was getting underway, a methane fire at a Ross Dress for Less store along the Wilshire alignment led to safety fears, a congressional ban on construction through the intended zone, and the Congressionally Ordered Re-Engineering (CORE) and other studies. These issues, plus reservations in Congress about funding rail construction, delayed major construction. Federal funding was approved during a period of relatively high inflation, and the decision-makers in Los Angeles decided to enter into the federal full funding agreement to get the project fully underway as quickly as possible, when they might have instead waited and sought an increase in federal funding.
- The main construction site near Union Station was on unexpectedly contaminated ground, which required that water removed during excavation be treated before being discharged into the Los Angeles River, requiring construction of a water treatment plant.
- In July 1991, a fire erupted in the Red Line tunnel being constructed under US 101 just South of Union Station, which caused considerable damage. At one point, there was fear of the freeway collapsing. Recovery was expensive and delayed construction.

85. Southern California Rapid Transit District. Draft Environmental Impact Statement and Environmental Impact Report. Los Angeles Rail Rapid Transit Project—Metro Rail. June 1983. 2-67.

86. Southern California Rapid Transit District. Supplemental Environmental Impact Statement (SEIS) and Subsequent Environmental Impact Report (SEIR). Los Angeles Rail Rapid Transit Project—Metro Rail. July 1989. S-4-2 and 4-3-2, respectively, http://libraryarchives.metro.net/DPGTL/eirs/1989_Rail_Rapid_Transit_FinalSupplemental.pdf

- There were conflicts between SCRTD and LACTC from the inception of the Commission. After construction of the Red Line began, the conflict escalated and the LACTC took over Red Line construction, absorbing most of the SCRTD construction staff. This resulted in considerable bad feelings, some duplication of work, and employees who were not 100% concentrated on the work because of concern about their jobs.
- The conflict between the two agencies finally resulted in state legislation to merge the two entities, passed in late 1991, effective April 1, 1993. This meant that the merged agency (Metro) would need a CEO. The LACTC executive director was aggressively seeking the position and, in what may have been an attempt to demonstrate his qualifications for the position, ordered that the Red Line Minimum Operating Segment 1 (MOS-1) be opened for service months early, by the end of January 1993. This effort required considerable overtime and incurred other additional costs—and he didn't get the Metro CEO position.
- During construction under Hollywood Boulevard, a tunneling machine encountered a previously unknown underground river. Considerable time and cost were required to seal off the river from the tunnel, pump out the tunnel, and renew construction.
- Further west, under Hollywood Boulevard, the tunneling encountered soil conditions requiring unplanned actions, such as compaction grouting to fill gaps and improve soil adhesion, which Metro initially declined to authorize. The street above the tunnel and buildings on either side began to subside. After construction was halted, there was a major effort to revise procedures and restructure construction management. When tunneling recommenced, the street above partially collapsed into the tunnel, with several construction workers barely escaping the site.

The costs to settle the claims from building owners were extensive. The tunneling contractor was terminated “for cause,” which in government contracting means due to failure of the contractor, and Metro announced that it would pursue the contractor for damages. After the contractor produced letters showing that it recommended changes in the tunneling procedures, and that Metro declined to allow the proposed changes, the grounds for termination were changed to “convenience of the owner,” i.e., not for fault. The contractor was paid for work performed but previously not paid, plus retainage, demobilization costs, and legal fees. Because this matter involved legal issues that did not have to be made public, the costs are not known, but the budget for MOS-2 was increased significantly.

Considering all of these problems, and the inherent challenges in building a subway under Los Angeles in an active earthquake area with technical challenges and unknown conditions, Metro's cost overrun was modest relative to the SEIS/SEIR projection, particularly compared with the overruns on the Blue and Green Lines.

THE EXPO LINE

Unfortunately, Metro's Red Line cost performance was not the beginning of a trend. The original cost projection for the Expo Line was \$792.2 million in 1990 dollars⁸⁷, or \$1.14 billion in 2016 dollars, the mid-year of construction (conversion by authors)⁸⁸.

The latest costs reported by Metro (*FY20 Budget*, page 32) are:

Expo Blvd. Light Rail Transit Phase I	\$ 967,400,000
Expo Blvd., Light Rail Transit Phase II	<u>1,533,623,000</u>
Total	<u>\$2,501,023,000</u>

This is a budget overrun of \$1,361 million, or 119%, in year-of-expenditure dollars.

THE GOLD LINE EASTSIDE

Metro reports this project came in on-budget at \$898 million, but the list of "Major Construction" projects on page 34 of the *FY11 Budget* shows two projects:

- Metro Gold Line Eastside Extension, with a Life of Project budget of \$898,814,000
- MGL Eastside Extension Enhancements, with a Life of Project budget of \$55,903,000

The first item shows the project coming in exactly on budget at \$898.8 million. The purpose of the second item, "MGL Extension Enhancements," is less obvious.

"MGL" is the Metro Gold Line, "Extension" is the Eastside Extension, and "Enhancement" is primarily the construction of Ramona Opportunity High School for the Los Angeles Unified School District (LAUSD). Metro wanted to take a small slice of the old school site to build the line⁸⁹. To construct the line as the decision-makers wanted, it had to turn a very tight corner at the intersection of Third and Indiana (the school site was "inside" the corner), so it was necessary to take a narrow slice of the school plot a small corner of the school gymnasium building occupied.

At first, Metro believed that these costs would be minor, and that it would only cost a few million dollars to tear down the old structure and replace it with a new building, despite being informed by LAUSD facilities staff that requirements for school construction would make any such changes a very expensive undertaking. The campus involved was out of date, and, due to the complications of California school reconstruction statutes, replacing the gymnasium effectively was going to require replacing the entire school.

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87. Metro. *Mid-City/Westside Transit Corridor Draft EIS/EIR*. April 2001. Table 5-1B. "Capital Cost Composite for Project Alternatives." Alternative 3. "Exposition LRT (subway design option at USC/Exposition Park)." \$674.4 million Total Capital Cost (for construction), plus LRT Vehicle Cost of \$117.8 million. 5-3.: http://libraryarchives.metro.net/DPGTL/eirs/Expo/docsExpoP1DEIR/page_5.0.pdf
88. U.S. Department of Commerce. Bureau of Labor Statistics. Consumer Price Index-All Urban Consumers. Los Angeles-Long Beach-Anaheim, CA, https://data.bls.gov/pdq/SurveyOutputServlet?data_tool=dropmap&series_id=CUURS49ASA0,CUUSS49ASA0
89. During the period when the planning, design, and construction of the Gold Line Eastside was underway, one of the authors (Rubin) was the consultant to the LAUSD Construction Bond Citizens' Oversight Committee and devoted many hours to attempting to find a good alternative that would best serve both agencies and the residents they serve.

Metro might not have believed this and did not change its approach until it became impossible to deny the increased costs. After years of denying that this replacement would be a major cost, Metro inserted a first appearance of this cost into the *FY06 Budget* (page V-8) at \$18,000,000. Tracking the growth of “enhancements” cost through the Metro budget, the item grows steadily until *FY11* (page 34), culminating at \$55,903,000.

THE PURPLE LINE

While Metro has, more recently, protected itself against cost overruns by adopting original projects budgets that appear very high, this has not proven to be a perfect defense.

The third leg of the Purple Line extension was projected to cost \$1,980 million in the measure M Ordinance⁹⁰ in 2016, but the estimate was increased to \$3,223 million at the February 28, 2019 Metro Board meeting⁹¹. For this 2.56 mile⁹² segment, that is just over one-and-one-quarter-billion-dollars per mile. As the project is just entering construction, further increases are possible.

CONCLUSIONS

This inventory is not exhaustive, but it captures several examples of Metro’s performance with respect to forecasting rail construction costs, which demonstrate that the agency has a continuing problem with respect to both projecting and controlling costs. Table 7 provides a summary—note that this is not a complete listing of all Metro capital projects, nor passenger rail construction projects, or even rail passenger rail construction projects with overruns, but a selection of the passenger rail construction projects with the largest overruns that with available data.

Rail Line	(Millions)			Percentage Increase
	Original Cost Projection	Actual or Most Recent Projection	Dollar Increase	
Blue Line	\$ 125	\$ 864	\$ 739	591%
Green Line	174	842	668	384%
Red/Purple Line	3,763	4,595	832	22%
Expo Line	1,140	2,501	1,361	119%
Gold Line Eastside	898	954	56	6%
Purple Line Extension Segment 3	1,980	3,223	1,243	63%
Totals	\$8,080	\$12,979	\$4,899	61%

90. Attachment A. “Groundbreaking Sequence.”

https://data.bls.gov/pdq/SurveyOutputServlet?data_tool=dropmap&series_id=CUURS49ASA0,CUUSS49AS A0

91. Metro. <https://boardagendas.metro.net/event/regular-board-meeting-34059cc41a28/>

92. Metro. “Purple Line Extension,” <https://www.metro.net/projects/westside/>

1. The projected costs of Metro's major construction projects frequently start low and increase over time.
2. The actual costs of Metro's major construction projects increase even more over time. Overruns tend to be recognized gradually over multiple years, diminishing the likelihood that a casual inspection of agency fiscal performance will identify the true extent to which Metro projects are over budget relative to initial forecasts.
3. Metro's construction authority cost control practices have led to substantial cost increases.
4. There is strong documentation of optimism bias with respect to Metro's cost projections. Unbiased forecasts, including construction cost estimates, are as likely to be low as they are to be high. No major Metro construction project has ever come in under the original cost projection. While some of the projects we included in this survey were only a few percent over the original budget, others were four to six times the original cost projections.
5. Metro has not substantially changed its forecasting metrics used to produce project costs projections, leaving Metro, the taxpayers, and transit users vulnerable to future cost overruns.

11. METRO'S CONGESTION PRICING REVENUE ESTIMATES ARE NOT CREDITABLE

Introduction

Economists characterize congestion as an external cost of an individual's decision to consume travel. The congestion delay that one commuter inflicts on other commuters is a real cost, but, since it does not harm the first commuter, it does not affect that commuter's decision to travel. A congestion toll internalizes this external cost and ensures that travelers account for the costs their trips impose on others when deciding whether the benefits of a trip justify taking it. According to the Federal Highway Administration (FHWA)⁹³:

Congestion pricing ... is a way of harnessing the power of the market to reduce the waste associated with traffic congestion. ... There is a consensus among economists that congestion pricing represents the single most viable and sustainable approach to reducing traffic congestion.

Congestion pricing motivates travelers to consider other transportation options, including shifting the time of their travel away from the peak period, working from home, using a car- or vanpool, changing residential and/or work locations—or using transit. Properly planned, designed, implemented, and operated, a Los Angeles County congestion pricing program can reduce congestion and travel-time variability, but Metro's revenue expectations for congestion pricing are overstated. Congestion pricing is not a universal cure-all, and it will *never* eliminate congestion, unless prices have been incorrectly set to extremes.

High-Occupancy Vehicle (HOV) lanes require at least two people in order to use the lane. High-Occupant Toll (HOT) lanes are HOV lanes that permit single-occupant vehicles to purchase access by paying an electronically collected toll. Los Angeles has had HOV lanes since 1976, when the El Monte Busway on the I-10 San Bernardino freeway was temporarily retasked as an HOV lane during an extended transit strike. This worked so well that, after the strike was settled, it was converted to a HOV-3 Busway/HOV lane (minimum of three occupants, or all available seats are used for vehicles with less than three seats, is required to legally use the HOV lane).

In LA County, there are now 513 lane-miles of HOV-2 lanes and the I-10 and I-110 Freeways have 83 lane-miles of HOT lanes⁹⁴. LA's HOV lanes have been successful, and most LA HOV lanes are very well utilized, often to the point of overload. Many fail the FHWA requirement that HOV lanes speeds not fall below 45 mph speed, some with rush hour speeds as low as 10 mph. This limits the number of vehicle spaces for HOT vehicles. The HOV minimum can be increased to three people, but, for political reasons, such action is seldom taken. Conversion of HOV lanes to HOT lanes may be a viable way to reduce demand and keep speeds higher. Part of the excess demand is California allowing single occupant Clean Air Vehicles (CAV) to use HOV lanes⁹⁵.

Metro staff sets forth five different congestion pricing options, giving high and low estimates of revenue generated and earliest revenue realization dates in the *Re-Imagining of LA County*:

93. <https://ops.fhwa.dot.gov/congestionpricing/>

94. Caltrans District 7. *2016 Managed Lane Annual Report*. 1. <http://www.dot.ca.gov/d7/programs/managed-lanes/docs/2016%20Managed%20Lane%20Annual%20Report%20CT%20Dist%2007.pdf>

95. Poole, Robert. "It's Time to Replace HOV Lanes." Reason Foundation. July 1, 2007. <https://reason.org/commentary/its-time-to-replace-hov-lanes/>

*Mobility, Equity, and the Environment*⁹⁶ (a.k.a. *Re-Imagining*) presentation to the Metro Board on January 24, 2019. The *28 by 2028 Plan*⁹⁷ presents (slides 16 and 19) 10-year total revenue projections, but *Re-imagining* reduces these values to reflect the significant time needed to implement any of these options, because none were in place on July 1, 2018, the beginning of the 10-year *28 by 2028* period. Metro provides details for these last three options in the *White Paper*⁹⁸. Table 8 summarizes projected annual revenue and time frames until first collection.

Description	Annual Revenue Estimate		Earliest Revenue Realization	
	Minimum	Maximum	Low Range	High Range
<i>Tolls from existing Express-Lanes</i>	\$25 million		12 months	24 months
<i>Tolls from new Express-Lanes</i>	\$60 million	\$100 million	Five Years	
<i>Cordon Pricing</i>	\$1,200 million		12 months	24 months
<i>VMT Pricing</i>	\$10,350 million		12 months	24 months
<i>Corridor Pricing in 10 Corridors</i>	\$5,250 million		12 months	24 months

The first congestion pricing option consists of charging higher variable tolls on the existing HOT lanes of the I-10 San Bernardino and I-110 Harbor Freeways. The second congestion pricing option expands HOT lanes to additional freeways.

The third congestion pricing option is “cordon pricing,” which charges a fee to enter a designated urban area, generally the central business district. Cordon pricing has been implemented in London, Singapore and several other major cities.

The fourth congestion pricing option is charging commuters a variable rate per mile everywhere in the county. Metro refers to this as Vehicle Mile Traveled (VMT) charging in all *28 by 2028 Plan* documents and elsewhere, so we use Metro’s term here. Many authors and institutions prefer the term, mileage-based user fees [MBUF] when referring to the system of charging for road. Also note that, in certain contexts hereinafter; “VMT” means the actual travel, not the charging system. VMT fees have been floated for many years as a potential substitute for cents-per-gallon motor fuel charges. There have been VMT experiments in Oregon and other states and it has been used for trucks in several European nations. Oregon currently has a demonstration program called “OREGO,” where a maximum of 5,000 auto and light-duty vehicle users use a plug-in device to monitor VMT; these miles are multiplied by the rate/mile, originally 1.7¢/mile, and compared to the cents-per-gallon charges paid at the pump; any difference is paid

96. Attachment B to Metro Board Report. Agenda Number: 43. Regular Board Meeting, January 24, 2019. Subject: “The Re-Imagining of LA County: Mobility, Equity, and the Environment (Twenty-Eight by ’28 Motion Response.” <https://boardagendas.metro.net/event/regular-board-meeting-edc898b7baa6/>

97. Metro, PowerPoint™ presentation to the Board of Directors “28 by 2028 Financial Plan—Laying the Groundwork, December 6, 2018. <http://metro.legistar1.com/metro/attachments/e48e3ad9-7f42-4011-849c-5666ed4f0cc6.pdf>

98. “Twenty-Eight by ’28 Program Financing/Funding Plan White Paper.” Attachment B to Metro Board Report. Agenda Number: 38, Regular Board Meeting, December 6, 2018. Subject: “Twenty-Eight by ’28 Motion Response.” Attachment D, “Primer on Congestion Pricing.” 2-3. <http://metro.legistar1.com/metro/attachments/18984512-fa10-4b43-aa52-524cfd8bb69a.pdf>

by or refunded to the volunteer⁹⁹ Metro reports that, “The technology exists to use VMT as a method of alleviating congestion but it has not yet been attempted due to political challenges.”

The fifth congestion pricing option is “corridor pricing,” which charges commuters to use all lanes on all roads within a specific corridor with high traffic congestion but a viable public transit alternative. It has not been implemented anywhere.

Metro assumes that it could implement congestion pricing by July 1, 2020¹⁰⁰. It is hardly a risk to state that it will not be possible to complete the necessary legislative, public relations, and technical work for the three most innovative options within five years, let alone the sixteen months between the Metro Board's adoption of that schedule on February 28, 2019 and this start date. Indeed, it is very possible that none of these options can be implemented by 2028.

The first two, based on increasing traffic and/or fees for Metro's two current HOT lanes and expanding HOT lanes to other LA County freeways, offers challenges, but could be implemented more quickly. The revenue estimates above for these two are aggressive, but achievable.

The last three options would be new to the United States; the last two are not currently in use at significant scale anywhere in the world for passenger autos. These options have more significant uncertainty with respect to implementation than Metro acknowledges. Further, Metro attaches revenue ranges to these options that are unreasonably optimistic and puts forward implementation schedules that are not feasible.

HOT Lane Revenues

The *Plan* (Slide 16) calls out “Toll Revenues, ... Conservative projected revenues—\$399 million; ... High projected revenues—\$798 million.” *Re-imagining* restructures these to existing and new facilities for a combined range of \$500 million to \$700 million, or \$25 million/year for eight years for the existing two HOT lanes, and \$60 million to \$100 million per year for five years for the new HOT lanes.

Metro's *FY19 Adopted Budget* (page 28) includes \$62.8 million for the existing two HOT lanes on the El Monte Busway/High Occupant Vehicle (HOV)/HOT facility and the Harbor Freeway. Thus, Metro estimates an increase of \$25 million a year for eight years, or a 36% increase/year. It is unclear if this is due to higher utilization, higher tolls, or a combination of both.

The high revenue projection associated with the HOT expansion option might be attainable for the five-year period, assuming that the authority to convert HOV lanes to HOT service can be obtained and the new HOT lanes technical installation implemented quickly.

Current experience on the two existing toll facilities may not be transferrable to new facilities. Both have unique characteristics. The El Monte Busway/HOV/HOT lane operated for decades under an HOV-3 requirement and typically had a few hundred available peak hour vehicle spaces, and the Harbor Freeway Busway/HOV/HOT has two lanes for much of its length.

Cordon Pricing

Cordon pricing is the simplest of the new congestion pricing options Metro plans to implement but is forecast to generate the lowest revenue. It would likely be the easiest option for Metro to

99. State of Oregon, OReGO, “About” (OReGO), <http://www.myorego.org/about/>

100. *Re-Imagining*. Attachment B.

gain legislative authority to implement, possibly requiring only State legislation to proceed. The *White Paper* (page 22) offers successful examples (London, Milan, Singapore, and Stockholm).

The first implementation of an electronic road pricing system was also the quickest. Singapore's Area Licensing Scheme (ALS) was approved for implementation in 1993 after only a short period of evaluation and public comment. It was operational two years later. The system has been continually upgraded since inception.

Singapore is not an U.S.-style electoral federal democracy, instead having one single all-inclusive level of government, which allows it to implement major changes far faster than most nations. The ALS is a major success for Singapore, but the political lessons learned there cannot necessarily be replicated in a Federal governmental nation, such as the U.S., and particularly the Los Angeles area, where we have Federal (multiple separate entities), State of California (also multiple entities), County of Los Angeles, dozens of cities, and special districts, such as the Los Angeles County Metropolitan Transportation Authority. Achieving consensus and coordination between multiple governmental agencies with concurrent jurisdiction can be quite troublesome and time-consuming; generally requiring many compromises from the original proposal, many of which may be seen as distracting from the original objective.

Stockholm's current charging system can be traced to the early 1990s, when conventional tolls were proposed to limit peak hour congestion and finance capacity expansions, but never implemented. Beginning in 2002, interest at all levels of government, particularly federal, led to the 2006 deployment of the current congestion charging scheme. Originally a trial project, the system was made permanent after a referendum.

The world's best-known cordon pricing scheme consists of eight square miles around the City of London, the small political jurisdiction in the middle of a far larger urban area that includes the historic core of the London financial district. The foundation for London's cordon charge scheme was the Smeed Report of 1964. The first detailed proposal was the London Congestion Research Programme's 1995 report, which led to the Road Traffic Reduction Act in 1997, and implementation in 2003.

New York City has been actively considering a cordon charge since at least 2007. Nothing has been approved for implementation, although this may soon change. A long-time opponent, New York Governor Andrew Cuomo, proposed congestion charges of \$11.52/\$25.34/\$2-\$5 (autos/trucks/for-hire vehicles) for Lower Manhattan, south of 60th Street, to generate \$810 million to \$1,100 million annually¹⁰¹.

White Paper, Attachment D, "Primer on Congestion Pricing," (page 2) reports that, "Preliminary average revenues for cordon pricing of all trips entering downtown LA have been estimated to be as high as \$1.2 billion per year (in year of expenditure dollars)." For Los Angeles, it is unclear if Metro's revenue estimates are in current year dollars or constant dollars in an unspecified year (same for VMT/cordon pricing). No citation, calculation, or other explanation for the projected \$1.2 billion is provided. As this figure is included in both the *Plan* (Slide 19) and *Re-imagining*, it is used in **Table 9**, which compares the *Plan*'s proposed Los Angeles congestion charge zone with the proposed Manhattan South Zone and historical actual data for the City of London Zone.

101. Walker, Ameena. "Cuomo details plans for MTA, congestion pricing, and more in State of the State." <https://ny.curbed.com/2019/1/16/18184024/new-york-andrew-cuomo-state-of-the-state-mta-congestion-pricing-marijuana>

Attribute	London	Los Angeles	New York City
First Operation	February 2003 ¹⁰³	FY24 ¹⁰⁴	Unknown
Size (Square Miles)	~21 square km/ ~8 sq. mi. ¹⁰⁵	5.84 sq. mi. ¹⁰⁶	9.272 sq. mi. ¹⁰⁷
Population	217,200 ¹⁰⁸	71,000 ¹⁰⁹	(2018) 655,751 ¹¹⁹
Jobs	1,487,900 ¹¹¹	500,000 ¹¹⁰	(2008) 1,946,770 ¹¹¹
Daily Valid Charges	49,787 ¹¹²	(Unknown)	~250,000- 350,000 ¹¹³
Annual Net Revenue	£155.9/\$198.35 million ¹¹⁴	\$1,200 million ¹¹⁵	\$810-1,100 million ¹¹⁶
Daily Light-Duty Vehicle Charge	£11.50 (\$14.63) ¹¹⁷	(Unknown)	\$11.52 ¹¹⁶
Net Revenue/Sq. Mi./Year	~\$25 million	~\$205 million	~\$87-118 million
Net Revenue/Resident/Year	~\$900	~17,000	~\$1,200-1,700
Net Revenue/Job/Year	~\$130	~\$2,400	\$415-565

102. This is the formal name of the London zone; the LA and NYC zones have not yet been formed.

103. Transport for London (TfL), “Congestion Charge:” <http://content.tfl.gov.uk/congestion-charge-factsheet.pdf>

104. *Re-imagining*. 2.

105. BBC. “Congestion Pricing: In London, What is it?”

http://news.bbc.co.uk/2/shared/spl/hi/uk/03/congestion_charge/exemptions_guide/html/what.stm

106. *Los Angeles Times*. Mapping L.A.—Central L.A.—Downtown.

<http://maps.latimes.com/neighborhoods/neighborhood/downtown/>

107. Zip-codes.com, sum of data for lower Manhattan ZIP codes; <https://www.zip-codes.com/zip-code/10280/zip-code-10280.asp>

108. Greater London Authority, Ward Profiles and Atlas, <https://data.london.gov.uk/dataset/ward-profiles-and-atlas>; Analysis of population/jobs of wards within boroughs for those areas within the London Congestion Charge Zone. Population data are for 2015 and jobs data for 2013; both have grown in recent years.

109. Los Angeles Downtown Center Business Improvement District. “Downtown LA Survey 2018.” 7.

<https://www.downtownla.com/images/reports/BID.Survey17.Results.v25.pdf>

110. “Downtown LA Survey 2018.” 8.

111. Census Bureau. CTPP A202105. “Means of Transportation.” Manhattan Census Tracts South of Central Park, 2006-2010; Manhattan jobs have subsequently grown approximately 10% from above count.

112. TfL. “Congestion Charging & Low Emission Zone Key Fact Sheet.” 01 July 2018 to September 2018:

<http://content.tfl.gov.uk/cclez-online-factsheet-jul18-sep18.pdf>

113. Estimate based on projected revenue divided by ~260 revenue days/year and estimate of distribution of types of charges and charge rates above.

114. TfL. “Annual Report and Statement of Accounts, 2017/18—25 July 2018.” Notes to the Financial Statements, I. Gross income (continued), “c) Congestion Charging,” £229.8 million Income less £57.5 million Toll facilities and traffic management and £16.4 million Administration, support services and depreciation → £155.9 million net revenue, converted to dollars at January 5, 2019 conversion rate.

<http://content.tfl.gov.uk/tfl-annual-report-and-statement-of-accounts-2017-18.pdf>

115. \$12 billion for the decade ending in FY28 (*Plan*, Slide 19) divided by five years.

116. Walker. “Cuomo details plans for MTA, congestion pricing, and more in State of the State.”

117. “Congestion Charge,” converted to dollars at January 5, 2019 conversion rate.

Revenue/job/year is probably the most important of the three performance indicators calculated, and revenue/resident the least. Most of the trips that cross the London boundary and are liable for the Congestion Zone Charge are home-work commute trips to locations within the Zone, although there are also other types of business, delivery, and personal trips.

The London cordon area is geographically larger than the Los Angeles CBD and has a larger population and more jobs. The Los Angeles cordon would have to generate over eight times the revenue per square mile and over 18 times the revenue per job and revenue per resident to deliver \$1.2 billion/year in revenues. Similarly, the proposed Los Angeles Zone would have to produce about twice as much revenue per square mile, about five times as much per resident, and about 10 times as much per job as the Manhattan South Zone.

The *Twenty-Eight by '28 Program Financing/Funding White Paper*¹¹⁸ acknowledges that (page 2):

Cordon pricing is more effective when there is a strong Central Business District (CBD) with high quality mass transit operation as alternatives to driving. Los Angeles County does not have a typical CBD, as job centers are dispersed throughout the region.

The Los Angeles area is the prototypical example of disbursed urban form, and the County includes many employment subcenters. Unfortunately, Los Angeles County presently does not have a “high quality mass transit operation.” The average passenger loads for Metro’s bus, light rail, and heavy rail lines are all among the highest in the nation, making it difficult for Metro to provide any significant additional transit capacity to the Los Angeles CBD in the foreseeable future. Also, if cordon pricing charges are imposed at the London level, ~\$15, this will have a major negative impact on the attractiveness of the CBD as a residential or job site, because Los Angeles presents so many alternatives to locating in the CBD.

The more equitable option might be to put in cordon pricing around some or all of LA’s distributed subcenters, although cost, political burden, and limited transit access to subcenters would make this difficult. For the majority of those who currently drive to the Los Angeles CBD, there are no workable alternatives to using an automobile, and this will not change soon.

VMT Pricing

Metro expects that VMT pricing would generate the most revenue. The *White Paper’s* estimate (page 22) of \$10.35 billion in annual revenue for MBUF pricing is over 156% of the Metro FY19 budget of \$6.612 billion. American Public Transportation Association¹¹⁹ figures show this exceeds one-seventh of the \$67.3 billion that constitutes the entire U.S. transit industry’s operations and capital expenditures for Fiscal Year 2016 (FY16). It is more than twice the \$3.92 billion in total Federal Highway Trust Fund receipts from all users in the State of California in FY16¹²⁰ and is one-fourth of the \$41.3 billion collected in the entire *nation*. Neither the *Plan* nor

118. Metro. “Twenty by '28.” White paper. <http://metro.legistar1.com/metro/attachments/18984512-fa10-4b43-aa52-524cfd8bb69a.pdf>

119. APTA. *2018 Public Transportation Fact Book*. Table 1: National Totals for Selected Modes. 23. <https://www.apta.com/resources/statistics/Documents/FactBook/2018-APTA-Fact-Book.pdf>

120. Federal Highway Administration. *Highway Statistics 2016*. Table FE-9. Federal Highway Trust Fund Receipts Attributable to Highway Users in Each State, Fiscal Year 2016. <https://www.fhwa.dot.gov/policyinformation/statistics/2016/pdf/fe9.pdf>

the *White Paper* provides detail on how Metro's VMT pricing figure was developed, not even the proposed VMT per mile charge.

It is possible to calculate a rough estimate of the VMT rate needed to generate the revenues Metro estimates MBUF would provide. The *White Paper* indicates that the \$10.35 billion/year estimate is for the Metropolitan Area, not Los Angeles County. Because their populations are roughly equal, we can substitute the County for "Metropolitan Area" and assume that VMT charges will be implemented for all of Los Angeles County. The total average working weekday VMT for the Los Angeles-Long Beach-Anaheim urbanized area (UZA) for 2016 was 279.3 million¹²¹. Assuming 343 working weekday equivalents per year to account for lower weekend and holiday travel, this gives an estimate of 96 billion annual VMT in Los Angeles County. Dividing this into the \$10.35 billion annual revenue projection from the *White Paper* produces a County VMT charge of \$0.11/mile. VMT charging will reduce driving, so we arbitrarily increased the \$0.11/mile to a \$0.12/mile guestimate to achieve the projected revenues.

By comparison, the current total taxes per gallon of gasoline are approximately \$0.75-1.00, including federal and State charges, sales taxes, and the cap-and-trade costs on gasoline passed through to motorists. Using \$1.00, and assuming 20 miles per gallon gives \$0.05/mile—or, well under half of the implicit MBUF Metro's proposes.

Efforts are underway elsewhere to advance use of road pricing, including some well-publicized demonstration projects, but experience indicates these schemes cannot be deployed quickly. Implementing VMT charging would require time to produce a local consensus to move forward, work with stakeholders at the State and national level, acquire legal authority to proceed, and time to plan, design, contract for, and implement the technical system to assess the VMT charges. It would be impossible to implement such a system in Los Angeles alone on anything other than a demonstration basis.

If the VMT charge is intended as a congestion charge with higher rates during peak hours, than a major share of the peak hour reduction would be shifted to non-peak hours. A VMT that is not time-specific would have less of this desirable effect, but total VMT will likely decline by a non-trivial amount, diminishing the revenues collected.

Corridor Pricing

The *White Paper* acknowledges that corridor pricing has not yet been implemented anywhere. Corridor pricing is an interesting but complex concept that would involve simultaneous tolls on all roads within a defined corridor combined, with a viable transit alternative. Even the largest scale electronic tolling projects do not incorporate these features. The lack of demonstration projects to date and the difficulty of determining charging levels and the technology to make it work leave many unanswered questions. For example, do residents of the corridor who travel within the corridor without leaving it pay a fee?

Analysis

It is quite questionable if the last three options can generate significant additional funding in time to be of any use financing the projects in the *Plan*. The congestion pricing element in the *Plan* should be viewed as a first discussion of possible long-term changes and/or additions Metro

121. Federal Highway Administration. *Highway Statistics 2016*. Table HM-71. Urbanized Areas 2016. <https://www.fhwa.dot.gov/policyinformation/statistics/2016/pdf/hm71.pdf>

wants to pursue with respect to funding sources, some of which have considerable merit—but with very questionable projected annual revenues.

Any of the last three strategies would almost certainly take at least several years to implement (assuming one or more could ever be implemented), which makes it exceedingly unlikely that Metro could extract eight years of revenue-generation from them. Further, the last three prospective revenue sources are probably mutually exclusive for political, technical, and public acceptance reasons. Achieving any one would be an impressive accomplishment. Implementing more than one would be very difficult politically, and the combined revenues would certainly be discounted significantly.

Road use charges most generally are discussed in the U.S. as replacements for the current motor fuel tax model, and less frequently as a strictly incremental source of revenue. If Metro's potential revenue sources are intended as additional charges rather than as fuel tax replacements, then their approval will be even more politically challenging. If Metro does not intend these charges to be additional costs to drivers, but replacements for current road financing mechanisms, then the calculation of new funding should be done on a net, not a gross, basis. This is particularly important for Metro, which collects five different sales taxes totaling 2¼% on the sale of motor fuels, including collecting sales taxes on the other motor fuel taxes and fees. (While there is no discussion in any *Plan* document as to if Metro intends the financial projections as net or gross, but, considering that the *Plan* is ultimately a financial plan, the only rational interpretation is that the dollar values shown therein must be net additional revenue for Metro.)

The State of California collects substantial sales tax revenues on motor fuel. A significant share of both the federal and State fuel tax revenues go for transit. Barring new legislation, likely requiring a two-thirds majority vote, Metro does not have the legal authority to impose a tax on services, or on other governmental charges that are not imposed on the sale of goods. It is unclear if Metro could acquire this authority.

Also, these potential new road use revenue sources would have collection costs that might range from several times to an order of magnitude greater than current collection costs. *Washington State Road Usage Charge Assessment: Business Case Evaluation Report* (January 7, 2014) calculated the collection costs for the current fuel tax system as 0.4%-0.6%. Other studies report higher values. Balducci¹²² reports 0.2% in a 2003 study, 0.8% in a 1994 study, and 1.0% in a 2003 study, and Fleming reports 4.5% exclusive of opportunity costs¹²³. The *Washington* paper shows costs for VMT systems such as smart phone and stand-alone automated smart mileage meters are 12%-13%. The lower the toll, the higher the collection cost percentage. Fleming (page 39) estimates 5%-12% for toll roads, with reductions for VMT applications (pages 43-47). The risks of non- or under-payment and outright fraud would also be much higher than for the current fuel tax collection model, particularly in the early years of collection.

122. Patrick Balducci *et al*, *Costs of Alternative Revenue-Generation Systems*, Transportation Research Board, National Cooperative Highway Research Program Report 689, 2001, page 10, <https://www.nap.edu/download/14532#>

123. Daryl S. Fleming *et al*, *Dispelling the Myths: Toll and Fuel Tax Collection Costs in the 21st Century*, Reason Policy Study 409, November 2012, page 23, https://reason.org/wp-content/uploads/files/dispelling_toll_and_gas_tax_collection_myths.pdf

Based on staff presentations at Metro Board meetings and in supporting documents, Metro's primary interest in congestion pricing appears to be revenue generation, with only secondary attention to reducing congestion. Managing congestion should be the primary goal, with revenue generation the secondary goal. Alain Bertaud, the noted urbanist, has commented on the Manhattan cordon pricing¹²⁴:

What bothers me about the approach is that they are seeing congestion pricing as a new tax on people. It's not a tax. It's a way of efficiently using road. If you look at it as a cash cow, it doesn't work. It doesn't make sense at all. You have to maximize the use of the road, and so you have to price it differently, depending on the hours.

Further, significantly increasing cost of driving for Los Angeles County's many lower-income residents, *when the great majority of them have no workable alternative means of transportation*, would be very poor public policy.

The cities Metro reports that have implemented congestion charges all have more extensive transit systems relative to Los Angeles. Transit in the Los Angeles region has been subject to an even larger long-term decline than in the rest of the nation. Transit serves a relatively small portion of Los Angeles trips compared to other very large U.S. cities. Major growth over the next decade is extremely unlikely, given Metro's record of declining transit patronage. It is interesting to speculate what could be done to improve LA transit with large new congestion charge revenues, but Metro has for decades had access to more locally controlled revenues than almost any other U.S. transit operator, and its use of these funds to date has produced lower, not higher, transit ridership. Implementing Los Angeles County congestion charges would mean that Los Angeles' large population of lower-income residents would face higher costs for their daily travel, and it is incumbent on Metro to use any new congestion charge revenues to target improving the transportation options available to low-income households. At a minimum, improving and expanding bus service will better serve the riders Metro is currently losing.

Conclusions

1. Transportation economists have argued for 60 years that congestion pricing is the most promising means for managing traffic congestion. In addition, congestion tolls would generate new revenues that can be used for transportation needs.
2. Structuring an area-wide congestion pricing scheme for Los Angeles will be a lengthy and challenging process with uncertain outcomes, in part because the impacts on low income households will be significant. Still, congestion pricing has the potential to improve network level of service.
3. Congestion pricing is best applied as a congestion management tool, and only secondarily as a revenue source.
4. Expanding the HOT network is feasible and likely productive.
5. Metro is overstating the potential revenues from the more innovative congestion pricing schemes it is considering. The agency should focus on objective, credible evaluations of such important alternatives, including realistic implementation schedules.

124. "Alain Bertaud on Cities, Markets, and People," Mercatus Center, Conversations with Tyler, September 25, 2019, <https://medium.com/conversations-with-tyler/tyler-cowen-alain-bertaud-cities-urbanism-3321136c71d8>

12. METRO'S PUBLIC-PRIVATE PARTNERSHIP (P3) REVENUE ESTIMATES ARE NOT CREDITABLE

One of Metro's proposed methods for making its 28 by 2028 Plan feasible is the use of public-private partnerships ("P3s"). The Plan¹²⁵, Slide 25, identifies three P3 projects, the West Santa Ana Branch Light Rail Corridor, the Sepulveda Transit Corridor, and the East San Fernando Valley Light Rail. The Plan reports a "potential to save \$5.1 billion."

An examination of the details shows that any savings from implementing P3s that will be available to fund projects prior to the end of the 2028 construction period will be large enough to be worth pursuing, but the total financial advantage will be a small fraction of this amount.

PUBLIC PRIVATE PARTNERSHIPS

Metro defines a P3 as follows¹²⁶:

A Public-Private Partnership (PPP) is a mutually beneficial collaboration between a public agency and a private sector entity. Through this contractual arrangement, the skills and assets of each sector are shared in delivering a service or facility for the use of the general public. In addition to the sharing of resources, each party shares in the risks and rewards potential in the delivery of the service and/or facility.

The public agency usually assumes the project definition risk by undertaking the environmental clearance effort, assessing financial feasibility and garnering stakeholder and political commitment. The private sector can best assume the financial risk, such as project financing, construction and perhaps facility management.

Slide 24 of the Plan associates the following advantages with P3s:

- Capital Cost Savings:
 - DBFOM procurements in the U.S. have achieved cost savings through competitive pricing, design innovation and avoided cost inflation.
- Operations & Maintenance/State of Good Repair (SOGR) Cost Savings:
 - Lower O&M costs and lower escalation rates reduce cumulative costs during operations.
 - P3 developers perform SOGR work earlier and more frequently, optimizing lifecycle investments.

"DBFOM" refers to the five most common components of major capital projects that can and have been transferred to private sector partners: Design/Build/Finance/Operate/Maintain. In this context, "Operations" means "Operations and Maintenance, or "O&M." This includes scheduled and breakdown maintenance, including collision repairs, but does *not* include capital renewal and

125. Metro, PowerPoint™ presentation. 28 by 2028 Financial Plan—Laying the Groundwork, December 6, 2018 Board meeting. Slide 18. <http://metro.legistar1.com/metro/attachments/e48e3ad9-7f42-4011-849c-5666ed4f0cc6.pdf>

126. Metro, "Public-Private Partnerships for Major Transportation Projects." https://www.metro.net/projects/public_private_partnerships/

replacement expenditures, which is part of the “M” in DBFOM, also known as “State of Good Repair.”

Two other advantages of P3s are:

- Significant acceleration of project delivery. This is a desirable outcome, but it can mean that operating expenses start earlier than originally foreseen.
- Through P3s, it is possible to transfer certain types of risk from Metro to a private party or parties, as Metro discusses in the *Plan*. This can be a useful benefit when properly understood and applied, but it is effectively impossible to transfer political risk.

If private parties are asked to take on too many large risks, particularly those that are difficult to calculate and/or are largely out of their control, such as site conditions being different from what was specified in the procurement documentation, then P3 proposers must increase their proposed costs to reflect these conditions. It is best to have a detailed and candid discussion between the public owner and private P3 partner before any agreement is finalized, including who bears what risks, and the costs of transferring such risks.

While the transfer and assumption of risk will be a major factor in Metro's decisions to use P3s on the three proposed projects, without more detailed knowledge of which risks are proposed to be transferred, we cannot comment further.

*The White Paper*¹²⁷ (pages 3 and 16) shows the costs for the three projects with a projected total cost of \$16.466 billion:

- | | |
|---|-----------------|
| ○ West Santa Ana Branch: | \$6.312 billion |
| ○ Sepulveda Transit Corridor (Phase 2): | \$8.591 billion |
| ○ East San Fernando Valley Light Rail Corridor: | \$1.563 billion |

The first two projects were scheduled to be completed in 2041 and 2033, respectively, in the 2016 Measure M Ordinance¹²⁸, but are being moved up to 2028. The third is unchanged, scheduled for 2027 completion. The other two transit projects Metro proposes should be speeded up to 2028 completion are the Gold Line Eastside Extension (originally 2035 completion) and the South Bay Light Rail Extension (also known as “Green Line Extension to Crenshaw Boulevard in Torrance”—originally 2030 completion)¹²⁹. Since these are not proposed to be constructed or operated *via* P3, they would have to be constructed and operated in the usual Metro fashion.

The projected \$5.1 billion would be a 31% savings on projects with a total cost of \$16,466.0 million, which is very large. The *White Paper*¹³⁰ has a graphic that shows the percentage of capital cost savings for six previous P3 projects that range from 4% to 18%, for an average of 11.7% (see figure 14).

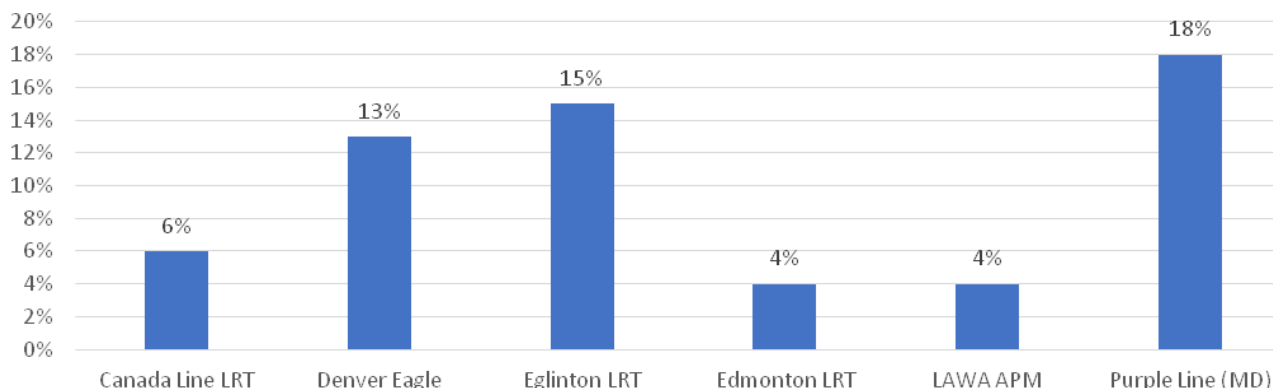
127. *Twenty-Eight by '28 Program Financing/Funding White Paper*. Board Report attachment. <http://metro.legistar1.com/metro/attachments/18984512-fa10-4b43-aa52-524cfd8bb69a.pdf>

128. Proposed Ordinance #16-01, Measure M—Los Angeles County Traffic Improvement Plan. http://theplan.metro.net/wp-content/uploads/2016/09/measurem_ordinance_16-01.pdf

129. *28 by 2028 Plan*. Slide 6.

130. *Twenty-Eight by '28 Program Financing/Funding White Paper*. Board Report attachment, p. 16. <http://metro.legistar1.com/metro/attachments/18984512-fa10-4b43-aa52-524cfd8bb69a.pdf>

Figure 14
Historical P3 Capital Cost Savings (Percent of Estimated Pre-Bid or PSC Capital Cost)



On the same page, the *White Paper*¹³¹ provides a table that shows a potential savings of \$1,317 million on the \$16,466 in the capital costs estimated if the projects are constructed without a P3, or 8%. Projects constructed with a P3 would likely have a lower total cost. The paper estimates a savings of \$3.265 billion on operations and maintenance (O&M) and state of good repair (SOGR) against a total estimate of \$23.321 billion, for a total of 14% savings, as summarized in table 10.

Table 10
Metro’s Estimates of Potential P3 Savings for Three Projects

Project	Estimated Capital Cost (\$ millions)	Potential Capital P3 Savings	Estimated O&M/SOGR Cost	Potential O&M/SOGR P3 Savings	Total Estimated Project Cost	Total Potential P3 Savings
West Santa Ana Branch	\$6,312	(\$505)	\$7,761	(\$1,269)	\$14,073	(\$1,592)
Sepulveda Transit Corridor	8,591	(687)	10,569	(1,727)	19,160	(2,167)
East San Fernando Valley	1,563	(125)	4,991	(816)	6,554	(824)
Totals	\$16,466	(\$1,317)	\$23,321	(\$3,265)	\$39,787	(\$4,582)

The calculation of the \$5.1 billion in savings Metro reports is not explained or detailed in any public Metro document. The total of the projected savings in the *White Paper* is \$4.6 million (rounded), which is more than half a billion dollars less than the \$5.1 billion Metro reports. The overwhelming majority, perhaps all, of the O&M/SOGR savings would not occur until well after the end of the FY28 timeline for the *Plan* and should not be considered part of the \$5.1 billion that Metro reports.

131. *Ibid.*

In the *Board Report*¹³², all four of the transit projects added to the original 20 projects from the Measure M Ordinance are shown as going into operation in 2028. The East San Fernando Valley Line, the third P3 project, is shown as entering revenue service in 2027. None of these projects would be in operation in the *28 by 2028 Plan* period for more than two years and, most likely, the grand total of years of operation across individual rail lines will be far fewer than five. The O&M costs for them would be relatively small during the *28 by 2028* time period and the SOGR costs smaller still. Therefore, any savings from a DBFOM P3 strategy that could be used to finance the *28 by 2028 Plan* during the 2028 period would be minimal. In fact, since two of the three proposed P3 projects were not scheduled for operation until after the end of the 2028 period, any savings would be against *added* operating costs, so it appears feasible that the strategy would *add* to total costs.

It makes no sense to present potential O&M/SOGR savings as a financing tool to support the *28 by 2028 Plan*. The timeline for realizing any savings that might be achieved in this category makes them irrelevant to the 10-year financial plan.

Still, properly utilized, P3s can provide significant cost savings and other advantages, and the proposed P3s in the *Plan* should be pursued—but the \$5.1 billion Metro projects in savings is overstated relative to the all-important 10-year period of the *Plan*, the timing is undoubtedly wrongly accelerated, and is unfeasibly large.

Metro's Misunderstanding

There is a possible explanation for why Metro predicts such large savings. At 1:00:45 of the Board meeting recording¹³³, Metro CEO Phil Washington states, "... and we also understand that P3s, it's not free money, it's money that we have to pay back, but we can pay these back in the out years ..."

"Out years" apparently refers to the period after FY28, but the logic in CEO Washington's statement is faulty, and identifying the flaw makes it clear that P3s cannot create \$5.1 billion in savings to finance the *Plan*.

The "F" in the acronym "DBFOM" is for finance. It is clear that CEO Washington and the *Plan* refer to the P3 finance role. This means that, rather than Metro issuing bonds to cover the construction costs of these projects, to be repaid over a future period of decades, the P3 partner would take on this debt, and Metro would repay the P3 partner over time, rather than making debt service payments to bond holders. This is a common P3 structure, generally described as "availability payments." In this case, the owner, Metro, would begin to make fixed, pre-defined payments to the private partner at a specified point in time, or when a specific event occurs, such as the project entering passenger service.

This could mean that Metro does not sell any debt—or sells less debt—under its own name to construct these projects. In some cases, availability payments begin after the project goes into service. In this case, there might be no such payments until after FY28. From a cash flow perspective, Metro could have little expenditures for the construction of these projects until the

132. *The Re-imagining of LA County: Mobility, Equity, and the Environment (Twenty-Eight by '28 Motion Response)*. Regular Board Meeting, January 24, 2019. Agenda Number 43, Attachment A. "Twenty-Eight by '28 Project List Delivery Status." <https://boardagendas.metro.net/board-report/2019-0011/>

133. Metro staff presentation remarks and Board Member and public comments from the December 6, 2018 meeting. http://metro.granicus.com/MediaPlayer.php?view_id=2&clip_id=987

availability payments begin. However, it is common for the owner to make some payments to the private partner prior to the beginning of revenue service, because private partners like the government partners to have some “skin in the game.” It is feasible to structure a deal in which there would be no payments until after revenue service begins, but this would likely increase the owner’s overall costs. If Metro wanted to push back availability payments as far as possible, the total debt could turn out to be substantially *more* than \$16.5 billion.

If this is how Metro proceeds, this type of P3 will *not* produce the \$5.1 billion in savings that Metro hopes can be used to fund a major portion of the *Plan* shortfall. This is because, for this type of capital project, with Metro incurring debt under a DBFOM or similar agreement, the future stream of availability payments is *Metro’s* debt, and must be so disclosed—and would limit the amount of debt that Metro can sell under its own name.

For an overview of the structure of a successful transit P3, the Comprehensive Annual Financial Report (CAFR) for the Denver Regional Transit District (RTD) is detailed in the Appendix¹³⁴ to this Chapter. It describes the P3 arrangements RTD entered into for the Eagle P3 and North Rail Lines and the Southeast Rail Extension. Clearly, the RTD financial statements show what RTD owed to its P3 partners as debt of RTD.

Metro has not explained the details of how its projection that a P3 DBFOM availability payment can increase public agency debt capacity because this type of debt is counted differently. Metro CEO Phillip Washington was the CEO at Denver RTD when these P3 deals were negotiated, so, presumably, he is familiar with how P3 availability payments debt impacts agency debt capacity.

Metro may have additional grounds for the full value of its P3 savings projections, but they have not been disclosed to the public—and we have no idea what these could be.

Metro seems to understand the statutory limits it faces with respect to debt. The *White Paper* (page 16) shows the three proposed P3 projects with a total capital cost of \$16.5 billion. There is insufficient detail to know how much of this Metro would propose to finance through P3 private parties, but it would have to be a very substantial portion of that \$16.5 billion. Depending on the contract details, Metro might not be responsible for this debt if the P3 contractor were to default for some reasons. However, if the effective Metro debt was only two-thirds of this amount, \$11 billion, it would still exceed the calculation of \$10.8 billion for Metro’s available debt capacity shown in the Plan (Slide 20). This is a contradiction, because Metro does not propose to use any of this available debt capacity at this time. In *Re-imagining* (page 1), the summary of staff recommendations concerning strategies to pursue the *Plan*, the option to “Change Debt Policy,” with a “10-yr Estimate” of \$10.8 billion is in the original¹³⁵:

Not Recommended—This is not recommended as Twenty-Eight by '28 faces a funding issue, not a financing issue. Issuing additional debt for Twenty-Eight by '28 will encumber future revenue sources to service that debt. This will prohibit Metro from delivering remaining projects in Measure M schedule, as mandated

134. “Denver Regional Transportation District (RTD) Comprehensive Annual Financial Report (CAFR) Fiscal Year Ended December 31, 2017 And 2016.” Note to Financial Statements (pages 80-81). <http://rtd-denver.com/documents/financialreports/2017comprehensive-annual-financial-report.pdf>

135. *The Re-imagining of LA County: Mobility, Equity, and the Environment*, attachment to Board Report. This is available through links at the meeting agenda web page, item 43: http://metro.legistar1.com/metro/meetings/2019/1/1472_A_Board_of_Directors_-_Regular_Board_Meeting_19-01-24_Agenda.pdf

by statute. Metro should continue to issue debt on a project-by-project basis, when dedicated funding sources are available for the project and when actual project costs are to be incurred (during construction). Issuing debt too far in advance of construction can violate IRS rules, putting Metro's tax-exempt status in jeopardy and potentially incurring substantial costs for noncompliance.

Conclusions

1. Metro should explore the use of P3s as a method to undertake the construction of major capital projects. Properly performed, P3s can provide important benefits, including cost savings, faster implementation, and the transfer of some risks to other parties.
2. Metro's opportunity to generate \$5.1 billion in savings by performing these projects as P3s is overstated by well more than half a billion dollars in Metro's own presentation.
3. Metro will generate little and likely no Operations & Maintenance/State of Good Repair Cost savings during the *Plan's* 10-year period. P3s may offer Metro cash flow and other advantages, but even subsequent O&M/SOGR savings may be offset by the additional cost of earlier operations.
4. Metro may be intending to use private partners to finance the three projects it identifies as P3 candidates and believes that P3 availability payments debt does not impact agency debt capacity. Even if Metro is able to partner with private entities that agree to defer availability payments until after these projects are in service, this would still limit the debt Metro can sell under its own name.
5. If Metro is able to partner with private entities that agree to defer availability payments until after these projects are in service, it would raise the total cost of Metro's estimates for its P3 candidate projects. The longer Metro wants to delay before paying the costs of these projects, the more its private partners will demand that they be paid.
6. The total savings of \$5.1 billion shown in the *Plan*, particularly being available prior to 2028, is overstated by at least one order of magnitude.

**APPENDIX: DENVER REGIONAL TRANSPORTATION DISTRICT
COMPREHENSIVE ANNUAL FINANCIAL REPORT FISCAL YEAR ENDED
DECEMBER 31, 2017 AND 2016**

Future Commitments under Construction Contracts

In 2010, RTD entered into a public-private partnership to design, build, finance operate several of the transit improvements contemplated under the FasTracks program, including the Commuter Rail Maintenance Facility, the East Rail Corridor, the Gold Line Rail Corridor and the electrified segment of the Northwest Rail Corridor (together, the “Eagle P3 Project”). The Eagle P3 Project is being delivered and operated under a concession agreement that RTD has entered into with a concessionaire selected through a competitive proposal process. The selected concessionaire is known as Denver Transit Partners (DTP), a special purpose company owned by Fluor Enterprises, Uberior Investments and Laing Investments.

The Eagle P3 Project construction was completed in two phases with Phase I completed in 2016 and Phase II completed in 2018. Under the terms of the Eagle P3 Project agreement, RTD made scheduled construction payments to DTP from 2011 through 2017 for completed project elements. RTD began commuter rail services on the University of Colorado A Line and the B Line in 2016 with testing and revenue service of the final corridor, the G Line, expected to occur in 2018. RTD will assume ownership of the entire project once certain contractual criteria and final completion occurs. Under the terms of the concessionaire agreement, RTD will make scheduled secured principal and interest payments to DTP from 2017 through 2044 in addition to service payments for the provision of operations and maintenance services by DTP. The principal and interest payments are fixed amounts for the term of the agreement while the service payments are indexed each year according to certain inflation measurements. In addition, the service payments may also be adjusted for schedule changes, special services and certain availability factors.

In 2013, RTD entered a contract with Regional Rail Partners to construct the North Metro Rail Line. The North Metro Rail Line is an 18.5-mile electric commuter rail line that will run from Denver Union Station through Commerce City, Thornton and Northglenn to Highway 7 at 162nd Avenue in North Adams County. The North Metro Rail Line is expected to open within the next few years.

In 2014, RTD entered a contract with Balfour Beatty Infrastructure, Inc. to design and construct the Southeast Rail Extension Project. The Southeast Rail Extension includes 2.3 miles extending of the existing Southeast Light rail Line from Lincoln Station through the City of Lone Tree to RidgeGate Parkway Station featuring a new Park-n-Ride with a structure of 1,300 parking spaces. The Southeast Rail Extension is scheduled to open in 2019.

Future Commitments under Service Contracts

The fixed commitments under the Privatization contracts (bus) in the years subsequent to December 31, 2017 are as follows:

<u>Year ending December 31</u>	
2018	\$ 93,313
2019	84,072
2020	43,400
2021	<u>28,883</u>
Total	<u>\$ 249,668</u>

Denver Transit Partner’s concessionaire service payment commitments under the lease in years subsequent to December 31, 2017, are as follows:

<u>Year ending Decmeber (sic) 31,</u>	<u>TABOR Secured Payment</u>	<u>Service Availability Payment</u>	<u>Total</u>
2018	\$ 34,437	\$ 44,787	\$ 79,224
2019	45,388	57,264	102,652
2020	45,813	65,317	111,130
2021	46,264	52,453	98,717
2022	44,618	54,671	99,289
2023-2027	232,812	348,652	581,464
2028-2032	260,982	407,253	668,235
2033-2037	342,887	472,280	815,167
2038-2042	303,855	542,722	846,577
2043-2044	<u>40,224</u>	<u>286,625</u>	<u>326,849</u>
	<u>\$ 1,397,280</u>	<u>\$ 2,332,024</u>	<u>\$ 3,729,304</u>

The projected amounts include an estimation for certain future inflation indexes as required by the concessionaire agreement.

These inflation indexes will be adjusted annually as projects are revised.

13. METRO WILL NOT HAVE THE REVENUES NOR THE DEBT CAPACITY TO UNDERTAKE MANY OF THE PROPOSED 28 PROJECTS

Metro's past performance exhibits a number of patterns that also appear in the *28 by 2028 Plan*; Together, the previous Summaries are the foundation for why the *28 by 2028 Plan* is doomed to failure and many of the 28 construction projects will not be completed by 2028, if ever, and why there will be significant further declines in Metro ridership. The longer and the harder Metro attempts to keep its current dream alive, the harder the fall will be:

1. Metro has consistently and significantly overstated future sales tax revenues, relying on forecasts that average three times the actual revenues received two decades later. See chapter 9, "Metro Consistently Overstates Sales Tax Revenues."
2. Metro has frequently understated the costs of major transportation capital projects. Costs often exceed Metro's original projections by hundreds of millions or even a billion dollars. See chapter 10, "Metro Frequently Understates Transportation Project Costs."
3. Metro's long-range plans fail to build the long lists of major rail transit construction projects that it promises, generally producing only a small fraction of these projects within the projected time frame. Less than half of the 11 rail projects shown on the original 1980 proposition A map have a single mile of passenger rail in service today, and many of the others have not been fully completed even after four decades, and even after the passage of three additional Los Angeles County half-cent sales taxes. See chapter 5, "Metro's Long-Range Plans Overpromise and Underdeliver."
4. Metro's projections of congestion pricing revenues are overstated by a wide margin relative to comparable projects. Any revenues Metro receives will not begin to accrue until long after the July 1, 2020 *Plan* schedule, and will be, at best, a small fraction of what Metro has shown in the *Plan*. See chapter 11, "Metro's Congestion Pricing Revenue Estimates Are Not Credible."
5. Metro's projections of savings from the utilization of public-private partnerships may well produce savings, but only a small portion—if any—of what are projected in the *28 by 2028 Plan*. See chapter 12, "Metro's Public-Private Partnership Revenue Estimates Are Not Creditable."

The 28 By 2028 Plan Will Fail

The agency's long and consistent record of over-promising and under-performing undercuts the credibility of Metro's projections in the *28 by 2028 Plan*. The *Plan* is built on a foundation of exceedingly high revenue projections that will not be realized. As a result, there is no practical possibility that Metro will be able to complete all of the 28 projects in the *Plan* by 2028. Even without considering the many questionable cost projections in the *Plan*, the most important open question is how badly the *Plan* will fail, and how soon.

Metro's record of major ridership changes demonstrates that when Metro focuses on rapid construction of new rail lines, transit ridership drops significantly. However, when Metro devotes even a relatively small portion of its resources to increasing and improving bus service, and either keeps fares constant or reduces fares, total transit ridership increases substantially. Still, Metro remains committed to its long-standing practice of favoring allocation of financial resources and attention to rail construction. See chapters 6, 7, and 8, "Improving Bus Service and Reducing Fares Have Greatly Increased Transit Use in Los Angeles Three Times," "Why Has Metro Been Losing Ridership Since 2007? And What Can It Do to Reverse This Trend?" and

“*Labor/Community Strategy Center v Los Angeles County Metropolitan Transportation Authority*,” respectively. The construction schedules are optimistic and slip as projects proceed and shortfalls emerge (chapter 5). This leaves the agency with an incentive to try and mitigate project delays to adjust by shifting resources away from bus operations toward construction.

Allowing bus service to wither has disastrous consequences for Los Angeles County bus riders, particularly the large number of residents who have only very limited or no other transportation options for meeting daily mobility requirements. This includes the great majority of rail passengers, who must use Metro bus service to access Metro rail lines. See chapter 4, “Metro’s Transit Ridership is Declining.”

Metro’s Planned Ridership Drops Will Become Unplanned

Metro’s current ridership downturn will get worse, and the effects will be greater than in the past. The two most recent major downturns in total Metro ridership, which began in Fiscal Year 1985-1986 (FY86) and FY08, each occurred after a significant long-term upward trend in Metro ridership. This time, the continuing downturn includes the very serious 24% ridership reduction that has occurred from FY07 through FY19. The first two months of FY20 have delivered a 2.2% reduction in UPT compared to the same months the prior year¹³⁶.

Perversely, Metro is planning for a further reduction in ridership. The *FY20 Adopted Budget*¹³⁷ projects a 2.9% ridership decline in total and for bus and rail individually from FY1 to FY20, which it is accomplishing by reducing bus revenue service miles (RSM) by .2% and decreasing rail’s by 3.8%. (The above, and all other Metro Budget comparisons, are made by using the data from the actual *Adopted Budgets* for each year. Metro frequently “updates” prior year budget data in its most recent budgets, and then labels the prior year data shown as “adopted.” For example, in the *FY19 Adopted Budget*, page 51, the budgeted UPT for FY19 is 393,005 [,000], but, in the *FY20 Adopted Budget*, page 47, the FY19 UPT is shown as 380,785 [‘000]. This type of retroactive budget change is, unfortunately, something that Metro frequently does.)

Table 11 compares Metro *Adopted Budgets* for FY07, the most recent peak ridership year, to that for FY120. The reduction in average operating speed is mostly due to increased congestion, but also due in part to some services being shifted from bus to rail as new rail lines and extensions (Expo Line, Gold Line Eastside, and San Gabriel Valley) were opened. Under National Transit Database reporting requirements, revenue service miles includes layover/recovery time at the end of trips, when the bus is not in motion, so the operating speed of buses is higher than what appears in **Table 11**. Also, as bus service is converted from line-haul service to a rail station feeder/distributor role, bus speeds slow as buses go off route and wait at stations for passengers to board and alight at rail stations not located at a bus route terminus.

The most disappointing item in **Table 11** is the 29% reduction in bus unlinked passenger trips, which is very much driven by the 22% reduction in revenue service hours (RSH), along with the fare increases over this period. This is nothing new for Metro. As we presented in chapter 6, while rail ridership increased 20.5 million in annual UPT from FY07 to FY19, bus UPT fell 139.3 million over the same period—almost seven times as much.

136. Author’s analysis of data from Metro. Interactive Estimated Ridership Stats.

<http://isotp.metro.net/MetroRidership/Index.aspx>

137. *Metro FY 2019 Adopted Budget*. Appendix I: Service Statistics, pages 50-51.

http://media.metro.net/about_us/finance/images/fy19_adopted_budget.pdf

Description	FY07	FY20	% Change
Revenue Service Miles	95,169,000	74,606,023	(21.6)%
Revenue Service Hours	7,751,000	7,094,376	(8.5)%
Unlinked Passenger Trips (UPT)	386,260,000	273,427,000	(29.2)%
Passenger Miles	1,447,716,000	1,143,317,000	(21.0)%
Boardings per Hour	49.8	38.5	(22.7)%
Average Passenger Load	15.2	15.3	.6%
Average Trip Length	3.7	4.2	14%
Average Operating Speed (mph)	12.3	10.5	(14.6)%

The state enabling legislation for what became Measure R in 2008 AB 2321 [Feuer, 2008] had a specific requirement, now codified as PUC §130350.5(b)(3), that the 20% of Measure R funds dedicated to bus service had to be used to *increase* Metro's spending on bus services. This legal requirement notwithstanding, Metro's has not put this into practice (see chapter 15 for the details).

To date, Metro's very expensive commitment to increasing rail transit construction has had a profoundly adverse impact on transit service, particularly bus service, and total ridership. Worse, there is a very real danger that, when the *28 by 2028 Plan* collapses, the future impacts on ridership will be far worse.

In chapters 3 and 7, we discuss how Metro responds when one of its long-range plans reaches the point where there must be a public acknowledgement that it is no longer viable. In the past, Metro's consistent process has been to start as many rail (and road and other) projects as it can, as soon as possible, and borrow heavily to finance their construction. When the revenue projections fall short and project costs exceed budgets, Metro then delays making this news public as long as possible, then finally announces that there must be changes, which include:

- Reducing bus services operated.
- Increasing fares.
- Shifting bus operating resources to try and salvage some construction schedules.
- Announcing some promised rail projects must be delayed.
- Possibly interrupting some major construction projects and stopping mid-way.
- Urgent efforts to find sources of additional funding.

This has been standard procedure for Metro in the past but could be particularly problematic this time if Metro proceeds with all three P3 construction projects proposed in the *Plan*, which have a total budget of \$16,466.0 million.

The Implications of Public Private Partnerships

These contracts will almost certainly include very strong protections for the private partners—any P3 private party that does not insist on such protections would have to be either desperate to get work at any cost or incompetent. Any competent P3 concessionaire would require these protections as a condition for agreeing to the deal. These protections would shield private partners from the risk of project cancellation. Since Metro is evidently planning on using availability payments, the private P3 parties would be paying out billions of dollars for the construction of these projects in exchange for Metro's commitment to make the availability payments years later, likely after the projects enter revenue service.

Under this scenario, the private P3 party will have to use a large portion of its borrowing capacity to finance Metro's construction, backed by the promises of Metro's future payments. These private parties will take all necessary steps to ensure that either the availability payments are strongly guaranteed, with a significant delay/cancellation fee add-on, or else insist on a termination clause requiring immediate payment from Metro. If these private parties do not take these steps, they very well may not have sufficient credit available to undertake other projects for other clients. In short, they might no longer be in business.

Until the details of the proposed P3 agreements are provided by Metro, the exact provisions will not be clear. What is certain is that any potential P3 partners will subject Metro to the same type of credit-worthiness evaluation presented here, will come to the same general conclusions, and will take every step necessary to protect their own interests.

To date, borrowing in its own name to finance the construction of major rail and road projects has meant that, when Metro's shortfalls occurred, the agency had to stop borrowing and start shifting its remaining financial resources to support existing projects, programs, construction, and operations. P3s are a very worthwhile tool when used properly, but strongly written, legally enforceable obligations to private partners diminish Metro's flexibility to make its usual types of adjustments when its inevitable funding shortfalls occur. The P3 projects will have to be protected. If Metro gets too deeply into P3 commitments too quickly, then the negative consequences of an economic downturn could be far worse than Metro experienced during the last two recessions. This time the reduction in bus service miles and hours, and ridership, will start not from a high point but from a low point, and fare increases will make it more difficult for low-income riders to afford transit. Because the transit system will be less useful for these riders, those that have the minimum resources needed to afford a car will shift from transit to driving with increased negative consequences such as traffic congestion

In the past, when economic downturns have occurred, Metro had to delay starting new rail projects. In many cases, this meant that the projects were no longer viable until Metro went back to the voters and secured another transit sales tax. During the downturn of the mid/late 1990s, Metro cancelled two projects after spending over \$150 million on them, the Red Line MOS-3 Eastside and Mid-City, and halted work on the Pasadena Gold Line.

If the *28 by 2028 Plan* is executed, there will be far more projects under construction than ever before, and if the three P3 projects are among the first started, attempting to delay or terminate projects will be very difficult and very expensive.

Los Angeles County transit service and ridership have both decreased greatly since the current downward trend in ridership began in FY08. Given the current low point in ridership, the

prospect of Metro deliberately placing itself in a fiscal posture that is certain to further diminish service to riders is very questionable, even disturbing.

Conclusions

1. Metro has:
 - Consistently overstated future sales tax revenues,
 - Greatly understated the costs of major transportation capital projects,
 - Relied on long-range plans that fail to produce the set of major rail transit construction projects they promise,
 - Overstated congestion prospective pricing revenues identified in the *28 by 2028 Plan*, and
 - Overstated the *28 by 2028 Plan*'s projected savings from the utilization of public-private partnerships.
2. There is no practical possibility that Metro will be able to complete all of the 28 projects in the *Plan*. The most important open question is how badly the *Plan* will fail, and how soon.
3. Metro is planning for further reductions in ridership. The *FY19 Adopted Budget* projects a 2.9% decline in total ridership FY19 to FY20.
4. If Metro commits to three P3 construction projects at the level proposed in the *Plan*, which have a total budget of \$16,466.0 million, the agency will have less flexibility to interrupt construction because of obligations to private partners with capital at risk.
5. When the *28 by 2028 Plan* collapses, Metro's current ridership downturn will get much worse, and the effects will be even more negative than in the past.

14. METRO'S PLANS AND PROPOSALS ARE BUILT ON QUESTIONABLE ASSUMPTIONS AND ERRORS

The previous Summaries have dealt with high value items in the *28 by 2028 Plan (Plan)* on the order of billions or even tens of billions of dollars. The items following are smaller, some accounting for only hundreds of millions of dollars across the ten-years of the *Plan*¹³⁸. However, the total impact of the items below runs well into the billions of dollars. Examining these items and Metro's supporting analysis provides important insights into the quality of staff work performed, which, in turn, is additional insight to the overall quality of the *Plan*.

The detailed items below are presented in the order in which they were presented to the Metro Board at its December 2018 meeting in the *28 by 2028 PowerPoint™*, starting with general concerns and moving to specifics with additional details from other documents as appropriate.

General Concerns

1. The plan for Metro's original 20 measure M ordinance projects¹³⁹ is remarkable and risky. The original implementation plan was already very aggressive, and that plan begins with funding shortfalls. Adding eight more projects and advancing \$26.2 billion in funding to accelerate these eight significantly (*Plan*, slide 12) increases the already very high risks.
2. There is little detail provided to justify the dollar values attached to the new revenue sources. For most, considering all *Plan* documents, there is no supporting detail for transactions per year, nor value for each transaction, nor revenue changes over time.
3. The total cost for the 28 projects is \$42.9 billion to be incurred over ten years, more projects than Metro has ever undertaken before. After adjusting for prior expenditures, this is average spending of greater than \$4 billion/year, significantly more than Metro has ever spent before.
4. The *Plan* proposes several potential funding sources that would likely take years to gain legal authority to implement and more years to do the technical and infrastructure work required—if they can be implemented at all. However, in most cases, there are seven to eight-and-one-half years of full revenues claimed. While the *Plan* showed ten full years for each, *Re-examining*¹⁴⁰ reduces the ten-year financial projection only slightly, even for the many elements that require statutory changes. Even without the eight added projects, the original plan for twenty projects completed and in service by 2028 was very aggressive, and very far from certain. The additional projects pose and/or compound other problems:
 - **Timing of new money:** The *Plan* is totally dependent upon new money being available, which includes entirely new sources of funding. The alternatives

138. PowerPoint™ presentation, *28 by 2028 Financial Plan—Laying the Groundwork*, December 2018, <http://metro.legistar.com/metro/attachments/e48c3ad9-7f42-4011-849c-5666ed4f0cc6.pdf>

139. Proposed Ordinance #16-01, Measure M—Los Angeles County Traffic Improvement Plan, http://theplan.metro.net/wp-content/uploads/2016/09/measurem_ordinance_16-01.pdf

140. The Re-imagining of LA County: Mobility, Equity, and the Environment, attachment to *Board Report*. This is available through links at the meeting agenda web page, item 43: http://metro.legistar.com/metro/meetings/2019/1/1472_A_Board_of_Directors_-_Regular_Board_Meeting_19-01-24_Agenda.pdf

involve additional legislative authority at the Federal and/or State levels, Metro pursuing a larger share of existing Federal and State grant programs, and/or working with local governments to obtain funds under local control. This is highly speculative. These new revenue sources must be finalized and authoritatively tied down before Metro can authorize construction activity funded by them to commence, so the timing of these approvals is critical. The point of the accelerated program is to have all 28 projects in service prior to the Los Angeles Olympics in July 2028. The construction and preparation for revenue service will require multiple years for each project, so the funding for each project must be finalized several years earlier.

Metro can use other funds to proceed with preliminary planning, design, and site acquisition work while waiting for such funding to be finalized, but even this is expensive and can easily greatly exceed 10% or more of the total budget. This approach would run the risk of Metro making substantial expenditures for pre-construction activities that might ultimately serve no purpose, such as the more than \$135 million that Metro spent on the Red Line MOS-3 Eastside project before it was cancelled. *Re-imagining* shows most of these funds being available by July 2020. Both the dollar values and the schedules are extremely aggressive and questionable.

- **Construction sector capacity:** The ideal situation for both Metro and its suppliers is a relatively constant level of construction activity for multiple decades, which would allow construction contractors and other suppliers to locally employ a consistent number of the employees and contractor specialists needed; have the right levels of equipment on hand at lower cost; and have proven technical, financial, project control, and management systems in place—all while developing significant experience working under State and local operating conditions.

When demand for these capabilities exceeds available supply in a region, the suppliers' options are to increase capacity by bringing in resources from other geographic areas; over-extending available assets, which increases costs and the risks of various other types of problems; or ramping up local capacity permanently. The latter option is best in the long term but works only if suppliers believe that there will be a high level of work for many years. Most suppliers have experience with the public sector construction activity cycles and are very reluctant to make such investments. They will be reluctant here because the risk associated with the set 20 baseline projects being planned for construction for 2028 revenue service was already high and adding eight more projects significantly increases the program risks further. The unusual acceleration of 28 projects for delivery by 2028 will mean that post-2028 annual construction activity will almost certainly be a small fraction of the proposed pre-2028 level. This argues against construction contractors and other ramping up their permanent levels of capacity. The sole mention of these concerns in the *Plan* is on Slide 32, "Beware of contractor capacity pressures."

5. The *Plan* risk assessment presentation (Slides 15-19) only review risks associated with potential new funding sources. There is no discussion of risks associated with existing

revenue sources, nor of expenditures. There is only minimal discussion of the risks associated with results that are not achieved, or negative impacts on objectives outside the *Plan*, such as reduced transit utilization, traffic congestion, equity, or displacement of lower-income residents from transit-oriented development sites, etc.

6. The *Plan* does not present, nor even mention the need for, a “Plan B.” What is the fallback plan if (when) the *Plan* begins to fail and the financial resources necessary to complete the various projects *and* maintain existing services are not available? What are the criteria that will be regularly evaluated to determine if there are substantial risks? At what point will the risks be deemed sufficiently high that actions must be taken and, when this occurs, what actions will be taken? How will the Board and the public be kept informed of these matters? *Every such plan that Metro and its predecessor agencies have ever prepared* has failed quickly. Preparing and constantly testing the need for a Plan B is perhaps the single most important aspect of Metro’s planning process—and it is absent.
7. In the *Plan* documents, Metro frequently does not specify the unit of measure of dollars, current year or constant; this is particularly troublesome for the new revenue sources. Without knowing the terms of expression of dollar values, trying to gain a full understanding of what is presented is particularly difficult.

Plan Specific Concerns

1. Slide 5, third bullet, includes four projects, some expensive (including the Union Station upgrade project), listed under, “... we are moving forward on additional projects beyond measure M.” Every dollar that goes to such projects is a dollar that is not available for 28 by 2028, increasing the risk to the additional projects, and to the entire program.
2. Slide 6, under “Life of a Project,” the last two boxes are “operation” and “maintenance”; but there is no box for “capital renewal and replacement.” Over decades, capital renewal and replacement subsidies can exceed operations and maintenance costs for heavy rail lines like the Red/Purple Lines.
3. Slide 13 of the *Plan* states, “State of Good Repair—maintain \$475 million/year to accommodate the 10% backlog.” One can hope that this indicates that Metro is dedicated to proper capital renewal and replacement of existing assets. Additional detail would be valuable, particularly an assurance that the capital renewal and replacement requirements of the new *Plan* projects are properly factored in. Unfortunately, Metro has a history of not planning for the cost of unanticipated problems as part of project costs. Further, these and other capital costs emerge more quickly after projects open for service than many decision makers anticipate.
4. Slide 8, “Measure M Ordinance Parameters” notes that the measure M requirements for accelerating projects are very specific and restrictive to ensure that funding intended for projects scheduled for later is not be utilized for projects scheduled earlier. It will be very difficult to comply with these requirements, and some of the eight projects to be added will encounter major constraints in this respect. The Metro staff may be tempted to comply with a Board directive to move these projects forward as a group as soon as possible. Without being able to confirm that funding is available, this would be a great mistake. There are similar restrictions for measure R funds.

5. Slide 12, “28 x 2018 Funding Challenges: ... O&M Expense for Earlier Revenue Operations—\$2.2 billion.” This figure appears high, particularly since the FY19 O&M Budget for *all* existing Metro transit is \$1.8 billion (while the *FY20 Adopted Budget* is now available, for comparisons such as these, we will generally utilize the *FY19 Adopted Budget*, which was the latest available when the *Plan* was being prepared). The *White Paper*¹⁴¹, attachment A, “Twenty-Eight by '28 Project List Delivery Status (*Plan*, Slide 7), has the scheduled completion dates for all projects. All four accelerated rail transit projects are shown being completed in 2028, so, at most, there would be one full year of operation for each of the four, and less for at least some. Metro *FY19 Adopted Budget* included a 25% operating ratio for transit, but there is no mention of added fare or other operating revenue that could be netted against the costs to produce the additional funding required.

Two of the four accelerated road projects show 2028 completion, and two show 2027. One of the latter is the I-105 ExpressLanes, which would be a revenue generator. While road projects have operating costs, they are relatively low, and capital renewal and replacement costs for projects in operation for one to two years would likely be small or non-existent. This cost projection is likely an overestimate.

6. Slide 13, “Staff Recommended Baseline Assumptions,” recommends not violating prior commitments to fully fund higher priority programs and projects, which is wise and proper. However, this will cause the new projects to be even more difficult to execute, as it burdens the new projects to receive the full impacts of any funding shortfalls. Based on past experience, if the new *Plan* projects are delayed, there will be pressure to violate this recommendation. The *Board Report* provides more detail on these, but not enough.
7. Slide 16, “28 x 2028 Risk Allocation Matrix:”
- **Fare revenues:** The revenues shown for the possible 10%, 15%, 20%, and 25% fare increases are directly proportional to the fare increases, which implies that there will be no reduction in ridership as fares increase, which contradicts basic supply-and-demand economics and over a century of transit industry experience. An error this fundamental is hard to explain and calls into question the quality of the staff work in the preparation of the *Plan*.
 - **Not Recommended:** *Re-imagining* states, “Currently engaged in study to simplify and right-size our fare media. Will return to the board in June 2019.” This appears to leave open the question of changes that would increase the costs of riding transit.

If such fare increases were to be implemented, the result would be a reduction in ridership; which, based on past experience, Metro would use to justify a reduction in transit services operated. This will produce a cost reduction but will move Metro away from the business of moving people and further into the business of transportation project capital construction. The trade-off is more projects and fewer riders.

141. *Twenty-Eight by '28 Program Financing/Funding White Paper*, Board Report attachment, <http://metro.legistar1.com/metro/attachments/18984512-fa10-4b43-aa52-524cfd8bb69a.pdf>

Advertising: “Expanded Advertising and Corporate Sponsorships—\$1.0 billion,” or \$100 million annually if initiated immediately. Given that the FY19 Adopted Budget includes \$25 million for advertising revenue, this is a very aggressive assertion. More detail and justification would appear necessary.

- Slide 17, “Increase Revenues from Existing Sources: (continued)”
 - “Increase State funding share from 11.8% to 14.5%, ...—\$700.4 million,” would almost certainly require a corresponding, State-wide increase in transit funding. It is not reasonable to expect Metro to receive such large increase in the size of its current share of State resources. This would be a very substantial shift in State priorities. This may be more easily done by working to increase the size of the pie than by trying to increase the Metro slice of that pie.
 - “Increase State funding share from 11.8% to 17.9%,” \$1,695.5 million. Same funding source as the immediately preceding, same comment, doubled and then some. The original top-of-range dollar value from the *Plan* is not changed in *Re-imagining*, but the lower value (prior bullet) is eliminated.
 - “Increase the percentage of Cap and Trade Funds allocated to public transit—\$600 million,” is perhaps possible if the California High Speed Rail (CHSR) project terminates. This could free up the very significant cap-and-trade funds now going flowing to CHSRA for other uses, including transit. However, this also leaves the State with the high probability of being required to repay the Federal government for the Federal HSR grant funds California received, and this might leave cap-and-trade funds as the most likely available source. This is absent from *Re-imagining*.

The CHSR project aside, there is intense competition for cap-and-trade funds, and it is difficult to win big in a zero-sum game. Increasing the size of the cap-and-trade program in California has limits, in part because the program's critics do not view it as sufficiently “green.” There is some limited movement towards dropping cap-and-trade and shifting the State to a carbon tax but turning this shift to Metro's advantage would require the agency to be an active participant in a major lobbying effort.

- “Reconfigure existing SB1 programs to generate more funds for Los Angeles County—\$1 billion,” presents another zero-sum game that would be neither easy to win nor quick. Metro, as the Los Angeles County transportation planning and funding agency, should certainly do everything it can to make sure that Los Angeles performs well on every metric that drives the allocation process, but this alone is not sufficient. An increase of this magnitude would likely require a further increase in motor fuel excise charges, which would require a two-thirds majority in the State legislature (or by the State electorate). This line item is also absent from *Re-imagining*; if this is not being intentionally omitted, perhaps the amounts shown for the other State program is now intended to include funds from this source.

In summary, this is a long list of possibilities, each of which will be difficult to accomplish individually and the more funding that is tried for, from the more sources, the more difficult it will get from each, and in total.

- Slide 19, “Generate Revenues from New Sources,” identifies potential sources of funding for the \$26.2 billion shortfall for completing the eight additional projects.

- How this is proposed to be done is less than clear. As previously discussed, the funds must be legally authorized years prior to 2028 or construction cannot be initiated in time to complete the projects to meet the 2028 deadline.

Additional funds would be welcome, and could be used for other purposes, but any excess does not provide additional benefit with respect to getting the eight additional projects ready in time. Funds that will not be received until after 2028 can be utilized as the debt service for issuing bonds prior to 2028 to pursue the eight added projects; however, there is no statement to this effect in the *Plan* and, given the organization of the *Plan*, this does not appear to be what is intended. Slide 16 presents a discussion of raising funds by issuing debt; but *Re-imagining* specifically rejects more debt.

- “Seek to back the creation of a White House Task Force on the 2028 Olympics and Paralympic Summer Games—\$2 billion,” is consistent with past practices to work around U.S. government policies of no direct government financial support of the Olympics and other such events. There has always been some flexibility in such matters, such as the Southern California Rapid Transit District (SCRTD) agreeing to operate most of the 1984 Olympics bus service, which ultimately required a \$7 million public sector subsidy. \$2 billion is a considerably larger amount of money, presumably mostly or entirely Federal money. Metro CEO Phil Washington’s remarks at approximately 56:00 of the Board meeting recording provide some insight into Metro’s position.

Governmental bodies have been known to approve projects, and funding for projects, that are important to general transportation in the region, with the hope that they would be in-service in time for the Olympics or other major events. To the extent that normal funding sources and processes can be used to provide funds for the *Plan*’s projects to be completed in time for the Olympics, and the *Plan* is already identifying attempting to get more Federal transit capital funds—is this double-counting?

- “Value Capture (Variety of locations)—\$93 million,” and “(Desirable locations)—\$370 million,” can be done, to a significant extent, by Metro and other local governments acting on their own. These revenue projections are subjective but appear reasonable. Many such arrangements can be executed by contracts between Metro and individual developers. The original top-of-range dollar value from the *Plan* is not changed in *Re-imagining*, but the lower value is eliminated.

Metro has history with co-location and development agreements; not always good. Examples include the original agreement for the Universal City Red Line Station and the subsequent construction of the pedestrian bridge over Lankershim Blvd. between the station and the high-rise building on the other side, and the Metro loan to support construction of Grand Central Market—all of which involved either the expenditure of Metro funds or a loan to a developer. In addition, during the construction of Metro headquarters at Union Station, Metro, on its own, decided to construct substantially more underground parking for future development at Union Station and park-and-ride—which, after two decades, has yet to fully develop. These all involved funding flowing *from*, not *to*, Metro—and care must be taken in any future such negotiations to avoid Metro becoming the piggy bank for various locally desired projects.

- “New Mobility Fees,” presents three options that invite the questions, “What is the legal ability of Metro to put such a change in place under its current statutory authority? Would new legislation would be required?”

The two current dominant Transportation Networking Companies (TNC), Uber and Lyft, have consistently practiced a strategy of entering markets by starting operations without seeking permission or licenses from any governmental body and, if challenged, actively lobbying and using judicial challenges to avoid or minimize restrictions on what they want to do.

It would take some time to establish policies and processes that would allow these fees to be implemented. How many years of such revenues are assumed, and what is the year-by-year pattern of cash flow? What are the projected numbers of transactions per year, and what is the proposed unit charge?

- “Shared Devices—Fee at \$1 per device per day—\$580 million.” What “shared devices” means is not discussed at all in the *Plan* or elsewhere, but we will assume this refers to personal transportation equipment, such as bicycles and powered and/or unpowered scooters, available to members of the public for a fee. These are springing up as short-term, rental means of mobility in many U.S. urban areas. At \$58 million per year, at the \$1/day rate shown, this would be 58 million annual transactions. Assuming level service 365 days a year, this would be approximately 160,000 transactions every day, which corresponds to approximately 1.5% of the County population using such a device each day—not considering the costs of collection of the \$1 fee. Details are needed to make this case.
- “Levy a fee on TNC—Fee of \$0.20—\$401 million;” and “Levy a fee on TNC—Fee of \$2.75—\$5,500 million,” appear to refer to Uber, Lyft, and similar services. The two fees are given on page 4 of the *White Paper*, Attachment E as the high and low now charged in U.S., \$.20 in Massachusetts and \$2.75 in New York City, evidently with the same unit fee. Slide 28 provides more detail on these revenues than for almost any other item listed in the *Plan*, but still more detail is needed. Some of the assumptions presented on Slide 28 are questionable. See below.
- **Not Recommended:** Slide 20, “Debt Capacity Analysis” gives the potential range of additional funding as \$6.7 to \$10.8 billion. While issuing more debt is not recommended, the more important question is, will Metro be able to issue what is now planned?
 - The data in the two cases implies that Metro assumes additional annual debt service of ~\$300 million would carry new debt of ~\$4.1 billion, a ratio of \$13.67 of debt per dollar of annual sales tax revenue. This means that, if sales tax revenues are \$100 million under projections, Metro loses \$1,367 million of bonding capacity that year. As we discuss in chapter 9 on Metro’s sales tax projections, it is very likely that, by the end of the ten-year period, the shortfalls may be in hundreds of millions per year. This Slide properly discusses various other significant concerns, such as the possibility of debt rating downgrades if the Metro debt load is increased.
 - The cost of debt service and the amount of debt service that Metro can carry depends upon the interest rate that Metro pays to issue new debt, which in turn depends on the rates of inflation and the actions of the Federal Reserve Board to manipulate interest

rates, as well as other economic factors out of Metro's control. Change in tax law can also have a major impact—as could a change in Metro's credit rating. It is vital that these risks are understood and evaluated, by truly independent experts, including analysis of what changes in the interest rates Metro might pay, along with changes in other factors, may have on the implementation of the *Plan*.

- Slide 23, “Local Return & Multi-Year Subregional Guidelines,” makes the key point that, under the terms of the four local half-cent sales tax Ordinances approved by the voters, decisions relating to how these funds are spent are almost entirely up to the various local jurisdictions that receive them. While there is history of the various cities and the County Supervisors using such funds to support Metro projects, in general, there are many more local projects proposed than can be funded from these annual allocations.
- Slides 26/27, “State and Federal Funding Assumptions” and “State and Federal Funding Comparisons,” add some detail to what was presented on Slide 17, specifically “Medium-Risk Assumptions” funding increases of \$1.683 billion and “High-Risk Assumptions” funding increases of an additional \$1.978 billion, for a total of \$3.661 billion. This is 21% more than originally assumed. *Re-imagining* makes no change to the high-end range, but the low-end range is eliminated.

It is speculative and premature to make any meaningful evaluation of the likelihood of these funding increases materializing. There is great competition for these funds, and Los Angeles County is already seen as one of the largest, if not the largest, recipients of these resources, both within the State of California and nationally. Further, some of the \$4.706 billion shown for Federal and State funding under “Current Assumptions” has not yet been executed by the grantor agencies. Pages 18-19 of the *White Paper* show that Metro has not previously received all the Federal funds it has requested, and that much of the assumed baseline State funding does not currently have an executed agreement.

- Slide 28, “New Revenue Primer—Mobility Fees,” provides additional information that builds on the material in Slide 19. At 1:03:15 in the Board meeting recording of December 6th, CEO Phil Washington states, “right now, we have ... TNCs and some cities and states have started levying fees or taxes on these TNC trips. The idea is, should these TNCs actually profit from using public roads or should we levy fees on them? ... They are profiting, and they are using public roads, and the profit is going to their companies, and so we are saying that we should put something on the table to share in those profits to accelerate our projects.”

Before counting on Transportation Network Companies as a major new revenue source, the current situation with TNCs must be understood, and Metro should define a different rationale for charging TNC fees. As private firms, TNCs had not been doing much public financial reporting until very recently, but most knowledgeable observers believe that the major TNCs are losing substantial sums on each trip they carry. This is supported by the recent pre-initial public offering information promulgated by Lyft, which showed losses last year of \$911.3 million on total revenues of \$2.2 billion, or 41%; Uber reported a \$843 million loss in the last quarter of 2018 on revenues of \$3 billion, or 28%¹⁴². Further,

142. Kate Conger and Michael J. de la Merced, “Lyft’s I.P.O. Filing Reveals Nearly \$1 billion in Losses,” *New York Times*, March 1, 2019, <https://www.nytimes.com/2019/03/01/technology/lyft-ipo-filing.html>

they are exposed to major cost increases if their drivers, who are now classified by the TNCs as contractors, are required to be treated as employees, which would impose minimum wage requirements and statutory benefits. TNCs could also be exposed to liability claims for safety incidents and operator misconduct. There is already lower court case law on these matters and California is changing the applicable statutes.

More importantly, profitability should not be a justification for such charges. It does not matter whether TNCs are making a profit or not; the TNC vehicles are using the roads. Conventional taxi operators are charged for their rights to operate in cities and counties, and it is fair and reasonable to charge TNCs similar types of fees or taxes.

The assertion that "... fees could generate \$25-350 million annually," literally doesn't add up. Dividing these values into the data from Slide 19, which shows total revenues for this line item of \$401 to \$6,500 millions, implies that the additional revenue for the ten-year period ending in FY28 will consist of between approximately 16 ($\$401/\25) and 18.6 ($\$6,500/\350) years of full rate revenues, which is ludicrous. This inconsistency is an obvious error, and should have been caught in the review and oversight process.

The statement "Taxing new mobility trips should be used in carefully targeted ways designed to reduce single-occupancy travel," requires further explanation for several reasons. Several TNCs are developing and implementing shared-ride TNC services, but at present, the great majority of such trips are single-passenger, or even no-passenger, while the vehicle is deadheading to begin service, from the end of service, or between paid trips, or otherwise generating vehicle miles traveled without passenger miles. Several recent studies purport to show that TNCs are increasing traffic congestion. The transportation aspects of TNC operation may not be entirely positive in all respects, which will constrain what is possible with respect to changing travel behavior through TNC fees. We know that Metro is actively exploring "micro-transit," some of which can relate to TNCs, but the connection to this revenue-producing line is unclear. More explanation is needed.

Conclusions

1. The plan for Metro's original 20 Measure M Ordinance projects¹⁴³ is risky. Adding eight more projects and advancing \$26.2 billion in funding to accelerate these eight significantly (*Plan*, Slide 12) increases the already very high risks.
2. The total cost for the 28 projects is \$42.9 billion to be incurred over ten years. This is significantly more in terms of both the number of and project spending than Metro has ever undertaken before.
3. The *Plan* proposes several potential funding sources that would likely take years to gain legal authority to implement and more years to do the technical and infrastructure work required.
4. The *Plan* is totally dependent upon new sources of funding, most of which will require additional legislative authority at the Federal and/or State levels. This is highly speculative.
5. Every long-range that Metro and its predecessor agencies have ever prepared has failed quickly, yet the *Plan* does not present, nor even mention, the need for a Plan B.

143. Proposed Ordinance #16-01, Measure M—Los Angeles County Traffic Improvement Plan, http://theplan.metro.net/wp-content/uploads/2016/09/measurem_ordinance_16-01.pdf

6. It is unclear that the capital renewal and replacement requirements of the new *Plan* projects are properly accounted for.
7. Measure M requirements for accelerating projects are very specific and restrictive. This will cause the new projects to be even more difficult to execute, as it burdens the new projects to receive the full impacts of any funding shortfalls.
8. Metro underestimates the degree to which fare and toll revenue will offset some costs.
9. Metro's revenue estimates do not account for the impact fare changes will have on ridership. Higher fares mean fewer riders and may be used to justify less service.

15. METRO HAS A HISTORY OF EVADING LEGAL REQUIREMENTS TO WHICH DOES NOT WISH TO BE SUBJECT, POTENTIALLY IGNORING THE LAW

The Los Angeles County Metropolitan Transportation Authority (Metro) was created by an act of the California Legislature¹⁴⁴, but it and its predecessor agency, the Los Angeles County Transportation Commission (LACTC), have a history of using sometimes questionable legal interpretations to accomplish agency objectives. Some of the most prominent examples follow.

Use of Proposition C Transit Sales Taxes for High Occupancy Freeway Lanes and Other Road Improvements

In 1980 Proposition A, the first Los Angeles County transit sales tax, included a map with 11 rail lines that were to be constructed with these funds. After passage, the Los Angeles County Transportation Commission (LACTC), the planning and funding predecessor of Metro, began a major program of rail transit planning, design, and construction. However, by the late 1980s, LACTC realized that it had already over-reached in attempts to build the first three lines—the Blue, Red, and Green lines. With insufficient funding to proceed, the LACTC leadership decided to propose a second sales tax, which eventually became 1990's Proposition C.

Polling results showed a problem. The taxpayers were unlikely to pass such a proposition, even with the lower 50%+1 majority that was required for new taxes at the time. However, the same polling data revealed that the voters would be more favorable to such a proposition if it included road funding.

This presented another problem. The California Public Utilities Code (PUC) §130350 *et seq.*, allowed LACTC to place a sales tax proposal before the voters, but was subject to the restrictions of PUC §130354:

The revenues received by the Los Angeles County Transportation Commission from the imposition of the transaction and use taxes shall be used for public transit purposes.

This plain language left LACTC with two options: (1) find other means to get a transportation sales tax with a road provision before the voters, since LACTC did not have statutory authority to do so, or (2) find a way to get roads classified as transit. LACTC tried both avenues, first attempting to persuade a supermajority of the various Los Angeles County cities or the County, which LACTC believed had the authority to place such a tax on the ballot, to pass resolutions doing so. These efforts failed.

The second avenue led to another obstacle, specifically the court decision in *City of El Cajon et al v. Lonergan*¹⁴⁵. In *El Cajon*, the city wanted to use Transportation Development Act of 1971 (TDA) sales tax funds, which were enacted for public transit purposes, for improving public roads. Gerald Lonergan, the San Diego County Auditor, refused to authorize the disbursement, resulting in the legal action. Part of the city's argument was that the road use of transit funds had been authorized by the Comprehensive Planning Organization of the San Diego Region (CPO), which was essentially the San Diego County equivalent of LACTC. The court found, however:

144. Los Angeles County Metropolitan Transportation Authority Reform Act of 1992 (AB152, Katz).

145. 1978, 83 Cal.App.3d 672.

Finally, there is no merit in El Cajon's contention that the allocation by the CPO can be sustained under its rule making authority. CPO has no authority contrary to the statute.

A share of the revenue from each of Metro's four sales taxes is returned directly to Los Angeles County cities for transit projects. LACTC was well aware of this case law, because some L.A. County cities had attempted to use their own Proposition A local return funds for road maintenance, arguing that, since buses traveled on the roads they proposed to fund, fixing that road was a transit use. LACTC did not want to allow this, and its special counsel advised the agency that such a use was not allowed, citing the *El Cajon* decision¹⁴⁶.

However, after failing to persuade the County and the cities to put a sales tax measure that included road uses on the ballot, LACTC's only viable option was to have the Commission do so. This required an artful change of position, which LACTC staff provided at the last board meeting at which action could be taken to place the measure on the November 1990 ballot. The measure included a very carefully written definition:

Twenty-five percent of the revenue from the ½ cent sales and use tax will be used to provide essential County-wide transit-related improvements to freeways and State highways.

After Proposition C made it onto the ballot and was passed by the voters, LACTC immediately began planning and constructing high occupancy lanes by widening county freeways. The vast majority of these facilities had very little transit use. After Metro came into existence, it somehow further broadened the interpretation of "transit-related improvements" to include \$218.7 million of Proposition C 25% funds for the Alameda Corridor, the below-grade freight rail line from the Ports of Los Angeles and Long Beach to transfer facilities east of the Los Angeles central business district¹⁴⁷. (This allocation was later reduced to \$48.7 million after a change in state statute allowed Metro to use other funds for part of this cost.)

Funding the Gold Line Eastside Subway with Sales Tax Funds Prohibited from Use for Subway Construction

In the environmental clearance document for the Gold Line Eastside light rail project, Metro presented a series of alternatives for the Gold Line Eastside that included subway sections. Metro's Locally Preferred Alternative included approximately two miles of subway and two subway stations out of the total of eight—and \$52.4 million of Proposition A 35% Rail Construction funding¹⁴⁸. However, in the same document, Metro explained that¹⁴⁹,

A 1998 ballot initiative sponsored by County Supervisor Zev Yaroslavsky, referred to as the Metropolitan Transportation Authority Reform and Accountability Act, was approved (and became effective) on November 3, 1998. The most significant provision of the new law stipulates that no local Proposition A or C sales tax monies will be used to fund the planning, design, construction, or operation of any New Subway. The term "New Subway" is defined to mean any subway project (a rail line which is in a tunnel below

146. Nossaman, Guthner, Know & Elliot. Letter to Rick Richmond, Executive Director, LACTC, January 25, 1984. Bates numbers M 339 077/88 in *Labor/Community Strategy Center v. MTA*.

147. Alameda Corridor Program—MTA Funding Agreement, September 26, 1997.

148. Ibid. Table S-10. "Proposed Funding Sources and Amount for Eastside LRT Project." S-57.

149. Metro. *Gold Line Eastside Light Rail Project, Final Environment Impact Statement/Final Environmental Impact Report*. Executive Summary. S-9.

http://media.metro.net/projects_studies/eastside/images/Executive%20Summary.pdf

grade) other than the Metro Red Line Segments 1, 2 or 3 (North Hollywood). As a result, the initiative prohibits the use of these sales tax revenues to build subway extensions in the Eastside or Mid-City/Westside corridors.

How, after acknowledging ballot language that "...prohibits the use of these sales tax revenues to build subway extensions in the Eastside ... corridor(s)," did Metro reconcile the contradiction between this legal requirement and the way that agency decided to use restricted funds on a subway project? Metro argued that the no-subway sales tax funds were used only for construction of the *non-subway* portions of the line, and that the subway segment was funded by revenue from non-restricted sources.

Capitalized Interest During Construction

Capitalized interest during construction is an accounting concept. The cost of debt to get capital assets ready, particularly assets that can require years to be constructed, is a cost of the asset and should be treated as such. This principle was first formalized into Generally Accepted Accounting Principles (GAAP) in 1979¹⁵⁰. However, even before this standard became GAAP, it was statute in California for LACTC, listed in an Act that literally has LACTC's name on it¹⁵¹:

Cost ... means all or any part of the cost of construction and acquisition of all real or personal property, ... interest prior to, during, and for a period after completion of construction as determined by the commission ... (emphasis added)

However, neither LACTC, nor later Metro, included capitalized interest in the costs of its projects. In fairness, most other transit agencies in the U.S. also ignored this requirement, but Metro is the only one that was required to comply with this accounting standard by state statute.

Metro's Use of Measure R "Non-Supplant" Bus Funds to Supplant Other Revenues

In 2008, Metro had to receive authority from the California Legislature to ask the voters for what became Metro's third half-cent county transportation sales tax: Measure R. This authority came in the form of AB2321 (Feuer, 2008). While this bill was proceeding through the legislative process, legislators who were familiar with Metro's history of favoring rail construction over bus operations added language to the bill requiring that part of the funding provided by the new sales tax be dedicated to bus operations only, and that these new bus funds couldn't be utilized by Metro to replace Metro's bus allocations from existing sources. This resulted in a Senate amendment to add this protection, which was codified as PUC§130350.5(b)(3):

The MTA shall, during the period in which the ordinance is operative, allocate 20 percent of all net revenues derived from the tax for bus operations to all eligible and included municipal transit operators in the County of Los Angeles and to the MTA, in accordance with Section 99285. ... Funds allocated by MTA to itself pursuant to this section shall be used for transit operations and shall not supplant funds from any other source allocated by MTA to itself for public transit operations. (emphasis added)

The legislative history provides further clarification¹⁵²:

150. Financial Accounting Standards Board. "Summary of Statement No. 34, Capitalization in Interest Costs." <https://www.fasb.org/summary/stsum34.shtml>

151. Los Angeles County Transportation Commission Revenue Bond Act, codified as PUC §130513.

152. "Analysis." "Senate Floor." 08/25/08. 2, 5. http://leginfo.legislature.ca.gov/faces/billAnalysisClient.xhtml?bill_id=200720080AB2321

Senate Floor Amendments of 8/22/08 ensure that existing funds allocated by the Los Angeles County Metropolitan Transportation Authority to itself and other transit operators in Los Angeles County will not be displaced by revenue authorized by this bill.

...

8. Specifies that 20 percent of all net revenue derived from the tax is for bus transit operations to all eligible and included municipal transit operators in Los Angeles County and the MTA. However, all allocations to the MTA and eligible and included municipal operators shall be made solely from revenues derived from a tax imposed pursuant to this section, and not from local discretionary sources.

9. Prohibits MTA from displacing the existing revenue that it allocates with revenue from the sales tax authorized by this bill. In addition, the bill requires that the existing revenues that MTA allocates to itself be used for transit operations.

As is inevitably the case with new requirements, some interpretation is required. The following two interpretations apply here:

1. To determine what is required for Metro to observe the “supplantation” or “displacement” prohibitions, there must be a starting point to use for comparison. AB2321 was working its way through the legislature during the summer of 2008, and was approved by the governor and chaptered into law on September 25, 2008¹⁵³, approximately three months into Metro Fiscal Year 2008-2009 (FY09). If Measure R was approved by the voters, the first full year of tax receipts would be the following year, Metro FY10. It is reasonable to use FY09 as the bus funding allocation base year for applying the non-supplantation/displacement test.
2. There is no discussion of adjustment for inflation in the Act or the legislative history, but without such an adjustment the protection AB2321 is intended to afford would become meaningless. Over time, the spending power of the prior allocations would have to be nominally increased as inflation made the dollars less valuable. As it turns out, the question of inflation adjustment does not impact Metro’s compliance or non-compliance with this requirement, only the magnitude of Metro’s non-compliance.

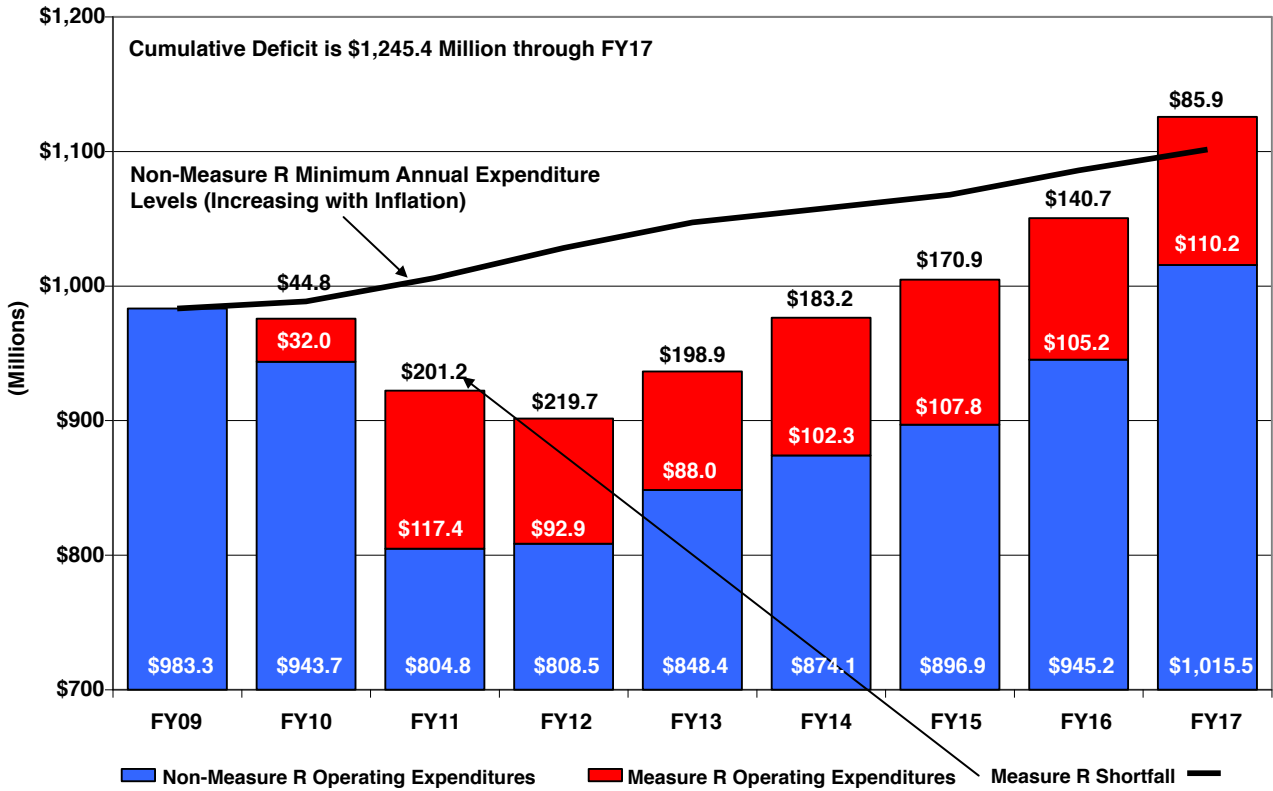
It was possible to do a detailed analysis of Metro’s budgeted spending on its bus services for the years FY09 through FY17. Metro significantly reduced the amount of detail in its *Adopted Budgets* for FY18, and the same level of analysis is no longer possible.

The economic downturn began before Measure R even became law, and Metro found itself in a familiar situation—without the funds needed to proceed with the rail construction it had started. Metro responded as it had in the past, which included reducing spending on bus operations. **Figure 15** shows that, instead of following the non-supplant dictate, Metro used the new Measure R funds to make up part of the shortfall relative to pre-FY09 bus funding. To remain compliant with AB2321, the blue bars would have to reach the line of inflation-adjusted expenditures. Instead, the red Measure R funds are replacing some of the funds Metro shifted away from bus operations. From FY10 through FY17, the cumulative shortfall is almost one-and-one-quarter billion dollars. Without adjusting for inflation, the shortfall is a mere \$729.1

153. California State Legislature. AB-2321 Bill History.
http://leginfo.legislature.ca.gov/faces/billHistoryClient.xhtml?bill_id=200720080AB2321

million, net of \$32.2 million in payback in FY17 when the unadjusted bus funding finally began to exceed the inflation-adjusted FY09 baseline.

Figure 15
Los Angeles County Metropolitan Transportation Authority
Non-Measure R/Measure R Bus Budgeted Operating Spending
FY09-FY17 (Inflation-Adjusted)



Conclusions

1. Transit is a complex institutional environment, and Metro's actions must comply with multiple statutory, regulatory, case law, contractual and other legal requirements.
2. When Metro encounters what may be legal restrictions on what it wants to do, the agency sometimes works to circumvent them. Metro can be very innovative in finding ways to build and operate the service that it most wants to deliver, even at high opportunity cost.

16. METRO'S CONGESTION ERADICATION AND FARELESS TRANSIT PROPOSALS ARE UNREALISTIC

Metro's press release for the draft Expenditure Plan for what became Measure M states:

The performance benefits of the plan include an increase of 80 million additional transit boardings per year or 3.2 billion additional riders during the 40-year period. Additionally, this will increase transit mode shares currently at 7% to a projected 20-30%. The major projects are estimated to reduce vehicle miles traveled by nearly 5 million daily (regionwide), reduce person hours of delay on the road by 15 percent, and reduce daily hours of truck delay by 15%, resulting in greenhouse gas reductions of four percent¹⁵⁴.

The 28 by 2028 Plan presented to the Metro Board makes two major additions to the initial Measure M Plan:

1. Proposing additional revenue sources, led by congestion pricing
2. Accelerating eight Measure M projects to completion by 2028

The 28 by 2028 Financial Plan—*Laying the Groundwork*¹⁵⁵ concludes with:

Final Thoughts—These bold actions, especially our congestion pricing initiative, could position the agency to lead the way in number of regional benefits and outcomes: ...

- *Eradicating congestion*
- *First major city in the world that could offer free transit services and in time for the 2028 (Olympic and Paralympics) Games*

Unfortunately for the 28 by 2028 Plan, Metro, and Los Angeles County, the revenues that will be generated by implementation of the congestion pricing and P3 proposals will be, at best, a fraction of what Metro projects (**Chapters 11.** and **12.**, respectively). Other revenues, such as from sales taxes, will also be considerably less than Metro has assumed (**Chapter 9.**).

The initial Measure M Plan, and the benefits attributed to it, are unrealistic on their face. Further, it is questionable if any of the major additional projects will be implemented by 2028, except at the cost of some of Measure M's 20 baseline projects not being implemented. This could easily include even more reductions in bus and overall transit ridership than has occurred since the *Labor/Community Strategy Center v MTA* Consent Decree terminated in FY07.

Measure M's Unrealistic Forecasts of Ridership Increases

Metro's Measure M statement that an increase in ridership will increase transit's mode share from 7% to 30% mixes the terms "boardings" and "passengers." From the context, Metro appears to be discussing boardings, or unlinked passenger trips (UPT). Assuming that Metro's prediction of a 40-year increase of 3.2 billion total riders is correct, relative to FY17, and assuming a constant rate of change year-over-year, ridership would have to increase more than 3.9 million boardings in the first full year of Measure M sales tax collection (FY18) and more than 7.8 million in the second year, etc., ending with 156.1 million additional riders in the last

154. "Metro's Bold Plan to Transform Transportation." Metro Press Release. March 18, 2016.

https://www.metro.net/news/simple_pr/metros-bold-plan-transform-transportation/

155. PowerPoint™ presentation at MTA Board Meeting. December 6, 2018. Slide 32.

<http://metro.legistar1.com/metro/attachments/e48e3ad9-7f42-4011-849c-5666ed4f0cc6.pdf>

year of the forecast (FY57). We will assume this projection refers to county-wide transit ridership, and that non-Metro transit ridership will remain constant over this Measure M 40-year projection period.

Metro set this ridership goal in spring 2016, when 2015 UPT for all Los Angeles County transit operators was 556.2 million, including 40% (3.6 million) of the Southern California Regional Rail Authority's (Metrolink) UPT of 14.0 million that was allocated to Los Angeles County¹⁵⁶. Adding the 2057 increase of 156.1 million UPT to the 2015 county UPT count produces a forecast of 712.3 million—a 28% increase. Increasing transit's current modal split of 7% proportionally by this same 28% produces a new transit modal share of 9%, which is well below 20%–30% from Metro's Measure M projection.

Even achieving this 2% percentage increase is questionable. The Metro UPT was 82% of county UPT in FY15. From FY15 to FY20, the Metro UPT is not projected to grow by 3.9 million a year for a total increase of 15.6 million. Rather, it has dropped every year since FY15; and, for FY20, Metro is budgeting for a *reduction* of 72.2 million in UPT relative to FY15. *FY20 Proposed Budget* (page 44) shows 380.8 million UPT, vs. the 453.0 million that Metro reported to the National Transit Database for FY15¹⁵⁷. Combining the actual Metro UPT for FY18 with Metro's projections for FY19 and FY20 from *Adopted Budget FY20*, Metro does not anticipate cumulative growth in ridership of 24 million over the first three years of the 40-year period (beginning in FY18). Instead, Metro is budgeting for a cumulative *decrease* of 206.5 million. To still achieve growth of 156.1 million UPT by FY57, Metro will have to grow ridership by 6.5 million UPT a year over 37 years, over two-thirds higher than implied by the original Measure M forecast of 3.9 million.

Also, the Los Angeles County population is projected to increase 10.2% between 2015 and 2057 to 11,250,653¹⁵⁸. If travel patterns remain constant, the 28% increase in Metro ridership would produce a 16% increase in transit modal split, adding a bit over 1% to the current transit modal split of 7%, which is even further from Measure M's forecast of 20%–30%.

$$(128\%-110\%)/110\% = 16\%$$

The FY15 county UPT of 556.2 million is associated with a 7% transit modal split. How much growth in UPT would be required to get to a modal split for transit of 20%–30% by 2057? If county population grows 10.2% by 2057, and county travel patterns do not change other than by a modal shift toward transit, 1,751.2 million boardings would be required to reach 20%, the lower end of Metro's forecast. Ridership would have to grow 215% from the FY15 starting point, an average annual ridership rate of growth of 2.77% for 42 years.

$$556.2 \text{ million boardings} \times [20\%/7\%] \times 110.2\% = 1,751.2 \text{ million boardings}$$

However, FY15 ridership is not the best starting point. Metro's expected ridership has deteriorated to an *Adopted Budget FY20* projection of only 381 million. If Metro is going to reach its 20% transit modal split forecast, it has to add 262% of FY20 projected ridership—an average annual rate of growth of 3.54% for 37 years. To achieve the upper end of Metro's

156. National Transit Database. Operator "Profiles" for 2015 Reporting Year. <https://www.transit.dot.gov/ntd>

157. Ibid.

158. State of California. Department of Finance. Demographic Research Unit, P-1, State Population Projections (2010-2060), Total Population by County. <http://www.dof.ca.gov/Forecasting/Demographics/Projections/>

forecast, a 30% transit modal share, the agency has to achieve 2,626.9 million boardings, adding 442% of FY 20 ridership in 37 years, an average annual growth rate of 4.68%.

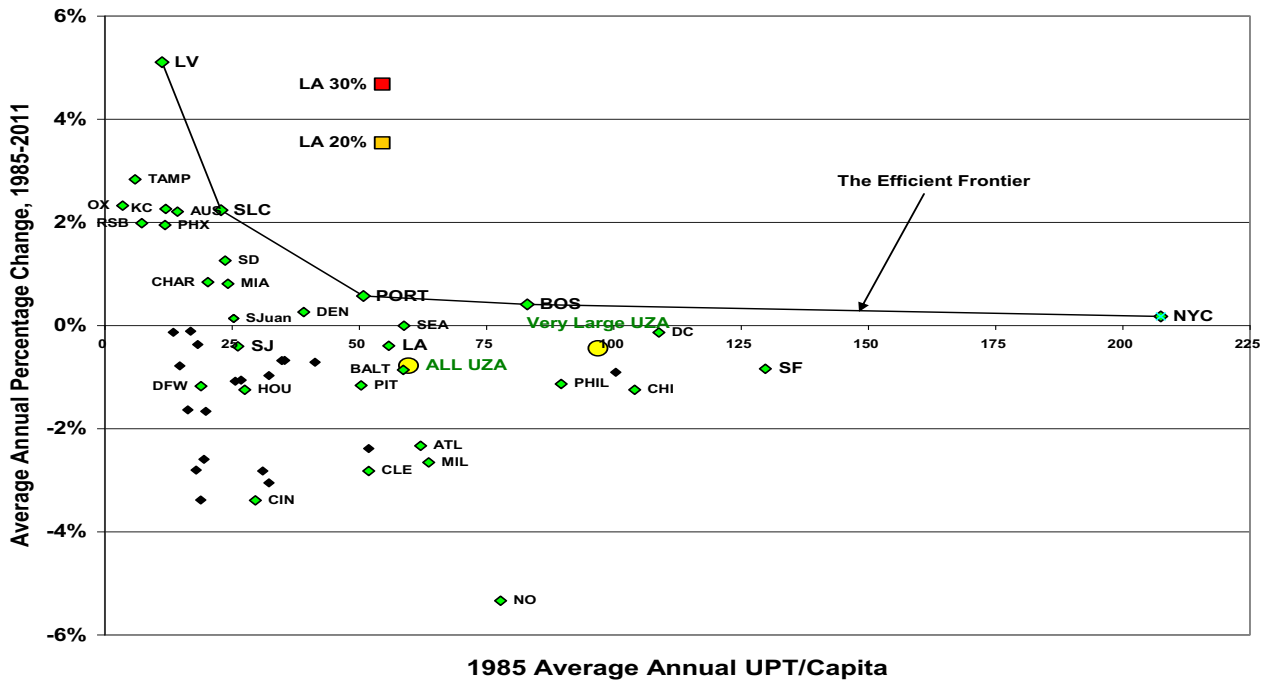
$$556.2 \text{ million boardings} \times [30\%/7\%] \times 110.2\% = 2,626.9 \text{ million boardings}$$

These growth rates are extraordinarily high. Figure 16¹⁵⁹ shows the observed average annual ridership growth rates for transit agencies in major U.S. urbanized areas (UZA) over the 26-year period from 1985 to 2011 vs. 1985 average annual UPT *per capita*. The efficient frontier line represents the highest growth rate of any U.S. transit agencies during this period, that is, no agency reported a growth rate above the line. Figure 16 also displays the growth rates required to reach Measure M’s 20% and 30% transit modal split forecast, using FY20 starting point. These rates are far beyond what any comparably sized agency achieved in this interval.

Metro’s projection of huge growth in transit ridership over the next four-plus decades is not believable, particularly given Metro’s record of ridership losses over the past three-plus decades.

For the transit modal split to grow from the current 7% to 20% or 30% over the 40-year period projected by Metro, it would require a rate of growth in transit use at 8.3 and 11.0 times the rate of the “efficient frontier.” As the efficient frontier is the performance boundary that no major transit agency has surpassed 1985–2011, achieving these growth rates is highly unlikely; particularly since the typical very large UZA lost ridership at an average annual rate of -0.443% during this period, and Metro lost ridership at a -0.395% annual rate. Metro’s rate has dropped even more significantly since 2011.

Figure 16
U.S. Urbanized Areas Over 1,000,000 in 2011—Growth in Unlinked Passenger Trips per Capita, 1985-2011



159. Author’s calculations on data from Texas A&M Transportation Institute (TTI). *2012 Urban Mobility Report*. <https://www.transportation.gov/utc/2012-urban-mobility-report-released-new-congestion-measures>

The *Plan* and Congestion Relief

“Eradicating congestion,” as set forth in the *28 by 2028 Plan*, is an attractive goal that is not achievable. Consider the dictionary definition of “eradicate”¹⁶⁰:

to refuse or destroy utterly; extirpate.

“Extirpate,” in turn is¹⁶¹:

to remove utterly; destroy totally; exterminate; do away with.

Translating this standard into professional transportation planning and engineering terms, the only reasonable meaning for “eradicated congestion” is achieving network Level of Service (LOS) A. This is the least congested traffic condition, under which drivers have the highest level of physical and psychological comfort. The congestion the LOS A driver experiences depends on roadway design characteristics, conditions, and traffic. According to the *Highway Capacity Manual*¹⁶²:

LOS A describes primarily free-flow operations at average travel speeds, usually about 90 percent of the free-flow speed for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.

In urban areas, LOS A generally occurs late at night. Subsequent editions of the *Highway Capacity Manual*¹⁶³ have broadened the definition of “Level of Service” to include multimodal elements, but LOS A conditions defining the driver experience are unchanged.

The use of “eradicated” in this context is unrealistic. Further, it is nonsense to assert that the measures included in the *Plan* can eradicate congestion. The only way to eradicate congestion would be to eradicate most travel. There is no technical rationale for using this objective as a closing argument for the *28 by 2028 Plan*.

Metro’s promise that measure M will “reduce person hours of delay on the road by 15 percent, and reduce daily hours of truck delay by 15%,” is not as outrageous as the prospect of “eradicated congestion,” but it is far from clear how Metro expects this to happen. Figure 17 shows Metro’s record, and those of the other agencies responsible for road use and related matters, for achieving improvements in traffic congestion by using the metric of “travel time index” (TTI)¹⁶⁴. TTI is “(t)he ratio of travel time in the peak period to travel time at free-flow conditions. A Travel Time Index of 1.30 indicates a 20-minute free-flow trip takes 26 minutes in the peak period¹⁶⁵.”

160. *Webster’s Encyclopedic Unabridged Dictionary of the English Language*. Gramercy Books, 1989.

161. *Ibid*.

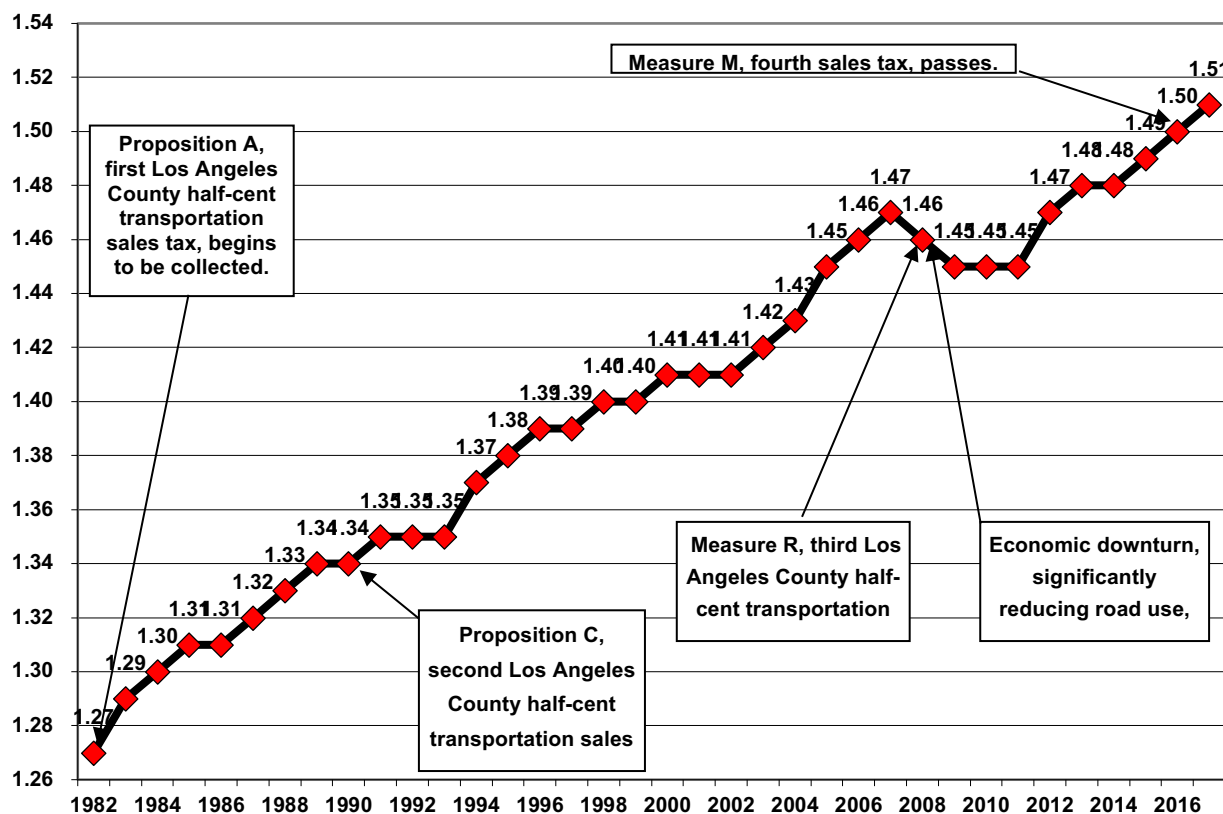
162. Transportation Research Board. *Highway Capacity Manual, HCM 2000 Edition*. National Research Council, National Academy of Science. 2000. 10-5.

163. Transportation Research Board. *Highway Capacity Manual 6th Edition: A Guide for Multimodal Mobility Analysis*. National Research Council. National Academy of Science, 2016.

164. Author’s graphic representation of data from TTI. *2015 Urban Mobility Scorecard and Urban Congestion Report*. <https://static.tti.tamu.edu/tti.tamu.edu/documents/ums/congestion-data/los-angeles.pdf> and *Quarterly Urban Congestion Reports*, https://ops.fhwa.dot.gov/perf_measurement/ucr/index.htm

165. Schrank, David et al. *2015 Urban Mobility Scorecard*. Texas A&M Transportation Institute and INRIX. 1. <https://static.tti.tamu.edu/tti.tamu.edu/documents/mobility-scorecard-2015.pdf>

Figure 17
Los Angeles-Long Beach-Anaheim Urbanized Area
Texas A&M Transportation Institute Travel Time Index 1982-2016



Metro does not detail how the *Plan* reduces congestion, but the major mechanisms that are part of the *Plan* are likely to be the use of congestion charges to motivate drivers to shift from driving to transit and/or to shift their times of travel away from peak periods. As noted in **Chapter 11.**, Metro's congestion charges will take far longer to implement than Metro acknowledges, and Metro's transit decisions have led to a long-term decline in Los Angeles transit ridership. Based on Metro's past performance, the promises Metro has made concerning the benefits of Measure M and the *28 by 2028 Plan* lack any credibility.

Free Transit Services

The free transit services proposed in the *Plan* could be interpreted to refer to free transit only *during* the 2028 Olympics only, but Metro CEO Washington indicated at the December 6, 2018 Metro Board meeting that the agency wants to implement *permanent* free transit by the time of Olympics¹⁶⁶.

As shown in Chapters 11. and 9. Metro's projections for congestion pricing and sales tax revenues are overstated, and the agency's history of bringing major construction projects in on budget is disappointing. It is doubtful that Metro would ever achieve the funding needed to deliver fare-free transit, and to afford the huge expansion of bus transit service that would be required to accommodate the resulting demand. Metro will not achieve this funding by 2028.

166. At 1:10:10. http://metro.granicus.com/MediaPlayer.php?view_id=2&clip_id=987

Better Than Free Transit Services

Metro should take active steps to increase transit ridership, as opposed to its long-term focus on passenger rail construction. After completing rail projects now under construction, Metro should cut back significantly on rail construction to provide resources for moving more people on transit.

To be successful at moving people, Metro must undertake a combined program of improvements in both service quality and quantity, recognizing that improvements in both dimensions are closely linked. The foundation of quality transit service is riders' ability to find a seat in a clean transit vehicle that goes from close to where the rider starts to where they want to go, when they want to go, in a safe and secure environment. This level of service is necessary both to attract new riders and retain existing patrons. As Metro succeeds in implementing a plan to attract new riders through quality, reliable service, the agency can then reduce fares and add service incrementally to meet the associated increases in demand. Specific steps include:

- Metro bus and rail are both highly utilized, but there is limited opportunity to add passenger carrying capacity on existing rail lines, particularly on the Red Line between the Red/Purple Line merge at Wilshire/Vermont through the central business district. Metro's subway stations, by design, cannot accommodate trains larger than six cars.
- Metro currently operates at five-minute peak headways on the shared Red/Purple Lines¹⁶⁷. The current system had a projected daily ridership of 260,000 for the year 2000¹⁶⁸, but the highest reported ridership was 169,562 in October 2013. Ridership has since dropped 19% to 138,937 in October, 2018¹⁶⁹.

Ridership should increase substantially when the three Purple Line extensions begin operation, but, past experience is that most of this increase will consist of former bus riders. Metro's submissions to the Federal Transit Administration for the Annual Report on Funding Recommendations projected the Regional Connector Transit Corridor to have 19% new riders¹⁷⁰, the Westside Subway Extension Section 1 46%¹⁷¹, Metro Rapid Bus System Gap Closure 32%¹⁷², the Mid-City/Exposition LRT Project 47%¹⁷³, and the San Fernando Valley East-West Transit Corridor 26%¹⁷⁴. The simple, unweighted average of these five values is just 34% new riders.

167. Metro. "Red & Purple Lines Schedule." <https://media.metro.net/documents/b4f1f223-c6b4-4b6e-bd18-648dbca1e7e9.pdf>

168. Southern California Rapid Transit District. *Los Angeles Rail Rapid Transit Project—Metro Rail*. January 23, 1989. Table S-1, "System Characteristics of Options Evaluated." S-4-2. <http://libraryarchives.metro.net/DPGTL/scrtd/1989-final-supplemental-eis-subsequent-eir-metro-rail-january.pdf>

169. Metro. "Interactive Estimated Ridership Stats." <http://isotp.metro.net/MetroRidership/Index.aspx>

170. Fiscal Year 2014. 26.

https://www.transit.dot.gov/sites/fta.dot.gov/files/FY14_Annual_Report_on_Funding_Recommendations.pdf

171. Ibid. 31.

172. Fiscal Year 2010. A-217.

https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FY10_Annual_Report_on_Funding_Recommendation_s.pdf

173. Fiscal Year 2005. A-261.

174. Fiscal Year 2003. A-295.

- Bus system expansions should include:
 - More buses, including, where appropriate, smaller and unconventional vehicles, such as macro-transit for last mile service using lower capacity vehicles, and expanded vanpooling to more closely match changes in transit needs.
 - More bus operating/maintenance facilities and expansion of existing sites.
- More and improved bus routes, including:
 - Restructuring lines to return to a strong grid system instead of prioritizing service to rail stations, allowing many or even most riders to complete their trips with no more than one transfer.
 - Adding commuter express bus service, particularly on freeway busways/HOV/HOT lanes.
 - Expanding Metro Rapid service, including shorter headways on both Metro Rapid and conventional service on heavily utilized lines.
- More hours of service, including:
 - More hours of service, including.
 - Longer hours on existing lines.
 - Shorter headways.
 - More weekend/holiday service.
 - More emphasis on allowing private transit providers to start up service with minimum governmental interference, and use of contract providers to operate government-sponsored and funded services.
- Fare Reductions to replicate the successes of the fare reductions achieved by the 50¢ fare program of FY83-85 and the Consent Decree program of FY96-07, which were important contributors to major ridership increases.

Fare Reductions to replicate the successes of the fare reductions achieved by the 50¢ fare program of FY83-85 and the Consent Decree program of FY96-07, which were important contributors to major ridership increases.

This process will require realistic planning and modeling, proceeding in incremental steps, and learning from experience to prepare for future improvements. Metro will need to prioritize ridership over capital improvements.

Therefore, Metro should increase transit service, purchase and put new transit vehicles into service, launch new types of services in new areas, and enable the organization to fund innovative types of transportation.

Conclusions

1. Metro has a record of reducing transit use, making traffic congestion worse, and acquiring and spending significant tax revenues to accomplish these failures.
2. Metro promises to reverse ridership declines and to increase ridership substantially are far higher than what has been accomplished in any urbanized area with a mature transit system.

3. Metro's proposed method for achieving the ridership increase is to do more of what has produced the agency's failures to date.
4. Metro has presented an infeasible *Plan* that should be rejected.
5. Transit spending decisions should be made on the basis of what will increase ridership and improve ride quality the most, quickly, and with the least risk. To increase ridership, Metro needs to reduce its support of and funding for rail construction and instead fund bus service improvement and expansion, fare reductions, and innovative forms of unconventional transit.

17. EXPANSION OF METRO BUS IS VERY PRODUCTIVE AND COST-EFFECTIVE, EXPANSION OF RAIL IS NOT, BUT METRO FAVORS RAIL OVER BUS

Introduction

As shown in the previous Chapters, Metro has a very highly utilized and well-performing bus system. Metro and its Southern California Rapid Transit District predecessor have had the highest average urban bus system load almost every year since the National Transit Database (NTD) time series began in 1979. Extreme overcrowding had existed on Los Angeles buses since the first fuel crisis in the early 1970s. The Consent Decree (CD) in *Labor/Community Strategy Center* forced Metro to add service and reduce overcrowded bus conditions, significantly increasing ridership. By 2002, *after* Metro had been working for over six years to comply with the bus service improvements required by the CD, Metro's bus service had improved to the point that LA had only the third highest crowding of any U.S. urban bus system¹⁷⁵. This Chapter demonstrates that, despite Metro's consistent and public claims of low bus crowding, low bus fares, and high structural deficit, its light and heavy rail systems are far less cost-effective than its bus service.

Compared to Its Rail Systems, Metro's Bus System Is High-Performing, Despite Metro's Claims to the Contrary

An examination of Metro's *FY14 Adopted Budget*¹⁷⁶ demonstrates the agency's preference to expand rail service and how it has misrepresented the performance of Metro bus service to support this course. Figures 18, 20, 21, and 23 are recreated from Metro's document based on the data displayed there. Figures 19, 22, and 24 are comparative and prepared from data for the Federal Transit Administration's (FTA) National Transit Database (NTD) 2012 reporting year, the most current data available at the time the Metro *FY14* budget was being prepared¹⁷⁷.

Metro's Claim of a Structural Operating Deficit Is False

Figure 18, from Metro¹⁷⁸, shows a deepening Enterprise Fund Operating Deficit (the amount of taxpayer funds required to operate Metro's transit system).

For many years, Metro used the label "structural deficit" to refer to the shortfall between what was required to operate the bus and rail system and the actual funds available. Metro presented this value to justify increasing fares, reducing bus service levels or both. Metro's "Fiscal Year 2005 Revenue Performance Report" to the Board includes the statement:

*One alternative is to raise fares to a level that would compensate for the passenger revenue deficit. ... Another alternative is to reduce service to a level that will balance for the **structural deficit** (emphasis added) for FY05¹⁷⁹.*

175. U.S. Department of Transportation. Federal Transit Administration. National Transit Database (NTD), 1979-2017 reporting years. Paper reports to 1996, web site thereafter. <https://www.transit.dot.gov/ntd>

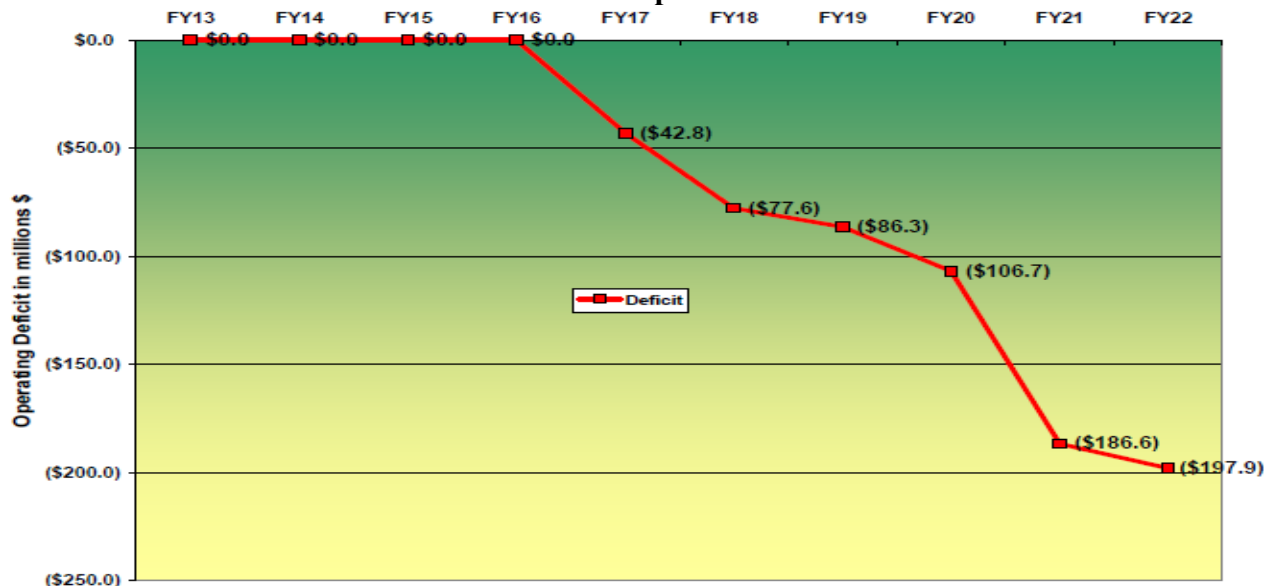
176. Los Angeles Metropolitan Transportation Authority (Metro). *Adopted Budget, FY 2014*. 15-16 https://media.metro.net/about_us/finance/images/Adopted_FY_2014_Budget.pdf

177. NTD, 2012 reporting year.

178. Metro. *Adopted Budget, FY 2014*. Unnumbered table on page 15.

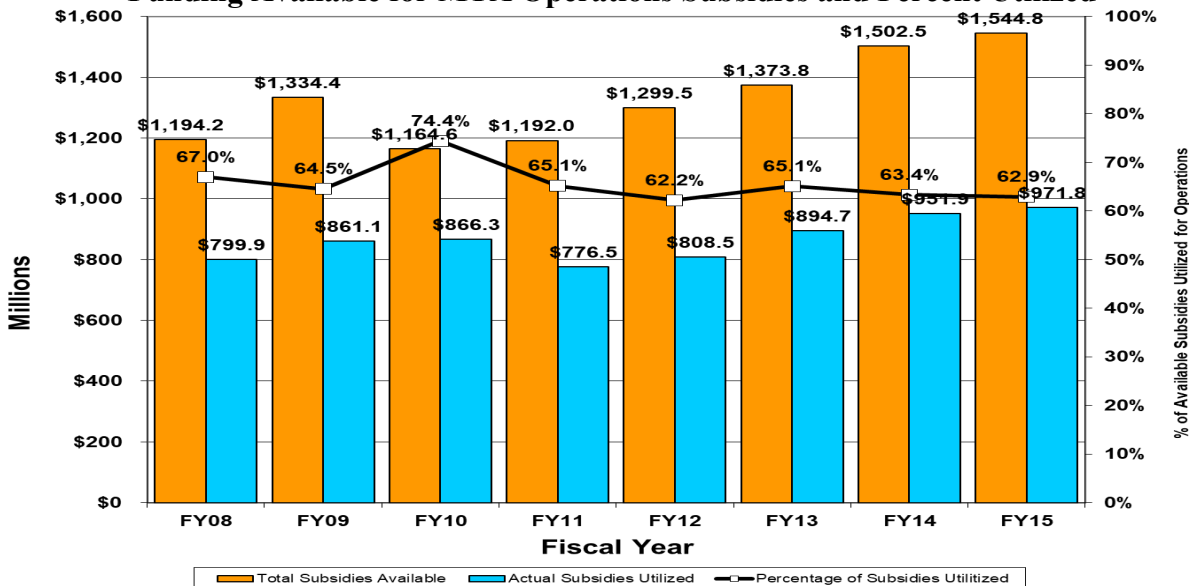
179. Metro, Finance and Budget Committee, November 18, 2004, page 2: http://media.metro.net/board/Items/2004/11_November/20041118%20Item22F&B.pdf

Figure 18
Enterprise Fund Operating Deficit:
Ten-Year Forecast FY13 Adopted Thru FY22 Forecast



In contrast, **Figure 19**¹⁸⁰ shows that there has never been a shortage of funds that Metro could use for transit operations. Metro has control of flexible funds that may be used for either operations or capital, at the agency's discretion. Metro consistently wants to maximize the use of its flexible funds for capital projects, and has. As indicated in its budget, capital spending is Metro's biggest priority. Capital spending largely represents new rail projects.

Figure 19
Funding Available for MTA Operations Subsidies and Percent Utilized

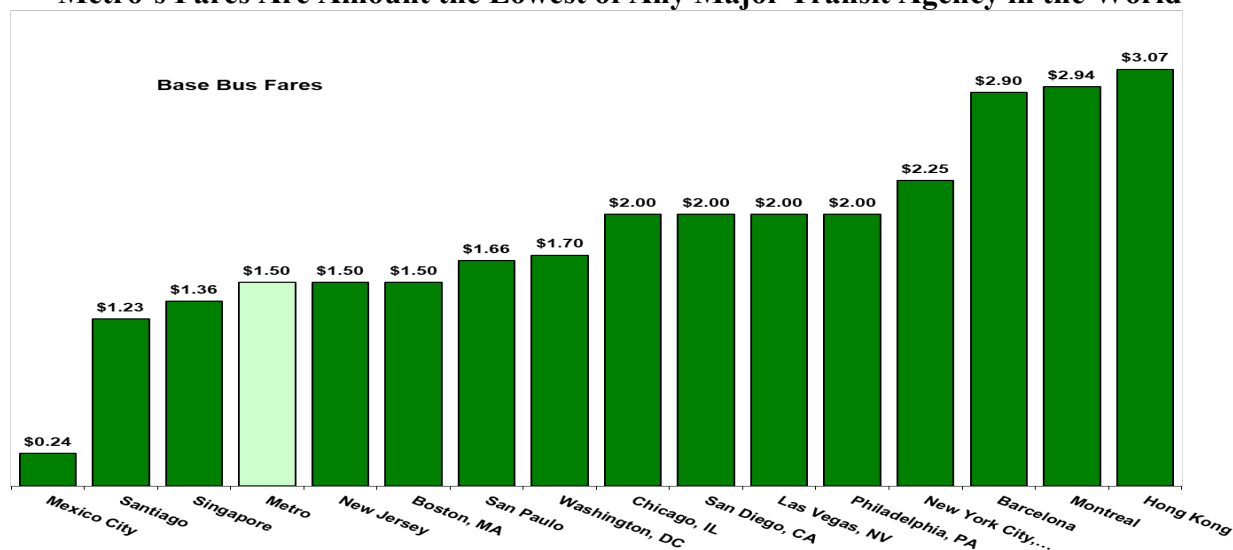


180. Authors' analysis of data from Metro, *Adopted Budgets, FY08-FY14* and *Proposed Budget, FY15*.
<https://www.metro.net/about/financebudget/financial-information/#budget>

METRO'S FOCUS ON UNLINKED TRIP FARES IS MISLEADING

In figure 20¹⁸¹, Metro states that, “Metro’s fares are among the lowest of any major transit agency in the world.” The figure shows Metro’s full adult cash fare of \$1.50 at the time. Yet, using the fare per unlinked passenger trip, not the fare per linked trip, doesn’t tell the whole story. For example, if a transit passenger first boards a bus and then transfers to light rail, this is two unlinked trips—one each for bus and light rail—and one linked trip. Compared to the U.S. national average of 1.51 unlinked trips per linked trip¹⁸² (1.51:1), Metro has a very high ratio of unlinked to linked trips, 2.38:1¹⁸³. This is a conservative value. Some Metro surveys reported over 3:1¹⁸⁴.

Figure 20
Metro’s Fares Are Amount the Lowest of Any Major Transit Agency in the World



In any event, figure 20’s focus on unlinked trips obscures the implication that Metro has an unusually high transfer ratio, so unlinked trips is only part of the story. Without the transfer ratios of the other transit operators presented in Metro’s comparison, contrasting Metro’s fares to other agencies is an apples-to-oranges comparison. On average Metro’s riders must make 1.576 times $(2.38 \div 1.51) = 1.576$ times as many unlinked trips as other U.S. transit users as a whole. This puts Metro’s relative fare per linked trip at $1.576 \times \$1.50 = \2.36 , which is greater than \$2.25, the highest U.S. fare Metro shows in figure 20.

Metro Misreports Load Factors

Load factors are conventionally expressed as a percentage of the seated load. Planning load factors are metrics for an operational target that should not be exceeded in most cases. For example, in figure 21, Metro’s 1.23 factor means that the maximum number of passengers on

181. Metro. *Adopted Budget FY 2014*. “Figure A: Metro’s fares are among the lowest of any major transit agency in the world.” 15. https://media.metro.net/about_us/finance/images/Adopted_FY_2014_Budget.pdf

182. American Public Transit Association. *A Profile of Public Transportation Passenger Demographics and Travel Characteristics*. May 2007. Table 23. http://www.apta.com/resources/statistics/Documents/transit_passenger_characteristics_text_5_29_2007.pdf

183. Metro. Metro Research Data Center (RDC). Bus Results Survey of Spring 2005. <https://www.metro.net/news/research/>

184. Ibid. System Results, Spring 2005; Rail Results, Spring 2005.

board should be no more than 123% of the number of seats; e.g., for a 40-seat bus, the calculation would be $40 \times 1.23 = 49.2$.

In figure 21¹⁸⁵, Metro states that, “Metro’s load factor is 1.23 that indicates (sic) the least overcrowded system. This, however, contributes to higher operating costs.”

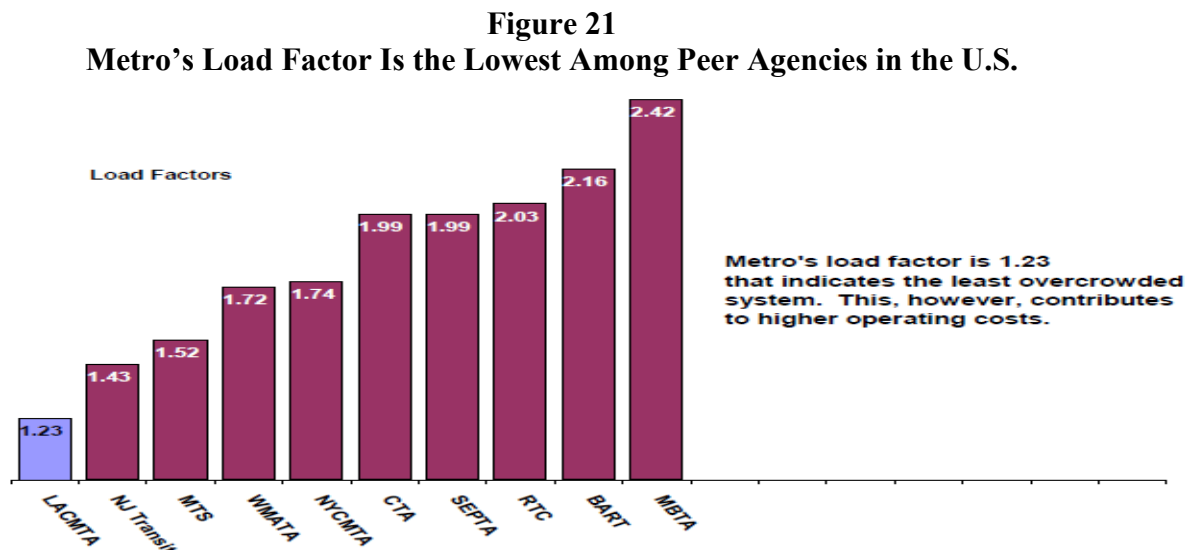


Figure 21 appears to present passenger loading *planning standards*, which are planning targets used for the level of service based on anticipated passenger loads. Since Metro is multi-modal, any aggregate, system-wide load factor would have to account for all of Metro’s modes. Yet none of Metro’s load standards is 123%. The Metro bus load factor standard was 130% of seated load¹⁸⁶. For rail, the load factors were 175% for light rail and 230% for heavy rail¹⁸⁷. Buses are designed for lower standing loads because they have narrow aisles and fewer doors, and the stairs at bus doors cut into standing room; also, urban bus trips tend to be shorter than rail trips with more starts-and-stops. The value shown for Metro of 123% could be some nonstandard, aggregate measure, but since Metro is multi-modal, any aggregate, system-wide load factor would have to account for all of Metro’s modes. There is no logical way to combine load factors of 130%, 175%, and 230% to produce a combined overall factor of 123%.

Load factors are operating *targets*, and actual vehicle loads may be different. In Metro’s case, these standards are aspirational. Metro’s actual passenger averages are very different, as shown in figure 22. Actual vehicle loads are what impact cost-effectiveness, and what are important to the quality of riders’ experiences.

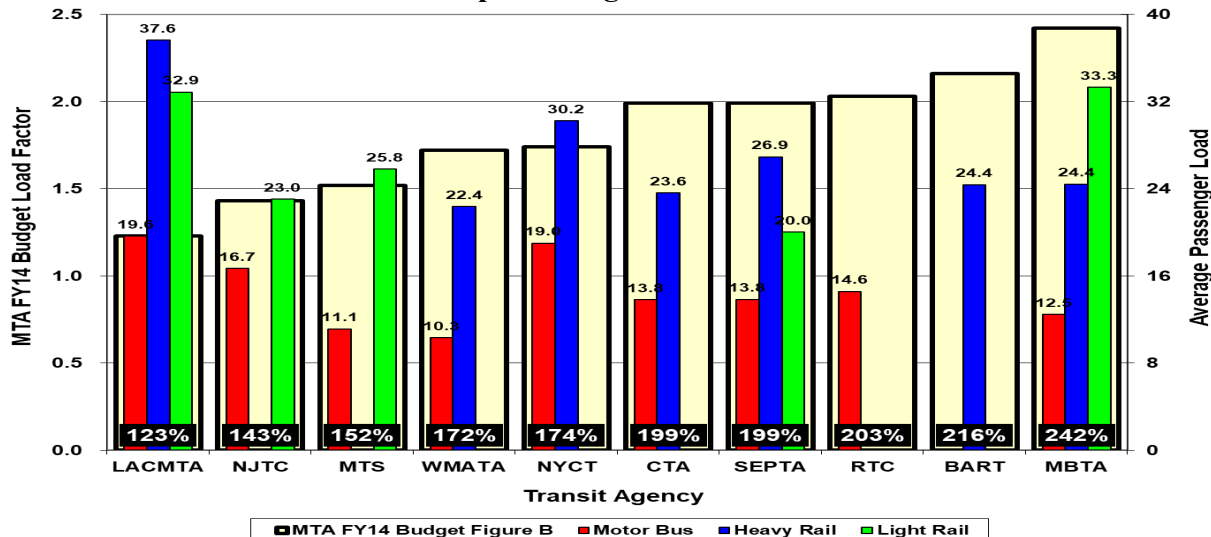
In figure 22, passenger load factor targets, as reported by Metro, appear at the base of each agency’s set of bars. Metro reported that its load factor—which cannot be reconciled to Metro’s adopted load factors—is the *lowest*. The reality is that MTA’s *actual* bus, heavy rail, and light rail load factors exceed every value in Metro’s peer group (except for Massachusetts Bay Transportation Authority light rail passenger load of 33.3). Overall, Metro has *the highest vehicle loads*, and the higher the passenger load, the lower the cost allocated to each passenger.

185. Metro. *Adopted Budget FY 2014*. “Figure B: Metro’s Load Factor is the lowest among peer agencies in the U.S.” 16. https://media.metro.net/about_us/finance/images/Adopted_FY_2014_Budget.pdf

186. Metro. “Bus Service Guidelines.” <http://www.metro.net/about/metro-service-changes/bus-service-guidelines/>

187. Metro. “Rail Service Guidelines.” <http://www.metro.net/about/metro-service-changes/rail-service-guidelines/>

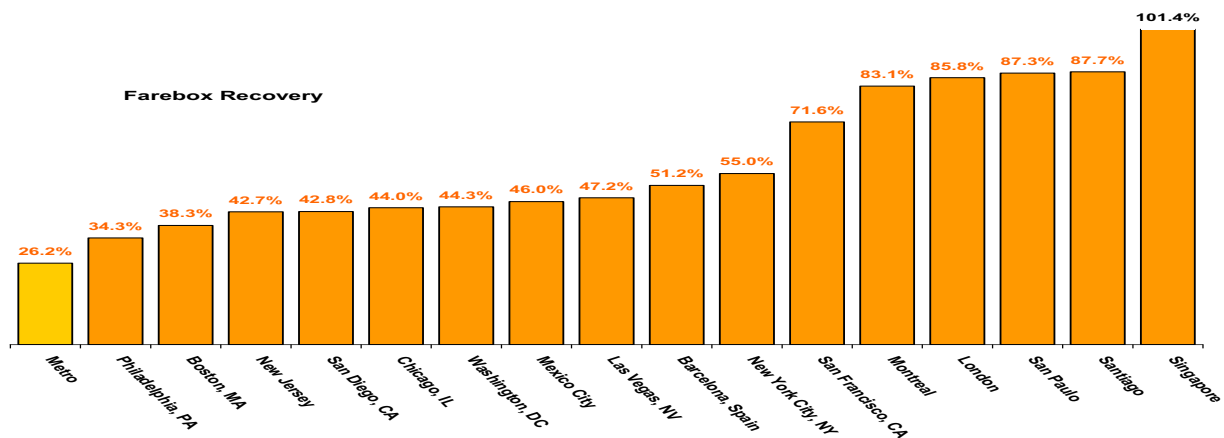
Figure 22
Metro FY14 Adopted Budget and FY12 Load Factors



Metro Bus Has A Far Higher Farebox Recovery Ratio Than Metro Rail Compared to its U.S. Transit Operator Peers

A transit system's "farebox recovery ratio" is the share of operating costs recovered from passenger fares. Generally speaking, the more a transit system pays for itself through fares, the lower the share of costs that have to be covered by taxpayers. In figure 23¹⁸⁸, Metro compares its farebox recovery ratio to other agencies, stating, "Metro's fares cover the lowest percentage of operating cost of any major transit agency in the world."

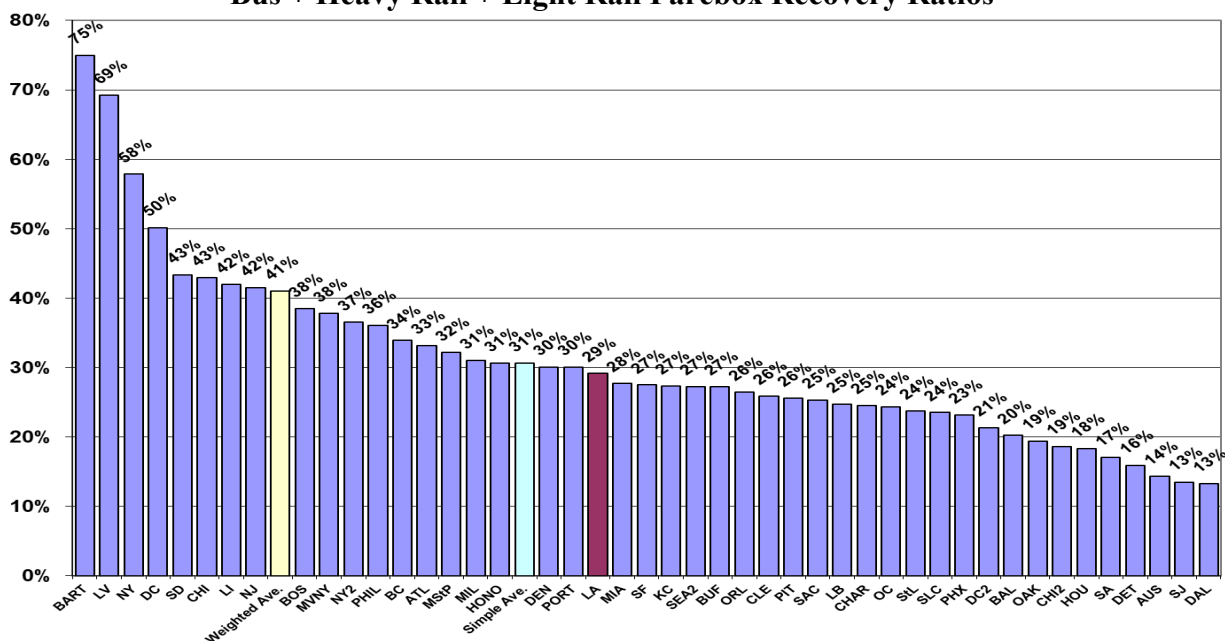
Figure 23
Metro's Fares Cover the Lowest Percentage of Operating Cost of Any Major Transit Agency in the World



188. Metro. *Adopted FY 2014*. "Figure C: Metro's fares cover the lowest percent of operating cost of any major transit agency in the world." 16. https://media.metro.net/about_us/finance/images/Adopted_FY_2014_Budget.pdf

In contrast, figure 24¹⁸⁹ provides the 2012 farebox recovery ratios for 45 of the top 50 U.S. transit operators in the FTA’s National Transit Database (NTD) (the five top-50 agencies not included in figure 24 are mainly large commuter rail operators that don’t operate any significant bus or other rail service). Of the 45 that operate bus, heavy rail, and/or light rail transit service, Metro’s total farebox recovery ratio was the 20th highest, exceeding that of 25 transit systems—including Austin, Baltimore, Buffalo, Charlotte, Suburban Chicago, Cleveland, Dallas, Detroit, Houston, Long Beach, Miami, Montgomery County (MD), Oakland, Orange County, Orlando, Phoenix, Pittsburgh, Sacramento, Saint Louis, Salt Lake City, San Antonio, San Francisco (which is shown in figure 23 with a higher farebox recovery ratio than Metro’s), San Jose, Seattle (King County), and Suburban Seattle. Metro’s farebox recovery ratio is not the “... lowest percentage of operating cost of any major agency in the world.” On the contrary, Metro’s farebox recovery ratio is representative of the industry, and above the median.

Figure 24
FTA “Top 50” Transit Operators
Bus + Heavy Rail + Light Rail Farebox Recovery Ratios



Figures 25, 26, and 27 summarize Metro’s 2012 farebox recovery performance for heavy rail, light rail, and bus, respectively. Metro’s heavy rail farebox recovery ratio was the fourth lowest in the U.S., only exceeding the ratios of the three systems most widely regarded as industry failures: Miami, Baltimore, and Cleveland. Metro’s light rail farebox recovery ratio also ranks near the bottom, far below the simple and weighted averages for its national peer group. In short, Metro’s rail operation underperforms relative to national norms.

189. Figures 7-14, inclusive. Authors’ calculations from data from National Transit Database 2012. http://www.ntdprogram.gov/ntdprogram/pubs/top_profiles/2012/Transit%20Profiles%20Top%2050%20Agencies.pdf

Figure 25
FTA “Top 50” Heavy Rail Operators (11) Farebox Recovery Ratios

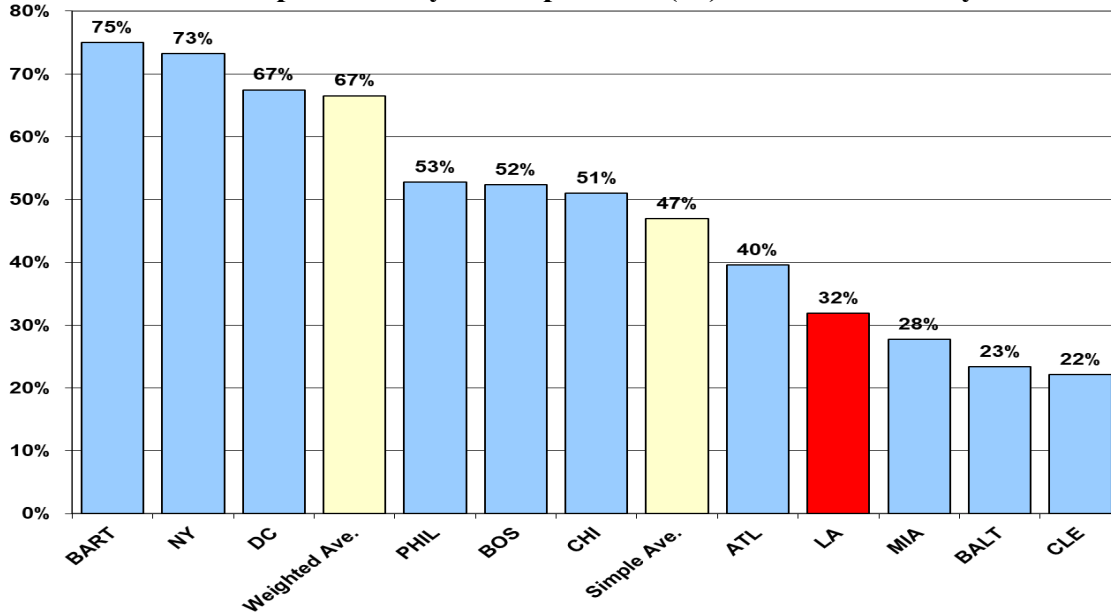
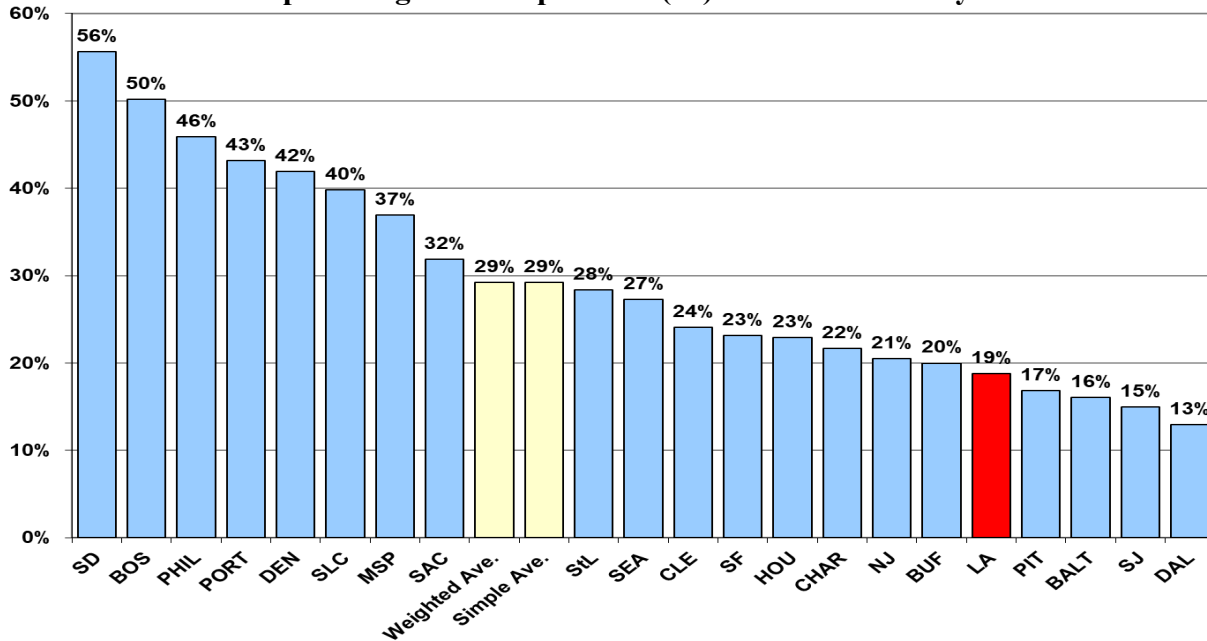
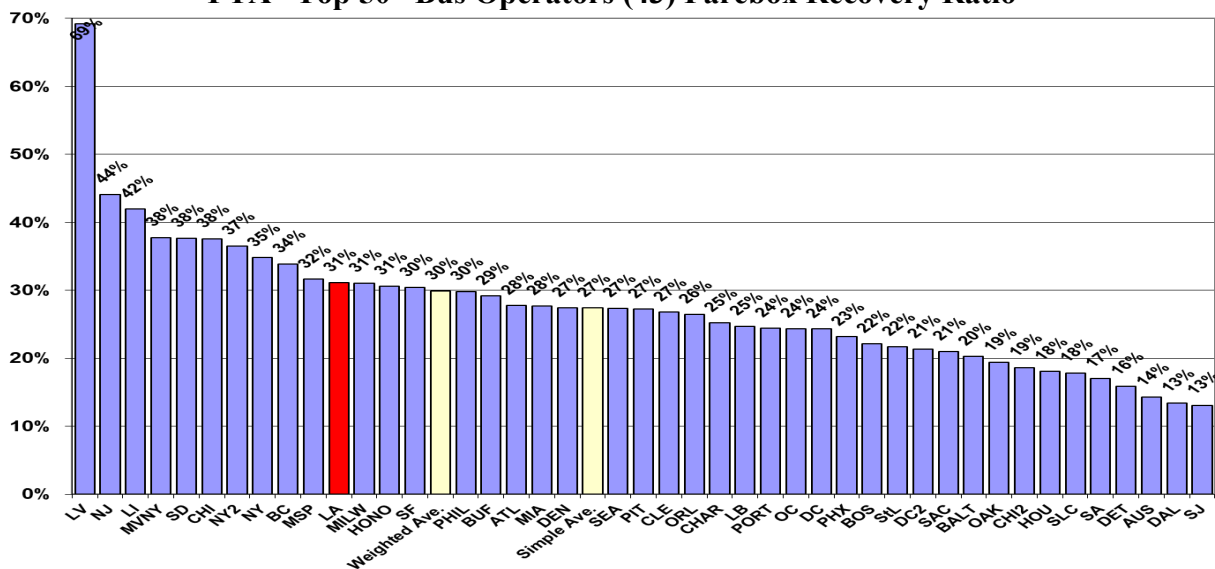


Figure 26
FTA “Top 50” Light Rail Operators (21) Farebox Recovery Ratios



In contrast, Metro’s farebox recovery ratio for bus is 11th highest of 43. Los Angeles bus performs competitively relative to national norms. It is well above the median and average values for U.S. systems. Overall, Metro’s bus operations are doing very well compared to its U.S. industry peers; it is Metro’s heavy rail and light rail operations that are dragging down Metro’s overall performance.

Figure 27
FTA “Top 50” Bus Operators (43) Farebox Recovery Ratio



Better Metrics: Subsidies Per Passenger and Per Passenger-Mile

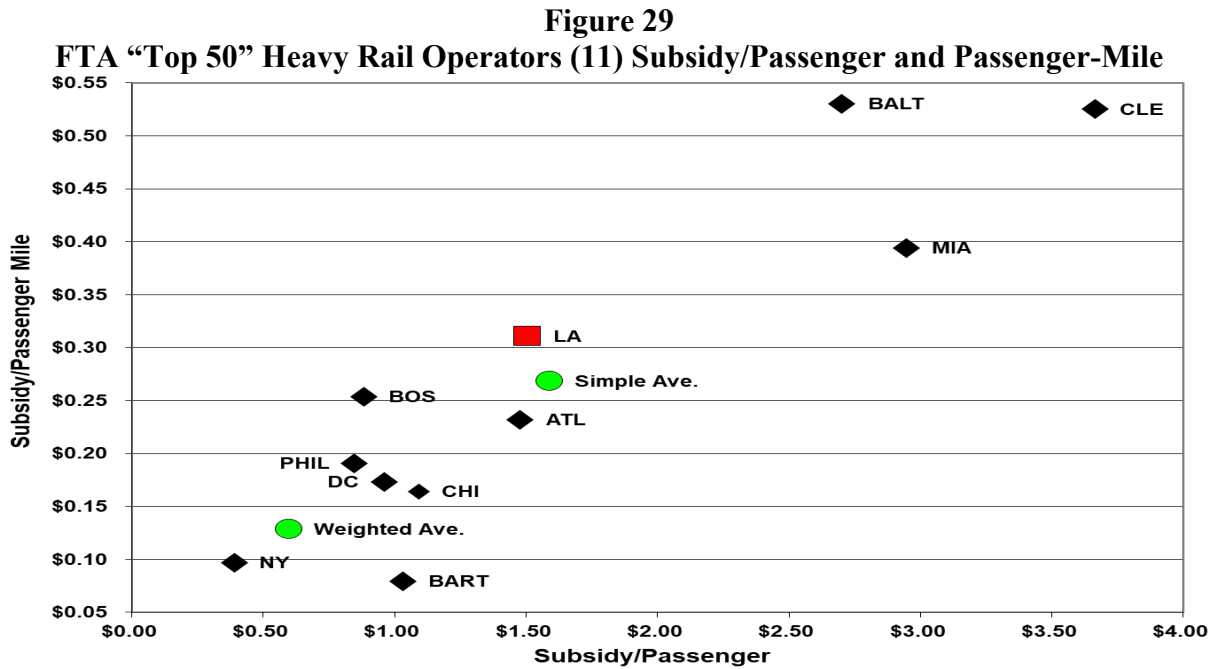
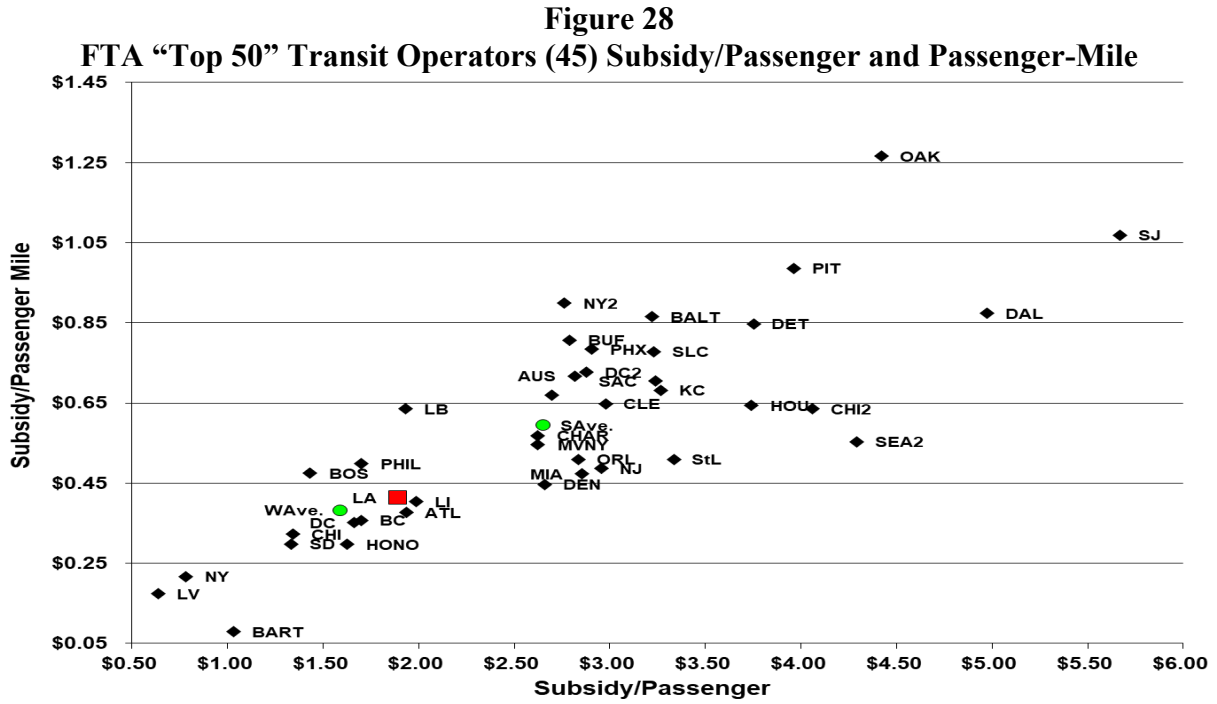
The farebox recovery ratio is an important and widely used transit performance metric; however, by itself, the metric can be misleading. For example, a low-cost operator may have a low farebox recovery ratio, but the taxpayer subsidy per passenger or passenger-mile might still be lower than those for higher cost transit operators with higher farebox recovery ratios. The objective is to operate a transit system that delivers the most value, typically measured in terms of ridership, in exchange for scarce taxpayer funds. Low subsidies are more important than high farebox recovery ratios in this regard, in part because they mean delivery of more service.

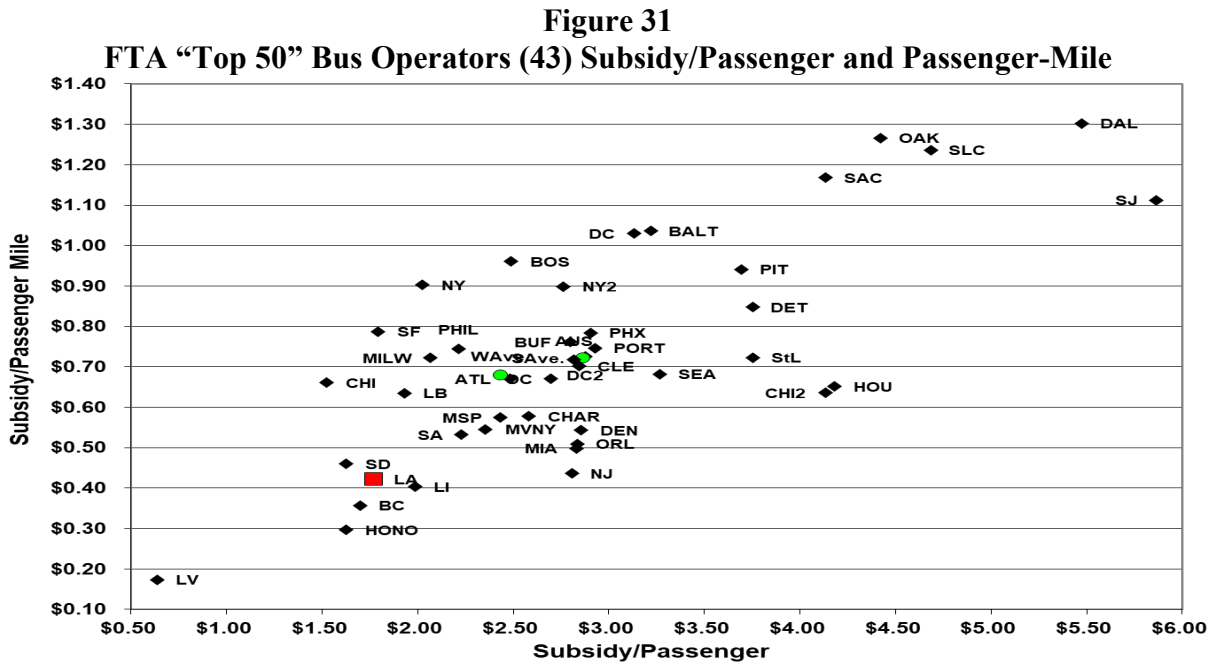
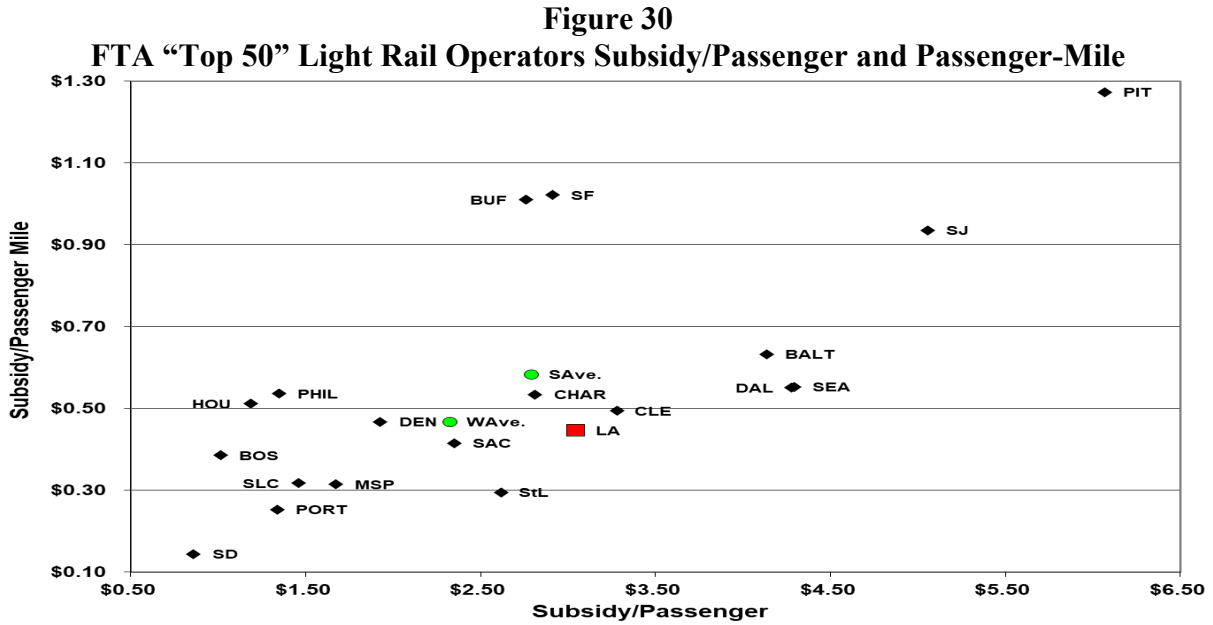
The best comparison combines taxpayer operating subsidies per passenger *and* per passenger-mile. Figures 28, 29, 30, and 31 summarize subsidies per passenger versus subsidies per passenger-mile for U.S. transit systems overall, and separately for the heavy rail, light rail, and bus modes, respectively. In each case, the best performing systems have coordinates closest to the origin in the lower left-hand corner of the graph.

Overall, Metro’s performance is notably better than the median of its national peer group, 10th lowest of the 45 on both metrics, with only eight operators beating it on both measures. This relatively high level of performance is particularly impressive because Metro operates in Los Angeles County, one of the highest cost areas in the U.S., and the data in figures 28-31 are not adjusted to account for cost-of-living.

Disaggregating by mode, Metro heavy rail does poorly, once again outperforming only the three long-standing U.S. low performers.

With respect to light rail, Metro’s performance is toward the middle of the national cohort, better than the averages on subsidy/passenger-mile, worse on subsidy/passenger, but better than Metro’s heavy rail performance.





Metro bus is a very high performer, with only three bus operators lower with respect to both subsidy per passenger and subsidy per passenger-mile.

Metro Misrepresents Bus Performance to The Media and The Public

To promote its case for rail, Metro has understated rail costs and overstated benefits while misrepresenting its bus as underperforming.

Consider the following quotation from the then-Metro CEO in a cover story on Metro in *Mass Transit* magazine¹⁹⁰:

All day long, our system is operating at 3 to 4 percent capacity, seat miles to passenger miles, ... Adding more buses to a route that's operating at an average speed of 9 miles an hour isn't going to do anything. People who need to ride it are already riding it; we're not picking up more people.

On a 40-passenger bus, a seated load of 3%-4% would be an average passenger load of 1.2-1.6. At the time the *Mass Transit* story was published, the latest NTD data available was for the 2002 reporting year, for which Metro reported an average bus passenger load of 16.5¹⁹¹, or 41.25% utilization—over 10 times what Metro's then-CEO is quoted as reporting.

From FY04, the year before the misleading *Mass Transit* article was published, through FY07, the last year of the Consent Decree, Metro heavy and light rail ridership increased by 11.8 million boardings combined, while bus ridership increased by 48.1 million¹⁹² boardings, over four times as much. Metro bus *was* “picking up more people.” This increase was a continuation of the significant ridership increase that began when the CD went into effect in FY97.

How could the CEO of one of the largest transit systems in the nation be so incredibly misinformed—or worse—on the performance of the entity that he had been managing for years?

Metro Underfunds the Bus System, Spending Disproportionately on Rail

Metro has spent or budgeted \$19.6 billion for new passenger rail projects through the Purple Line Phase 1¹⁹³. Add in the Purple Line Phase 2 at \$2.4 billion¹⁹⁴, and Phase 3 at \$3.2 billion¹⁹⁵, and Metro has spent or budgeted over \$25 billion (FY19 dollars) on rail expansion since Metro reached its all-time ridership high in FY85. Despite these expenditures, Metro's total ridership has been dropping steadily ever since. The sole exception to this trend consists of the Consent Decree years ending in FY07, a period during which a legal challenge forced Metro to spend attention and money on bus passengers, and ridership increased by 132 million (36%). Once the Consent Decree expired, ridership began to drop again, and Metro has never offered a credible plan to increase ridership or stop the long-term ridership decline.

Table 12 provides a snapshot of Metro's current rail system expenditures. The agency's rail system is budgeted to carry 28% of Metro total bus and rail boardings and 37% in the current fiscal year. Metro is budgeting 36% of total bus and rail operating subsidies and capital renewal expenditures on rail, slightly on the high side compared to system usage. However, when capital expansion and planning costs are taken into account, Metro is devoting 69% of its total subsidies

190. Lundquist, Lori. (Ed.) “A Matter of Decree: Los Angeles County Metropolitan Transportation Authority—What happens when the very people who use your service team up to become your agency's most dangerous opponent?” *Mass Transit* magazine, Spring 2005.

191. Authors' calculations from National Transit Database 2002. <https://www.transit.dot.gov/ntd/data-product/2002-annual-database-service>

192. NTD “Profiles” for cited years.

193. Rubin, Thomas A. “Is the *Los Angeles Times* Article, ‘Billions Spent, But Fewer People Are Using Public Transportation in Southern California,’ Misleading? 13. <http://demographia.com/db-rubin-la-transit.pdf>

194. Metro. *FY19 Adopted Budget*. 57.

195. Metro. “A Primer on Purple Line Section 3 Project Funding.” *The Source*. March 13, 2019. <https://thesource.metro.net/2019/03/13/a-primer-on-purple-line-section-3-project-funding-hint-its-complicated/>

to rail. If Metro had not been underspending on bus service for decades, bus ridership would have been higher, and these ratios would likely have been even worse for rail.

Description	Bus		Rail		Total Values (millions)
	Values (millions)	Percentage of Total	Values (millions)	Percentage of Total	
Boardings ¹⁹⁶	273	72%	107	28%	381
Passenger-miles ¹⁹⁷	1,144	63%	685	37%	1,829
Operating Expenses ¹⁹⁸	\$1,268	70%	\$543	30%	\$1,811
Less: Operating Revenues ¹⁹⁹	(240)	75%	(82)	25%	(322)
Operating Subsidy	1,028	69%	461	31%	1,489
State of Good Repair ²⁰⁰	211	48%	231	52%	442
Total Subsidies for Existing Assets	1,239	64%	692	36%	1,931
New Construction/ Expansion/Planning ²⁰¹	24	1%	2,111	99%	2,135
Total Subsidies	\$1,263	31%	\$2,803	69 %	\$4,066

Metro claims a structural operating deficit, which it considers solving by reducing bus service and increasing bus fares, when bus is the highest performing, most cost-effective transit type it has. A well-managed business keeps, supports, and expands its best performing segments and reforms, reduces, or closes its worst performing ones. If bus service were expanded and configured to serve Los Angeles residents' unmet transportation demand rather than to feed captive riders to Metro's rail lines, it would perform even better, particularly in regards to the amount of transportation available to, and used by, the residents of Los Angeles County.

Passenger rail can be a wise investment in some situations but building new urban rail lines is a very expensive way to move travelers, and a highly cost ineffective option for Los Angeles. Metro's over-emphasis on rail expansion at the expense of cost-effective bus service has wasted billions of taxpayer dollars and created major urban mobility problems. If Metro implements the current *28 by 2028 Plan*, L.A. transit service will continue to deteriorate. If Metro wants to best serve transit customers in the region, it must focus first on bus service improvements—not expensive rail lines that take decades to implement.

CONCLUSIONS

1. Metro bus is very highly utilized and very cost-effective relative to national norms.
2. Metro's farebox recovery ratios are competitive with its U.S. peers overall, high for bus, and low for rail. Metro's very high utilization spreads operating costs thinly over each user, meaning that the taxpayers are getting a very good deal—and the high load factors show that the riders want more bus service.

196. Metro, Adopted Budget FY 2020, page 47.

197. *Ibid.*

198. *Ibid.* page 30.

199. *Ibid.*, page 30.

200. *Ibid.*, page 33.

201. *Ibid.*, page 32.

3. Metro rail is below average to poor compared to its peers in terms of cost-effectiveness. Metro's heavy rail and light rail substantially reduce Metro's aggregate performance with respect to farebox recovery and subsidies per passenger and passenger-mile. When the very high initial capital costs for rail, as well as the high capital renewal and replacement costs are considered, there is no possible conclusion other than, in terms of value for money, Los Angeles County bus service is massively superior to rail in terms of adding transit riders.
4. An examination of operating costs, operating subsidies, and utilization make it clear that Metro bus has a long-term and great advantage over Metro rail across most or all-important measures. Metro's focus on rail capital projects ignores this reality.
5. Metro appears to have institutionalized the ability to ignore the relatively high cost-effectiveness and performance of bus improvements vs. rail capital investment when making major planning and implementation decisions. Increasing transit utilization does not appear to be of much importance to Metro. Instead, the agency's priority is finding more money to fund more rail construction more quickly.
6. We can only assume that main Metro leaders truly believe that passenger rail is very important for the future of mobility in Los Angeles County, but, as Milton Friedman said, "one of the great mistakes is to judge policies and programs by their intentions rather than their results."
7. Despite bus's demonstrated cost-effectiveness and high utilization, Metro's budgetary prioritization of rail capital projects indicates an intent to find more money to fund new rail lines. If the agency proceeds, it will come at the cost of transit utilization.
8. If Metro implements the current *28 by 2028 Plan*, with its emphasis on new rail lines at the expense of bus service, billions of dollars more will be spent and overall L.A. transit service will continue to deteriorate.