An Assessment of Performance Measures

In the Transportation Development Act

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Note

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Executive Summary **5**
Introduction **9**
1. What the TDA looks like today **10**
LTF fund apportionment and use 12
STA funds appropriation and use 12
TDA funding eligibility and "farebox ratio" requirements 12
Exclusions and exemptions to the ratio requirement 12
Consequences of failure to meet the ratio requirement 13
Additional eligibility requirements for STA Funds 13
Trends in operating cost exemptions 14
Summary 16
2. How the TDA became what it is today **17**
The lead-up to TDA 17
Passage of TDA 18
The focus on transit system performance 20
Performance audits 22
Summary 23
3. What a performance measure does **24**
Three categories of performance measure 24
Cost-efficiency measures 25
Service-effectiveness measures 25
Cost-effectiveness measures 25
Why performance measures matter 28
Why using any single performance measure is problematic 28
What makes a "good" performance measure? 28
A note about cost inputs to performance measures 30
Summary 31
4. How current TDA performance measures are working **32**
Farebox ratio requirement 32
Advantages 32
Limitations 32

The CPI cost escalation limit 33
The use of threshold requirements 33
Exemptions and their implications for the TDA 34
Aligning goals with performance measures 35
Summary 37
5. What California transit professionals say about TDA performance measures 38
Perception of performance measurement burdens 38
Apparent effects of performance measurement burdens 42
Stated preferences for alternative performance measurements 44
Summary 46
6. What other states use for performance measurement 47
Methodology 48
Key Findings 49
1. Most states do not use performance measures to allocate funding 49
2. Funding allocations use system characteristics more than performance measures 51
Examples of state transit funding allocations 53
Pennsylvania 53
Virginia 54
North Carolina (State Maintenance and Assistance Program) 54
3. Allocation formulas are most often used for specific state programs 55
4. California's transit context differs from most other states' due to its distinct geography and history 55
5. Some states use peer comparisons in their allocations 57
6. Many states provide backstops for transit funding 57
7. California is different from other states 58
Summary 59
7. How California's performance audits compare with other states' and how California transit professionals perceive them 60
Perception of triennial performance audit burdens 60
Performance audits in other states 62
Summary 65

8. Proposed Policy Options **66**
Motivation for change 66
Recommendations 66
Recommendation #1: Replace the farebox ratio and CPI cost escalation threshold requirements with multiple performance measurements that align with state goals 67
Recommendation #2: Adopt peer group comparisons 69
Recommendation #3: Use standard deviation analysis to identify agency outliers 70
Recommendation #4: Use audits to identify need for technical assistance and adjust audit schedule 71
Recommendation #5 Provide technical assistance through RTPAs or a state-funded Transit Excellence Center (TEC) 72
Recommendation #6: Establish framework and authority for remedial action, including agency restructuring 72
References **74**
Appendices **77**
Appendix A: Detailed Summaries of State Findings 78
Appendix B: Survey questions distributed to RTPA and transit agency professionals 109

Executive Summary

This report examines the performance measures requirements in California's Transportation Development Act (TDA) of 1971. The TDA is an important source of funding for the state's public transit agencies, representing approximately 18 percent of their total (2018) revenue between the TDA's two funds (LTF and STA). The TDA originated as an effort to modernize and expand public transit in California with dedicated revenue sources while also holding individual transit agencies accountable for their public expenditures. Accordingly, specific performance measures and thresholds were established for all agencies in the state. The most notable of these was the farebox recovery rate, which was established in 1978. However, the Legislature has periodically added exemptions to the TDA's requirements, departing from the uniform performance-threshold approach first adopted.

Since the TDA's passage in 1971, the transit operating environment in California has changed, in some cases dramatically. The state has nearly doubled in population (20.4 million in 1971 to 39.8 million in 2019), traffic has worsened considerably, climate change is now a central public policy focus, and many places around the state are investing heavily in making public transit a viable alternative to driving. Many of the state's transit operators serve expanding, auto-oriented environments, while others must cope with high and rising costs in large cities. Recently, however, ridership has been slipping, undermining performance. Vicissitudes in federal funding have further compounded operators' management challenges.

Our research examined the TDA's performance requirements and their effects on the state's transit operators. We also considered alternative approaches to both transit finance and performance requirements, by studying transit funding programs in 13 other states that invest significant amounts of funding in transit. In brief, we find that the TDA's use of performance measurements to allocate funding is unusual. The states we studied do not for the most part make funding contingent on performance, thereby avoiding the unproductive and difficult-to-implement "death penalty" (Taylor, 1995) of withholding subsidies for a much-needed public service. In several of the cases analyzed, by contrast, states guarantee specific levels or amounts of funding for transit service.

To examine how the TDA's performance measures are working, we conducted a survey of California transit professionals at agencies and at Regional Transportation Planning Agencies (RTPAs). To operators, the farebox recovery rate is a prominent requirement in the TDA and a hurdle to clear to receive funding. While the farebox recovery rate serves as a useful general indicator of cost-effectiveness and has its merits, California's *exclusive* use of this measure appears to have influenced agency

management decisions in ways that state officials might have intended in the 1970s, but that appear increasingly out of alignment with many of California's goals for public transit today. While cost-effective transit is surely as desirable a goal now as then, increasing ridership and serving the needs of the mobility disadvantaged are important goals as well, and all can conflict with an exclusive focus on cost-effectiveness. Our survey results suggest that the TDA's reliance on a single cost-effective performance measure has, in fact, discouraged efforts to increase ridership and/or improve service to the mobility disadvantaged.

That California's aspirations for transit have evolved over the years is reflected in the frequent loopholes and exemptions the Legislature has added to the TDA to give struggling operators more latitude to receive funding in order to meet multiple goals and objectives while staying in compliance with a single cost-effectiveness goal. The extent and frequency with which these exemptions have occurred suggests that the larger aims for public transit, and indeed the goals for the TDA program itself, have evolved, and need to be re-thought holistically, rather than incrementally.

Accordingly we offer six recommendations concerning transit performance assessment vis-a-vis the TDA:

1) **Replace the farebox recovery rate threshold requirement with annual reporting on a more comprehensive set of performance measures:** Multiple performance measures in place of the current one-size-fits-all farebox recovery rate will provide public officials with more comprehensive assessments of transit performance and will align better with the state's multiple goals for transit.

2) **Adopt peer group comparisons:** We recommend evaluating the performance measures described in 1) both over time and in comparison with other, similar agencies. Grouping agencies into "peer groups" for comparison means that agency-specific problems and virtues will be easier to identify, since performance gaps will be clearer and more relevant.

3) **Use standard deviation analysis to identify agency outliers**: Using "threshold" standards to measure compliance is problematic: they encourage managers to "manage to the measure" and provide little incentive to improve performance beyond the standard. We recommend determining compliance using Pennsylvania's method: agencies are in compliance if their performance metrics are within one standard deviation of their peer group average. This method identifies compliance issues without distorting management incentives.

4) **Redeploy the current performance audit requirement:** We recommend audits be used for identifying needs for technical assistance in addition to monitoring

performance. We also recommend shifting from a rigid triennial schedule to one that varies based on the findings of previous audits so that audit resources can be directed to agencies that most need them.

5) **Provide technical assistance through RTPAs or a state Transit Excellence Center (TEC):** To help transit agency managers meet their agency's compliance standards and/or performance goals (where audits have identified the need), we recommend making RTPAs a technical resource for consulting-type reviews and recommendations. Alternatively, the establishment of a state Transit Expertise Center could centralize the already available resources of the state's transportation institutes.

6) **Establish a framework and authority for remedial action:** When audits and technical assistance are not sufficient to bring an agency into compliance, a framework for action, including even agency restructuring, will help to improve the state's average transit performance.

Table ES.1 outlines aspects of the current TDA and the changes to them suggested in our recommendations.

Table ES.1 Current TDA and recommended changes

	CURRENT TDA	RECOMMENDED CHANGES
Performance measures	Farebox recovery rate (LTF and STA), CPI cost escalation limit (STA only)	Cost-efficiency, service-effectiveness, and cost-effectiveness measures: ● Unlinked passenger trips per vehicle revenue hour ● Operating expenses per vehicle revenue hour ● Operating revenue per vehicle revenue hour ● Operating costs per unlinked passenger trip ● Unlinked passenger trips per capita ● Vehicle revenue hours per capita
Audits: frequency and purpose	Annual: compliance-based Triennial: compliance-based	Annual: cost-efficiency standard compliance, needs assessment for technical assistance Quadrennial: Performance goal setting and progress-tracking
Basis of agency comparison	Urban, non-urban (with special conditions for low-population counties, older agencies, etc.)	Peer groups based on agency operating characteristics
Basis of agency compliance	Threshold metric (met or not met)	Performance within one standard deviation of peer group average or better
Consequence of compliance failure	Funding withheld	Technical assistance required for initial failure; ongoing failure could prompt RTPA action, potential agency restructuring in the long-term absence of progress

Introduction

Researchers at the UCLA Institute of Transportation Studies prepared this report at the request of the California State Legislature under the auspices of the California Transit Association's Transportation Development Act Reform Task Force. The purpose of this report and the research it summarizes is to describe: a) the current status of the Transportation Development Act, and how it has evolved from its original drafting, b) how agency professionals perceive the effects of its funding-determinative requirements, especially the farebox recovery rate and the use of the consumer price index (CPI) as an upper limit on the escalation of operating costs, and c) how the TDA's structure, which ties funding allocations to performance assessment, compares with other states' policies and funding procedures.

In Section 1, our report describes the "TDA Today", its current revenue amounts, funds appropriation, and funding eligibility requirements. We then discuss, in Section 2, the genesis and evolution of the TDA's performance and audit requirements. A discussion of performance measures follows in Section 3 where, based on findings from previous academic research, we outline what a performance measure does, suggest criteria for choosing individual measures, and discuss the influence of performance measures on managerial decision-making. This section also provides a catalog of performance measure types. In Section 4, we look at how the TDA's current performance measures are working through the lens of the criteria discussed in Section 3.

In Section 5 of this report we discuss transit professionals' perceptions of performance measures, and in Section 6 we describe the findings from a study of 13 other states' performance measures used (or not used) in transit funding allocation. We also discuss performance audits in Section 7, looking at both how transit professionals perceive their burden and how other states conduct audits.

Finally, in Section 8, we make recommendations concerning possible modifications to the TDA's funding eligibility requirements and audit process. We conclude that updating the TDA to incorporate best practices from other states and to reflect California's modern transit operating environment would advance the state's ability to improve transit service and ridership.

1. What the TDA looks like today

California's Transportation Development Act (TDA) of 1971 provides funding for public transit and non-transit purposes that comply with Regional Transportation Plans through two sources: the Local Transportation Fund (LTF), which is funded from a ¼-cent state general sales tax that was established in 1972, and the State Transit Assistance (STA) fund that draws revenue from state sales taxes on diesel fuel, established in 1980. The LTF is the third largest state source of total transit operator revenue, accounting for $1.3 billion in 2018 or 14.5% of total revenue from all sources. STA funds are a smaller source of funds for transit operators than the LTF, amounting to $274 million in 2018 or approximately 3% of all revenues (California State Controller's Office, n.d.). Between 2011 and 2017, LTF revenues increased 55% while STA funds declined 38%. The Road Repair and Accountability Act of 2017 (SB 1), however, boosted STA funding by an additional $105 million per year.

Table 1.1 summarizes the differences in LTF and STA funds, which are discussed in detail below.

Table 1.1 Comparison of LTF and STA funds

	LOCAL TRANSPORTATION FUND (LTF)	STATE TRANSIT ASSISTANCE (STA)
Established	1972	1980
Source	State general sales tax (¼ cent)	State taxes on diesel fuel
Revenue generated (FY 2018)	$1.30 billion	$274.2 million
Disbursement	State Board of Equalization collects sales taxes, returns apportioned revenues to each county	Controller allocates revenue by statutory formula: 50% by area population[1], 50% by transit operator revenues from previous year
Allowed uses	Pedestrian and bicycle facilities, community transit, public transportation, bus and rail projects, transportation planning and programming activities	Transportation planning and mass transportation only
Claimant eligibility requirements *(See text for details, exceptions, and other conditions)*	"Farebox ratio" of 20% in urbanized and 10% in non-urbanized areas; 15% in low-population counties with urbanized areas.	
		Large counties must allocate apportioned LTF funds before receiving STA funds. CPI-adjusted operating cost per vehicle revenue hour in the just-completed year must not exceed the previous year's level or the average of preceding three years' level.

[1] Areas within the county. "An area can be a transit district, city, county, etc. For a county without a transit district, apportionments are made for the incorporated area of each city and for the county's unincorporated area. Where there is a transit district, separate apportionments are made to areas within and outside the district." Caltrans Division of Rail and Mass Transportation. (2018). *Transportation Development Act (TDA) Statutes and California Code of Regulations* (p. 5). Retrieved from http://www.dot.ca.gov/drmt/docs/tda/TDA_07-2018.pdf

LTF fund apportionment and use

LTF quarter-cent general sales tax revenue is collected by the State Board of Equalization, which returns apportioned revenues to each county's LTF. Counties may use LTF funds for various transportation programs including "planning and program activities, pedestrian and bicycle facilities, community transit services, public transportation, and bus and rail projects" (Caltrans, 2018, p. 2). Counties with fewer than 500,000 people in the 1970 Census may use LTF funds for local streets and roads construction and maintenance if they can demonstrate that all "reasonable" public transit needs have been met.

STA funds appropriation and use

STA funds from the state sales tax on diesel fuel are appropriated to the Controller's Office by the state legislature. The Controller's Office allocates revenue to planning and other agencies by a statutory formula: 50% by population and 50% by agency operating revenues from the previous fiscal year. STA funds may only be used for transportation planning and mass transportation. In addition, counties with populations over 500,000 (in the 1970 Census) may not receive STA funds until all of its LTF apportionment is allocated (Caltrans, 2018, p. 6).

TDA funding eligibility and "farebox ratio" requirements

To qualify for both LTF and STA funding under the TDA, transit operators must show that their fare-revenue-to-operating-cost ("farebox ratio") is the greater of: i) the ratio that operator had in 1978/1979, or ii) 20% if the agency is in an urbanized area, or 10% if it is outside of an urbanized area. Agencies in urbanized areas that had ratios greater than 20% (or 10% in non-urbanized areas) in the 1978/1979 fiscal year must maintain that ratio with fare revenues and/or local government subsidies. Transportation planning agencies or commissions in urbanized areas within counties with populations of 500,000 or less may have farebox ratios of 15%.. No required farebox ratio applies to services exclusively for elderly and disabled persons. Ratio requirements also do not apply if two separate labor disputes of 15 days or longer or one week of stoppages unrelated to labor disputes occurred in the reported year. Operating cost is defined as all costs incurred in operating transit service except depreciation and amortization, minus the cost exclusions and exemptions specified by statutes and codes of regulations, which are described below.

Exclusions and exemptions to the ratio requirement

Among the expense exclusions operators report are those incurred in providing charter service, leasing vehicles, and providing commuter rail services.

The allowable expense exemptions are (1) the cost of providing ridesharing (carpooling and vanpooling) services,[2] (2) the additional costs (exceeding the CPI-adjusted prior year costs) of providing "comparable, complementary," ADA-compliant paratransit service, and (3) the cost of new routes or extensions of public transit service "until two years after the end of the fiscal year in which the extension of services was put into operation" (Caltrans, 2018, p. 61).

TDA fund claimants may also adjust the calculation of operating costs to account for cost increases beyond the change in the Consumer Price Index (CPI) for fuel, alternative fuel programs, power, insurance premiums and liability payments, and state or federal mandates.

Consequences of failure to meet the ratio requirement

If TDA funding recipients fail to meet ratio requirements in a fiscal year, their TDA funding is reduced by the amount of the shortfall, i.e., the difference between the ratio-required amount and actual revenues. An exemption exists for first-time shortfalls. To avoid failing the ratio requirement, agency and commission managers have the option of raising local support funding to reach the required ratio amount. Some TDA claimants may be able to apply for LTF funds under Article 8 "Other Claims for Funds."

Additional eligibility requirements for STA Funds

Use of STA funds requires transit operators to meet additional eligibility criteria: their total operating cost per revenue vehicle hour must be equal to or lower than the previous year's level, allowing for changes in the locality's CPI. Alternatively, operators may compare the average operating cost per vehicle hour and average change in CPI in the latest three years (e.g., 2015-2017) with those of the three years preceding the latest year (e.g., 2014-2016) and show that the latest three years do not reflect an increase in operating cost. Operators failing to meet either criterion receive the allocated funds but a proportion of the allocation equal in amount to the shortfall must be used for capital purposes only (Caltrans, 2018, p. 90).

[2] Per California Public Utilities Code § 99211.5, "Ridesharing services means a comprehensive organizational effort which is designed to reduce the number of vehicles on the highways during peak travel periods within a defined area by encouraging the planning and marketing of high-occupancy vehicle facilities, increases in the number of passengers per vehicle in vehicles used for ridesharing, alternative work schedules, and other transportation demand management strategies among employers and commuters."

Trends in operating cost exemptions

As shown in Figure 1.1 below, between 2003 and 2017, operator exclusions and exemptions (denoted by the orange bars) reached a peak of $172.6 million in 2006 (2.9% of that year's total expenditures), but since 2011, the amount of exclusions and exemptions has been relatively stable, varying between $77.0 million (2012) and $94 million (2017), even as the number of reporting agencies (illustrated by the blue line) has risen slightly.

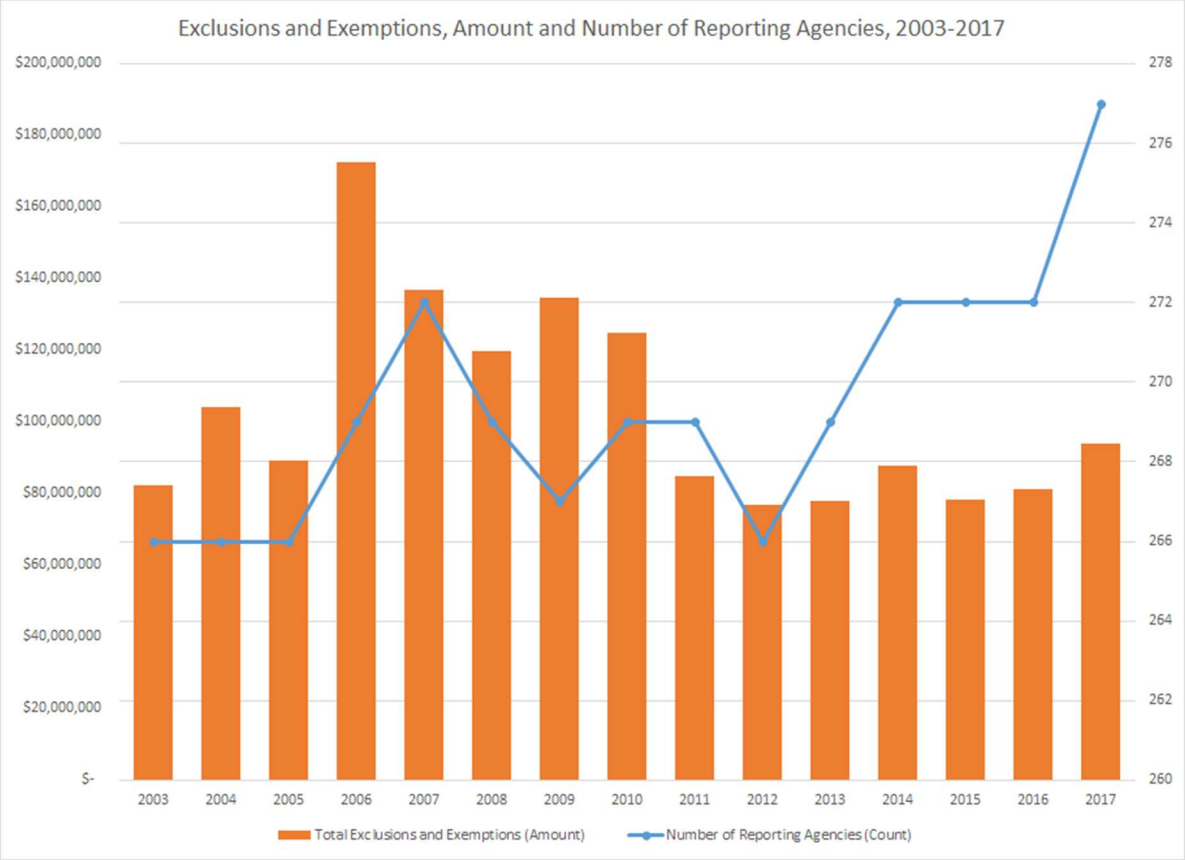

Figure 1.1 Exclusions and exemptions, Amount and Number of Reporting Agencies, over time (2003-2017)

Data source: California State Controller's Office Database (California State Controller's Office, n.d.)

As shown in Figure 1.2, paratransit services constitute the largest category of exclusions and exemptions in the years 2011–2017; insurance premiums and claims are the second largest category. Services extension and ridesharing exemptions have generally decreased and are a small share of the annual totals (5% in 2017).

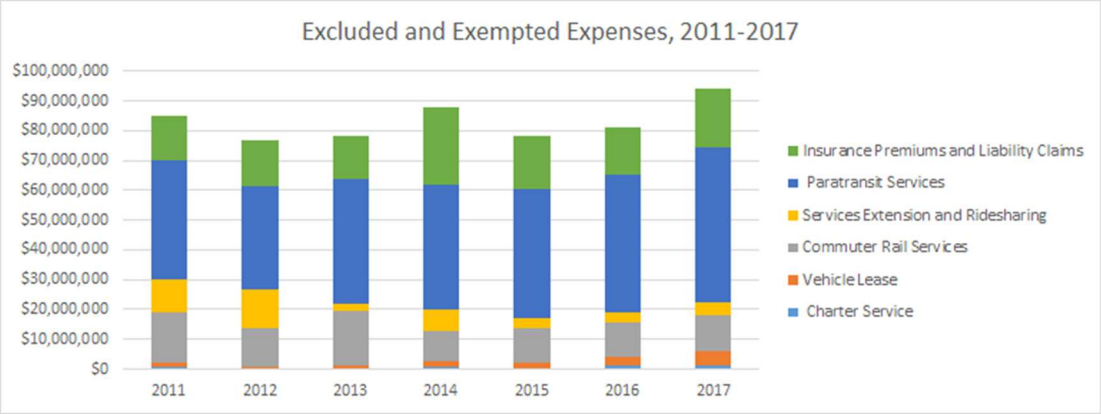

Figure 1.2 Exclusions and exemptions by category (2011-2017)
Data source: California State Controller's Office Database (California State Controller's Office, n.d.)

Summary

Through its two funds (LTF and STA), the TDA provides approximately 18% of all state transit revenue (as of 2018). To receive state funding, local transit operators must meet eligibility criteria that include collecting sufficient farebox revenue (or supplementing it with local support) to reach a specified share of operating expenses. The TDA specifies a "farebox ratio" for urbanized areas (20%), non-urbanized areas (10%), and low-population counties with urbanized areas (15%), with some exceptions. Penalties for failing to meet the farebox ratio include a withholding of subsidy in the amount of the shortfall. Operators can claim exemptions and exclusions to the costs included in the farebox ratio requirement, and a common exemption is for paratransit costs.

We discuss the full history of the TDA and how it came to take on its current form in the next section (Section 2: How the TDA became what it is today.)

2. How the TDA became what it is today

The lead-up to TDA

Public transit during the middle of the twentieth century was in transition from private to public ownership. Growing automobile use and suburbanization were peaking and taking their toll on transit ridership. Struggling private transit operators were everywhere experiencing bankruptcies, abandonments, or public takeovers. By the 1960s, most big-city transit properties had become public operations, while smaller town and rural operators mostly were still in private hands. Thus, the majority of transit operators in the nation were still privately owned, while most passengers were carried on larger systems that had become public agencies. Transit operators everywhere – public and private – were scrambling to find new resources. Their passenger bases were moving away from their service areas and increasingly commuting by auto. In addition, they had inherited antiquated facilities, huge maintenance backlogs, and expensive labor agreements with frequently unionized workforces. Led by mayors and members of Congress from large metropolitan areas, the federal government started subsidizing transit in 1961 and enacted the Urban Mass Transportation Act of 1964, creating the Urban Mass Transportation Administration (UMTA) – now the Federal Transit Administration (FTA) – which provided funding for transit capital improvements, including the public acquisition of formerly private transit operators.

The infusion of federal support was helpful but fell far short of the funding needed to modernize transit. For the first 13 years of the rapidly expanding UMTA program, however, federal funds could only be used for the purchase of rolling stock and capital equipment; before 1974, the federal government clearly saw transit operating subsidies as the responsibility of states and localities. Furthermore, matching funds from state and local sources were required to obtain some of the federal funds so pressure mounted for increased state participation in transit funding. Transit operators were left without the financial resources to operate an expanding fleet of new, federally financed transit vehicles. In California, this need for operating funds eventually led to passage of the Transportation Development Act (TDA) (Taylor, 1991).

For decades, the largest source of transportation revenue in California was motor fuel taxes, which were widely regarded through the 1970s as user fees. Many supported and others opposed the "diversion" of motor fuel tax revenues from highways to public transit. Supporters argued that such revenues should apply to transportation expenditures broadly, while opponents countered that revenues collected from highway users should go to highway expenditures. The need for transit subsidies and the widespread opposition to the use of gasoline taxes for anything other than roads

and highways resulted in a rather complex outcome that attempted to find compromise among competing interests (Brown, 1999).

Support for public transit was controversial and debates were politically charged. Despite the clear need for the modernization of core services in densely populated areas, the availability of public funding from general funds led taxpayers in growing suburban areas that were poorly served by transit to demand more service. They were contributing most of the tax revenue available to transit and wanted to see a return on their investment.

Passage of TDA

With farebox revenue and federal funding falling far short of what was needed to operate, modernize and expand public transit in California and after long and acrimonious debates, the legislature passed and the governor signed the Transportation Development Act (TDA) in 1971 (Stats. 1971, c. 1400). The TDA marked the beginning of measures that made some road user charges available to public transportation.

The TDA extended the sales tax to gasoline to broaden the revenue base and increase revenue collection. Gasoline had previously been exempt from general sales taxes because it was subject to per gallon excise taxes which were considered to be user fees that differ in principle from general taxes. The Act also authorized counties to increase local sales taxes by 0.25 percent to finance local transit operations. To keep the overall sales tax rate constant, the TDA also lowered the state sales tax on all purchases by the same 0.25 percent (from 4 percent to 3.75 percent). A portion of these funds, known as the "spillover," was reserved to support local bus and transit operations and interregional mass transportation. The amount of spillover revenues in any given year depended on the price of gasoline and fuel consumption compared to other goods. In technical terms, the spillover consisted of the amount by which revenues from the 3.75 percent tax on gasoline exceeded the revenue that would have been collected from the eliminated 0.25 percent sales taxes on all other goods.

Under the TDA, taxpayers were protected from a general tax increase to support transit by treating most of the yield from sales taxes on gasoline purchases as general revenue. On the other hand, any excess sales taxes collected from gasoline purchases over the amount needed to make the general fund whole could be regarded as user fees designed to mitigate the externalities from automobile use. While sales tax revenues generally better keep pace with inflation than excise taxes, sales tax revenues decrease when prices or sales volumes fall. Moreover, sales taxes on gasoline tend to be volatile since the price of fuel fluctuates more than prices in general. Finally, the peculiar spillover formula meant that the amounts were not

guaranteed; when gas prices were high, substantial additional tax revenues would become available to support mass transportation, while little or no monies would be generated in other years.

When available, spillover funds were deposited into a special account, now known as the Public Transportation Account (PTA) in the state treasury. However, since the uses of spillover sales tax revenues were not constitutionally restricted like fuel excise taxes, the legislature was free to use them for other purposes. In addition to TDA funding for transit, in 1973 the legislature proposed a constitutional amendment (Stats. 1973, res. c. 145 (S.C.A. 15)) that expanded the permitted use of motor fuel excise taxes from authorized highway purposes to building and maintaining exclusive mass transportation guideways and some forms of transit maintenance. Opponents viewed this as a diversion of existing highway revenues to non-highway purposes. Voters, however, approved the measure (Proposition 5) in the June 1974 state primary election. Outside of guideway projects, the level of financial support for transit operations still depended on the size of spillover from year to year, which in turn was governed by the price and amount of gasoline sales compared to sales of all other goods. Through the mid-1980s, the spill-over generated between $2 million and $159 million per year, making it a highly variable and unpredictable source of funding. The volatility in revenue from the general sales tax spillover led recipients to advocate for more stable and predictable transit funding and this led to the state in 1980 committing revenues from diesel fuel sales taxes to the support of public transit by establishing the State Transit Assistance fund (Garrett, Brown, & Wachs, 2016).

Three Democrats (Mills, Alquist and Deddah) wrote the TDA legislation but many compromises were necessary to gain support from rural and suburban legislators and to have it signed by Republican Governor Ronald Reagan, who made it clear that he opposed new taxes. The key political compromises necessary to enact the TDA are summarized in this 1991 report (Taylor, 1991):

> When first approached with the TDA, Governor Reagan wanted the proposal put before the voters. Knowing that it was unlikely that voters statewide would support a measure so clearly intended for central city transit users, Legislators Mills, Alquist, and Deddeh sought to modify the transit sales tax proposal both to satisfy the governor and avoid a plebiscite. The first step was to technically designate the 1/4 cent of the sales tax for the TDA as a "local tax" instead of a state tax. At the time, California had a uniform 5 percent sales tax in all 58 counties (4 percent state, and 1 percent local). When the sales tax was extended to gasoline by the TDA, the state-local split of sales tax was also changed to 3.75 percent state and 1.25 percent local. The additional 0.25 percent local tax, however, was not very local; expenditure of these funds was made subject to state statutes and administrative code of the TDA. In order to further assuage the

governor, each of California's 58 county boards of supervisors voted whether to extend the sales tax to gasoline and accept an additional 0.25 percent of the sales tax for TDA expenditures. The vote, however, did not offer the county supervisors much of a choice. At the time, the California Franchise Tax Board required that the sales tax be uniform in all counties (this has since been changed to allow special county sales taxes for transportation); if a county did not agree to the uniform state sales tax (which was a nickel at the time), then that county forfeited all state-collected sales tax revenues. The county supervisors were thus given a choice whether to extend the sales tax to gasoline and accept an additional 0.25 percent local funds for the TDA, or forgo all local sales tax revenues. Given this choice, it is not surprising that the counties voted unanimously for the TDA and thus satisfied Governor Reagan's desire for a local vote. Rural and suburban counties, however, were not simply strong-armed into supporting a transit funding program for the central cities. The TDA was fashioned to appeal to the interests of rural and suburban counties. The appeal to rural interests was straightforward; small counties would be permitted to use some of their TDA funds for road projects. Counties with 1970 populations below 500,000 can use TDA funds for streets and roads if the presiding transportation planning agency determines that there are no "unmet transit needs that are reasonable to meet" (The unmet needs process was actually added to the TDA later as administrative code because many rural counties were not funding public transit and using all of their TDA funds for streets and roads.) Such determinations are nearly automatic in rural counties.

More important than the rural streets and roads concession, however, are the strict return-to-source provisions in the Act. In order to make the TDA a local tax, the Act creates a Local Transportation Fund (LTF) for TDA funds generated in each county; because the LTF is a local fund, TDA funds generated in rural and suburban counties cannot be moved across county lines for use by transit operators in urban areas.

The focus on transit system performance

An analysis of national trends in transit finance in the early 1970s showed that a substantial share of the new funding had not led to better service or increased patronage. Instead, it had contributed to higher wages and improved fringe benefits for transit workers, and – reflecting the return to source provisions of TDA and similar laws elsewhere – to the expansion of service into low density markets where service was infrequent, lightly patronized, and expensive to operate. Deficits were growing rather than decreasing as public support for transit expanded, and by the late 1960s there emerged a consensus that increased funding needed to be coupled with

demanding standards to ensure that the support would enhance efficiency and prevent waste (Pickrell, 1985).

Many interest groups were critical of the periodic increases in commitments of transportation-related tax revenues to public transit. These included advocates of lower taxes of all types, those who felt transit operators were inefficient, and those who insisted that motor vehicle taxes should be devoted exclusively to highway maintenance and capital improvements. Senator Mills was concerned that state support for transit operations should not become an entitlement and certainly should not become a substitute for local government contributions to the operations of their transit properties. This concern for what Senator Mills called "financial discipline" led to an early requirement that local governments match transit support from the state dollar for dollar. But, the most common source of the matching money was revenue derived from county property taxes and the passage of Proposition 13 in 1978 caused many counties to seek relief from the matching requirement. While willing to amend the legislation to eliminate the local match, the state still sought ways to promote financial discipline. In its place, the state required minimum farebox recovery rates that differed between urban (20%) and rural areas (10%). It also required that newly-created transit operators start with a minimum 20% ratio requirement.

Responding to Senator Mills' calls for financial discipline and transparency, the state also coupled the state's post-Proposition 13 increased allocations to public transit with a commitment to monitor transit performance to ensure that the funds were spent to control transit operating cost increases, increase efficiency, and report as transparently as possible how the funds were being used. The seventies and eighties saw rapid growth in popular and scholarly literature addressing alternative ways to measure transit performance and this period also gave rise to periodic "performance audits" of transit properties. Professor Gordon J. "Pete" Fielding, a prolific scholar and Director of the Institute of Transportation Studies at the time, was also a member of the California Transportation Commission. He played a major personal role advocating for applying performance measures to the process of distributing funds under the TDA.

The burgeoning literature on the measurement of transit performance led to multiple measures of performance being proposed, tested, and debated. One group of measures were proposed to measure "cost-efficiency," which concentrated on the amount of service offered per dollar of cost regardless of how many people rode the buses or trains. But experts differed as to whether those costs should be expressed per vehicle hour or per vehicle mile. Urban systems, for example, preferred to report costs per vehicle hour because a great deal of their service operates on congested street networks so they cover fewer miles per hour of service than suburban systems. Suburban operators preferred to measure cost per vehicle mile, since they operate at higher speeds and achieve more miles per service hour. And, because buses and trains

can differ greatly from one another in terms of capacity, some suggested that seat miles should be the basis of comparison; others argued that seat miles ignored the capacity to carry standing passengers (Fielding, Glauthier, & Lave, 1978).

Another group of measures focused on actual rather than potential ridership. Performance measures based on the number of passengers served per unit of service provided came to be called "service-effectiveness" measures. Urban operators, who operate in densely-populated areas, are comfortable reporting passenger boardings per vehicle hour or per vehicle mile, while rural and suburban operators appear to be less productive if the same metric is applied to them because they serve market areas that are more sparsely populated (Dajani & Gilbert, 1978).

It was easy to agree that performance should be measured, but nearly impossible to agree on the best way to do that since what is considered the best way of measuring performance clearly differs among transit operators. Each favors particular measures of performance that reflect their unique operating environments. The complexity that today exists in formulas for distributing resources reflects a sequence of adjustments to performance measurement attempting to satisfy these competing preferences.

Performance audits

When the TDA was amended in 1978 in the wake of Proposition 13, the one-to-one local match requirement (that local operators struggled to meet) was replaced by what was at the time frequently called a "stringent" performance audit requirement (Lamare, 1981). Audits meant that the performance of each property could be tracked over time and that this would be a fairer measure of the effective use of TDA funds than ratios that compared properties to one another. Independent auditors had to be hired every three years to report on each agency's performance in two phases. In Phase I, the auditors reviewed the past audit results and certified the agency's current operating cost per passenger; operating cost per vehicle service hour; passengers per vehicle service hour; passengers per in-service vehicle mile; and vehicle service miles per employee. Phase II of the audit required that the auditor analyze and explain the reasons that agency performance had deteriorated, when it had, since the last audit with respect to any of the listed criteria. In most instances, the audits addressed such issues as an agency's rates of employee absenteeism, staffing shortages, administrative costs in relation to direct vehicle operating costs, and financial claims on the agency due to negligence and crashes. The particular audit requirements have evolved and a guidebook explains current requirements, but it is clear that the performance audit evolved from a commitment to improve the efficiency of transit operations while recognizing that each transit provider faced unique conditions. Comparisons of each agency's performance over time were seen as more meaningful than comparing

different agencies to one another (Fielding, 1992). Current performance audit requirements and guidelines are available in the Caltrans TDA Guidebook.[3]

Summary

Public transit transitioned from private to public ownership in the middle of the twentieth century. Federal support for public operators was at first limited to rolling stock and capital equipment; operating subsidies were the sole responsibility of states and localities. The need for operating funds to run the new, federally-funded transit vehicles led to California's passage of the TDA in 1971. As an attempt to modernize transit, the TDA developed politically through the considerations of competing (and contentious) interests including highway users' concerns about the "diversion" of fuel tax revenues from highways on the one hand and taxpayer demands for better service in growing suburban areas on the other. The necessary accommodations of, and compromises between, these competing interests resulted in complex funding allocation methods.

Concerns about the efficiency of transit operators and their "financial discipline" led to the early requirement that localities match state support dollar for dollar. Following 1978's Prop 13, however, many counties sought relief from this requirement and the current farebox recovery rates of 20% (for urban areas) and 10% (for rural areas) were established in its place. At the same time, strict audit requirements were established.

Studies in the 1970s and 1980s into transit performance measurements developed much of the terminology and measures in use today, discussed in detail in the following section (Section 3).

[3] California Department of Transportation Division of Mass Transportation (2018). Transportation Development Act: Statutes and California Codes of Regulations.

3. What a performance measure does

One of the basic purposes of transit performance measurements is to enable an evaluation of how well an agency is delivering its service (TCRP, 2003). Performance measures can be tracked internally by transit managers to help them understand and monitor their operations. Additionally, they can be publicly tracked and compared with other operators in the same area, and with peers around the state or country. Lastly, they can be used to allocate subsidies to transit agencies.

There are many transit performance measures; one survey counted over 400 in use (TCRP, 2003). Some, like ridership, are simple. Others, like indexes, are complex. Although some measures are easier to calculate, comprehend, and compare than others, what makes a measure "good" is how well it is aligned with the goal of measurement. However, no single performance measure is comprehensive enough to reflect meaningfully the full scope of transit operations.

Three categories of performance measure

Although there are many types of performance measures, the most commonly used for system assessment fall into three general categories: cost-efficiency, service-effectiveness, and cost-effectiveness. Cost-efficiency measures evaluate performance in terms of how much and with what inputs service is produced (inputs-to-outputs), service-effectiveness measures relate a quantity of outputs to the consumption of service (outputs-to-consumption), and cost-effectiveness measures essentially combine cost-efficiency and service-effectiveness, assessing at what cost service is consumed (inputs/outputs-to-consumption).

Figure 3.1 below shows how these categories of performance measurements relate to one another and basic inputs and outputs.

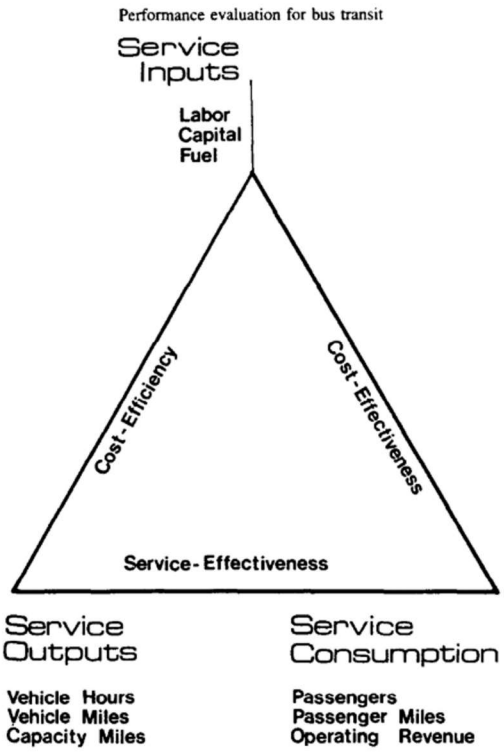

Figure 3.1 Performance measurement concept model
Source: Fielding, Babitsky, & Brenner, 1985

Cost-efficiency measures

Cost-efficiency metrics include: operating cost per vehicle revenue mile, operating cost per vehicle revenue hour, and cost per vehicle trip. Although they are excellent measures for assessing the cost of delivering service, i.e., how much output (service) is produced for a given input (cost), they do not capture where, how, or if the produced service is actually used. In other words, cost-efficiency measures indicate what it costs to produce transit service but tell us nothing about the actual use of that service.

Service-effectiveness measures

Service-effectiveness measures include passengers per vehicle mile and passengers per vehicle hour. These measures are useful for assessing the level of demand per given input or output; they are effectively the inverse of cost-efficiency measures as they provide information about the level of service used but no information about the cost of service.

Cost-effectiveness measures

Cost-effectiveness performance measures combine aspects of cost-efficiency and service-effectiveness; they gauge the input (cost) needed to produce a measure of

consumption. These measures are the most comprehensive type of measure, reflecting both the input of cost and the output of service consumed. Their strength is their weakness, however: because they combine inputs and outputs in a single measure, they can be opaque: it is difficult to know why agencies might be performing well or poorly. Some commonly used cost-effectiveness measures include: the farebox recovery rate, operating cost per passenger trip, operating cost per passenger mile, and subsidy per passenger.

Table 3.1 below lists some examples of performance measures belonging to each category, their imputed management goals, and the advantages and limitations of each performance measure. Note that the categories of performance measure share broad limitations — service-effectiveness measures, for example, do not track costs — while each performance measure has its own limitations as well.

Table 3.1 A sample of measures, imputed goals, advantages and limitations

TYPE	PM EXAMPLE	IMPUTED GOAL(S)	ADVANTAGES	LIMITATIONS
Cost-efficiency	Operating cost per revenue hour	Reduce costs*	Useful in both financial and service planning	Favors shorter trips and/or quicker routes; does not track use
	Operating cost per revenue mile			Favors longer trips and/or quicker routes; does not track use
	Operating cost per vehicle trip			Favors shorter trips or routes; does not track use
Service-effectiveness	Passengers per revenue-vehicle hour	Increase ridership; reduce poorly patronized service	Useful in service planning; emphasizes what matters to riders	Does not track costs
	Passengers per revenue-vehicle mile	Increase ridership; reduce low-ridership route miles/ segments	Useful in service planning	Does not track costs; favors long-distance service over local, express operators over local operators
Cost-effectiveness	Farebox recovery rate	Reduce costs; increase fares; increase ridership	Commonly used; easy to calculate	Difficult to deconstruct and interpret; same measured outputs can have very different causes
	Operating ratio (revenue divided by costs)	Increase revenue; Decrease costs	Easy to calculate; tracks subsidy needed	
	Operating cost per passenger	Reduce costs; Increase ridership	Simple	Ignores highly variable marginal costs of service
	Subsidy per passenger	Reduce costs; increase fares; increase ridership	Identifies subsidy utilization	Based on cost per rider, which must be calculated separately
	Fare revenue per passenger	Increase ridership or increase fares	Clearly related to demand; reveals value of service to riders	Disfavors low- and no-fare programs for special groups
Overall input/ output measures	Ridership	Increase ridership	Fundamental	Comparisons across agencies are not meaningful; transfers inflate number of riders

Marginal cost of adding service assumed to be too high to lower ratio in most cases.

Why performance measures matter

Many transit operators have either no stated goals or goals that are too broad or indistinct to guide decision-making (Dajani & Gilbert, 1978; Sheth, Triantis, & Teodorovic, 2007; Taylor & Morris, 2015; Yoh, Taylor, & Gahbauer, 2016). In the absence of clearly articulated goals, agencies may simply gear their operations toward whatever performance measurements happen to be imposed on them, especially if the measures are tied to funding eligibility; in other words, "what you measure is what you get" (Kaplan & Norton, 1992). In such cases, performance measures are not simply indicators of performance, but active influences or even *de facto* goals that affect outcomes. This is not, of course, inherently problematic, but it does underscore the importance of matching the measures that transit managers are motivated to optimize with agency goals and objectives.

Why using any single performance measure is problematic

The influence of performance measurement on outcomes is amplified when a single performance measure is the basis of agency assessment, and greater still when funding decisions also rest on the assessment.

As an example, operating cost per vehicle revenue mile is a reasonable cost-efficiency metric that agencies commonly use for measuring the cost of their output (and report to the FTA's National Transit Database). But if agencies' performance were assessed solely on the basis of this metric, managers would have an incentive to provide service in less congested, outlying areas (simply to achieve a better result on the metric), regardless of utilization or passenger demand. Any one performance measure used on its own results in similarly distorted incentives.

As Table 3.1 illustrates, no single measure is sufficiently comprehensive to reflect or meaningfully compare the performance of transit operations (though cost-effectiveness measures are more comprehensive than others). Cost-effectiveness measures do not directly track and cost-efficiency measures ignore service consumption, whereas productivity measures do not consider costs. This perhaps explains why many states use multiple performance measures simultaneously (See Section 5: "What Other States Use for Performance Measurement").

What makes a "good" performance measure?

A "good" performance measure is an effective one, which is to say that it not only gauges a controllable aspect of performance and/or it tracks the progress toward a goal but it is also easy to derive, use, understand, and communicate. By these criteria, some performance measures are more effective than others. We summarize in Table

3.2 below the criteria we suggest for considering the strength of performance measures to include in performance assessment.

Table 3.2 Suggested criteria for performance measures

IMPORTANCE	CRITERION FOR PM	WEAKEST	STRONGEST
☆☆☆☆	Aligns with goals or "represents the objectives that motivated public intervention" (Fielding 1992)	(Any single PM)	(Multiple PMs)
☆☆☆	Can "translate objectives into quantitative measures" (Fielding 1992)	Qualitative measures	Quantitative measures
☆☆☆	Uses data that are reasonably accessible or gathered without undue burden	PMs based on manually collected data or surveys, e.g., percentage of route on roadways operating at LOS E or F.	PMs that use data already collected
☆☆☆	Can be consistently evaluated (FDOT 2014; Fielding 1992)	PMs based on manually collected data or surveys	PMs based on automatically collected data or regular surveys
☆☆☆	Measures aspects of transit service that agency management can control (FDOT 2014)	PMs based on population, land use	PMs based on costs per vehicle hour
☆☆	Is easy to calculate	Indexes	Ratios
☆☆	Motivates managers to improve performance over a standard (Taylor 1995; Fielding 1992)	Thresholds	Standard-deviations from mean
☆☆	Is used in, or can be calculated with, data collected for NTD or other federal need	Non-NTD based PMs, e.g., linked trips	NTD-based PMs, e.g., cost per vehicle revenue hour
☆	Is easy to understand and intuitive	Indexes	Individual measures, Ratios
☆	Allows comparisons across similar systems (TCRP 2003)	Individual measures, e.g., ridership	Cost-efficiency ratios; service-effectiveness ratios
☆	Is low-technology[4]	Some indexes; Map-based PMs, e.g., percent of vehicle hours serving transit-supportive corridors.	Operating PMs, e.g., based on trips, miles, hour data collected with existing, ubiquitous technology

[4] Among the findings in the 2017 Caltrans Statewide Transit Strategic Plan Stakeholder Engagement Report (Matute et al., 2017) was that agency staff are wary of adding new IT systems or processes that require training or new vendor integrations.

A note about cost inputs to performance measures

Determining how efficiently a transit system operates is, of course, one of the main motivations for using performance measures. It is worth noting, however, that the accuracy and usefulness of cost-efficiency measurement depends to a significant extent on the quality of inputs used, and the transit cost-allocation model used to relate cost inputs (e.g. labor hours, fuel, etc.) to service outputs (e.g. service hours, peak vehicles, etc.). Such models can be (and usually are) simple or (rarely) sophisticated, and the degree to which they accurately relate cost inputs to service outputs depends both on the quality of data used and the specification of the model. Previous research suggests that transit agencies do not allocate capital and operating costs like most private transportation organizations (e.g. airlines, shipping companies, etc.) to properly account for variable, semi-fixed, and fixed costs. For example, vehicle depreciation is typically included in marginal cost calculations, while fixed costs like management costs are typically excluded. In public transit, the opposite is the case; capital and operating costs are distinguished by the rules of subsidy programs such that all operating costs are included in cost (and performance measures) and all capital costs are excluded (Taylor, Garrett, & Iseki, 2000). This conventional cost-allocation practice in the transit industry has significant implications for transit decision-making: the most common cost-allocation models are so-called average cost models that predict adding or removing an hour or a thousand hours of service in both the peak and off-peak would change costs by the same (average) unit cost per hour. But research shows that marginal cost of transit service varies substantially by the size of the change, time of day, direction, and mode. As a result, measured costs per unit of service may be significantly at odds with actual changes in costs.

While the focus of this report is on performance measures and not cost allocation modelling, the foregoing does suggest that, whatever performance measures are analyzed, the degree to which they reflect actual performance depends significantly on how they are calculated.

Summary

There are many performance measures in the transit industry. Choosing which ones to use in performance assessment is important because, in addition to tracking performance, they have an influence on managerial decision-making and sometimes effectively become *de facto* goals. Criteria for the most effective types of performance measures (irrespective of what they measure), drawn from academic literature, include ease of calculation and ease of understanding. We discuss that no single performance measure is perfect. Although cost-effective measures are the most comprehensive, none sufficiently tracks on its own the full scope and scale of transit management outcomes. In the next section (Section 4), we look at how current TDA performance measures are working.

4. How current TDA performance measures are working

As outlined in Section 1, to track agency performance and to make funding determinations, the TDA uses two performance measures: the farebox ratio and the CPI escalation cap. Both are "threshold" measures requiring operators to remain above or below the prescribed limit to be in compliance and eligible for state funding. The farebox ratio requirement applies to both STA and LTF funds; the CPI escalation cap applies to STA funds only.

Farebox ratio requirement

The farebox ratio is the most common financial performance measure among California transit agencies and is used widely across the U.S. (Rodier & Issac, 2016). It is a long-established measure, with origins in the early days of transit when systems were private and for-profit. Although as used today it does not properly incorporate capital costs (as noted above), the farebox ratio for decades provided the simplest and most straightforward measure of profitability: managers could express simple profits in terms of however much the ratio exceeded 100% (though today transit providers rarely come close to covering even their operating costs).

Advantages

Today, the farebox ratio is "used to strike a balance between keeping transit service affordable and having an agency (and particularly its direct users) cover as much of the costs as possible" (TCRP, 2003, p. 313). As a cost-effectiveness measure, it is a useful summary indicator of efficiency (i.e., what quantity of output is achieved for a given cost input) and effectiveness (i.e., what quantity of supplied output is used) for agency managers.

From a managerial perspective, farebox recovery provides flexibility. Managers can improve their agency's farebox ratio in several ways: 1) increasing ridership, 2) increasing fare revenues, 3) reducing operating costs. The outcomes from any one or all of these managerial decisions can be desirable, and explain the appeal of the measure and the likely reason for the TDA's adoption of the farebox ratio in 1978.

Limitations

As is true of any single performance measure, the farebox ratio is not perfect and its limitations are exacerbated when it is used in isolation, as it is in the current TDA.

One of the farebox ratio's most significant limitations in state performance assessment is that, as a *composite* cost-effectiveness measure (that combines cost-efficiency inputs and service effectiveness outputs), it provides too little information on its own about why the metric is high or low. A low ratio could be the result of either high costs or low ridership and/or low revenue; it is not possible to tell with the measure alone.

The CPI cost escalation limit

Applied to STA funds only, the CPI cost escalation limit is a threshold requirement that has the advantage of clarity and effect: it forces agencies to work to limit costs to rising no higher than the rate of inflation. Its weakness is that in the absence of other goals, it does not reward and even constrains decisions that would result in more transit service supply (routes, span, and frequency of service) or in more service consumption (ridership). The CPI cost escalation limit appears to be unique to California; no other state uses such a measure to constrain costs. Pennsylvania uses a (fixed) multiplier to *increase* base levels of funding to each transit agency, though.

The use of threshold requirements

"Threshold" requirements are generally problematic. They provide no incentive for performing better than the prescribed standard. Moreover, when threshold measures are combined with penalties, managers have a strong incentive (or even compulsion) to avoid reaching the threshold by taking drastic actions (such as cutting service) that are counterproductive in the long-term. This (rational but undesirable) response could be called "managing to the measure."

Our survey of transportation professionals, discussed in Section 5, suggests that the threshold requirement of the farebox recovery rate in particular has caused significant distress at some agencies and has driven decisions to cut service. Agencies without local option sales tax (LOST) revenue are especially affected, and reported significantly more distress in meeting the threshold requirements, as shown in Figure 5.2. Note that the farebox recovery rate requirement in particular causes distress; the CPI escalation cap—applicable only to the smaller source of STA funds—appears to be of less concern.[5]

In contexts where agencies have exhausted best practices for cost-efficient operations and further cuts are constrained by labor contracts, improving the farebox recovery

[5] Nearly 54% of our agency survey respondents reported that, in the past five years, their agency experienced difficult meeting the farebox recovery rate; only 16% reported difficulty meeting the CPI cost escalation limit requirement. In addition, nine (17%) reported having been penalized by the farebox recovery ratio, while none reported penalties from the CPI cost escalation requirement.

rate means increasing fares or increasing ridership. Increasing fares will decrease ridership, but "increasing ridership" with lower fares carries the risk of not drawing enough riders to improve the farebox ratio. Cutting service is therefore a safer way to stay in compliance for agencies facing penalties.

A larger problem with threshold requirements is that they are difficult to enforce. Withholding all subsidies as a consequence for not meeting standards would be difficult to do, as it is a "death penalty" that triggers a viscious cycle for transit operations (Taylor, 1995). Such a death penalty would punish riders in a given service area, who have essentially no control over the performance of their transit operator or the envionment within which the transit system operates. Punishing transit users with drastic funding cuts to the systems on which many of them rely for mobility is both difficult to justify normatively, and is likely to push transit customers away from transit and onto other modes.

Exemptions and their implications for the TDA

Over the decades, as transit productivity has generally eroded while operating environments friendly to driving and hostile to public transit have expanded, operators have struggled to reach the performance threshold. As a result, exemptions have proliferated that allow transit operators to continue receiving funding, but have changed the calculus of that funding, sometimes problematically. A recent amendment to STA funding eligibility, for example, requires that operators not meeting the threshold must allocate an amount equal to the shortfall to capital expenses, potentially making it even more difficult for operators to contain operating costs below previous years' (for example, if the addition of a new bus to the fleet actually increases overall and maintenance costs).

The frequent amendments to the TDA performance requirements over the years have collectively created a complex and ambiguous set of policy signals and raised some basic questions about California's goals for public transit, and the manner by which programs like the TDA advance those goals. The selection of a cost-effectiveness measure like the farebox recovery rate early in the life of the TDA suggests that supporting and encouraging cost-effective transit service was a principal, if not the primary goal of the funding program. Is that a central state goal for public transit today?

Certainly, all things being equal, cost-efficiently delivering transit service that attracts riders is ideal. But all things are not equal. State officials have committed to doubling transit use and providing greener alternatives to driving (Caltrans, 2015). Moreover, the state's transportation plan seeks to "improve multimodal mobility and accessibility for all people," "foster livable and healthy communities and promote social equity," and "practice environmental stewardship" (Caltrans, 2016). Perhaps most significantly,

through the passage of SB 375 in 2008, transit has become a major component in the effort to substantially reduce the state's greenhouse gas emissions.

These commitments suggest that objectives beyond simply providing cost-effective service should factor into decisions concerning the levels of subsidy and delivery of public transit in California. The fact that the requirements for meeting the farebox recovery requirement have been altered and amended so many times over the years attests to the need for greater flexibility. In this context, the TDA's performance requirements that focus solely on cost-effectiveness are arguably increasingly out of alignment with the larger goals for the state's transit program.

Aligning goals with performance measures

Table 4.1 below shows hypothetically how different categories of performance measures (discussed in Section 3) align with some of the goals for transit most frequently used in the US (Taylor & Morris, 2015). Note that most goals call for service-effectiveness performance measures, and that the current TDA performance measures (the farebox ratio and CPI cost escalation limit) appear to align with only one of the state's goals and only one of the goals most common among transit agencies.

Table 4.1 Goal and performance measure alignment

GOAL	COST-EFFICIENCY PMs	SERVICE-EFFECTIVENESS PMs	COST-EFFECTIVENESS PMs	CURRENT TDA PMs
State goals				
Manage and operate an efficient integrated system	✔		✔	✔
Double transit trips		✔	✔	
Improve multimodal mobility and accessibility for all people		✔		
Provide a green alternative to driving		✔		
Foster livable and healthy communities and promote social equity		✔		
Common agency goals (Taylor & Morris, 2015)				
Provide service to and mobility for all residents		✔		
Improve quality/reliability of service		✔		
Provide cost-efficient/ efficient services	✔		✔	✔
Build regional perspective/connectivity		✔		
Provide service for the poor/transit dependent residents		✔		
Increase ridership		✔		
Improve mobility for seniors and disabled		✔		

Summary

The TDA's use of "threshold" performance requirements in general are problematic because they distort (and crimp) management incentives. In addition, the farebox ratio is more useful as a tool for agency managers rather than for state transit performance assessment and funding. The TDA's CPI cost escalation cap helps keep costs in line with inflation but also constrains managerial flexibility sometimes needed for service improvements and expansion. The TDA's numerous accumulated exemptions to its performance requirements underscore the need for a holistic re-examination of those requirements so that they better align with the state's contemporary goals for transit, which are considerably broader than they were at the time of the TDA's establishment.

In the next section, we provide the results of our survey of California transit professionals and discuss what they say about the current TDA performance measures and their influence on transit agency decision-making.

5. What California transit professionals say about TDA performance measures

We conducted an online survey of transit professionals to uncover how well they think TDA performance measures work and what unintended consequences the current performance measurements and audit requirements might have on managerial decision-making. The California Transit Association (CTA) e-mailed a link to our 13-32 question online survey[6] to 80 of its CTA public transit system members and to RTPA members of the California Association of Councils of Governments on April 23, 2019. The CTA sent 2 follow-up emails during the 23-day period in which the survey was open and closed the survey on May 16, 2019. The survey received responses from 116 transit professionals, of whom 67 worked at transit agencies and 49 worked at RTPAs.

This section describes our findings from the survey concerning how transit professionals perceive the effectiveness of current TDA performance measures. Section 6 of this report describes comments we received in the survey concerning performance audits.

Perception of performance measurement burdens

A plurality of survey respondents indicated that the TDA's requirements in general, and the farebox recovery rate in particular, are increasingly difficult to meet.

As shown in Figure 5.1, most (64%) of respondents reported that meeting TDA requirements at their agency has become "much more difficult" (36%) or "more difficult" (28%) over the past five years.

[6] The number of questions varied based on responses to certain questions. Respondents who identified themselves as working at agency professionals received a longer version of the survey.

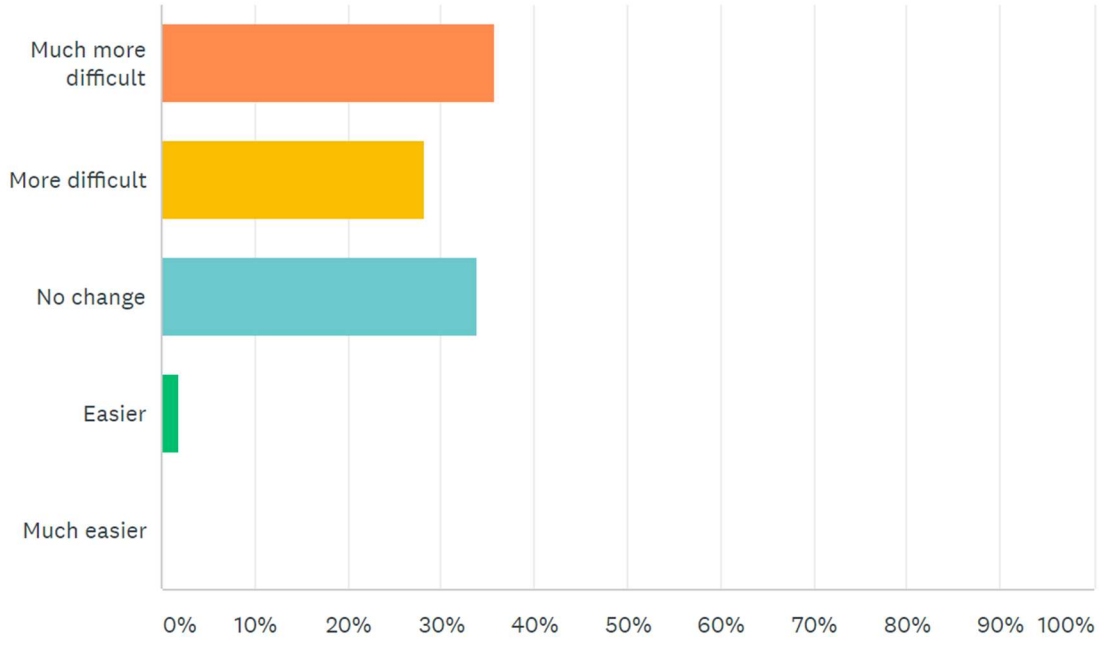

Figure 5.1 Responses to "Over the past five years, meeting TDA requirements at my agency has become…."

(n=53)

Breaking this result down by whether or not the respondent's agency was located in a county that had a local option sales tax (LOST) with funding for transportation, we find that 81% from counties without a LOST found it more difficult or much more difficult to meet TDA requirements over the past 5 years, compared with 55% from agencies in counties with a LOST, as shown in Figure 5.2.

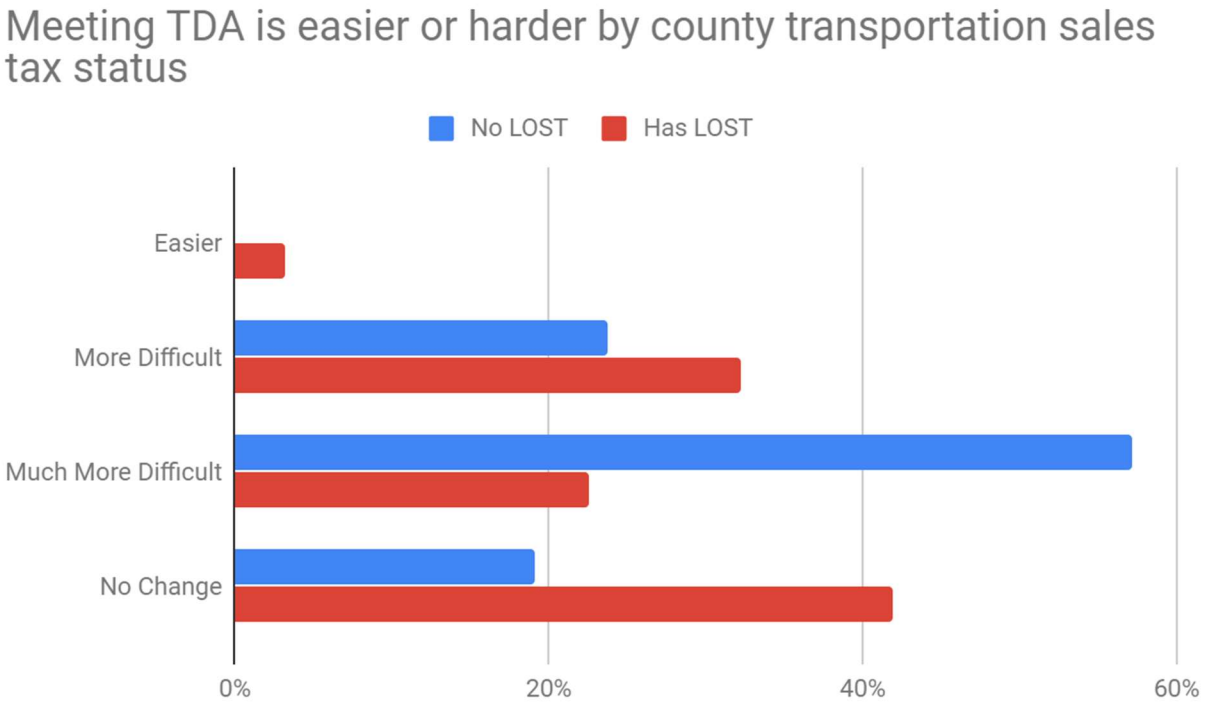

Figure 5.2 Responses to meeting TDA requirements by county transportation sales tax status

(n=31)

Of those seven agencies that reported being penalized by TDA farebox recovery rate requirements, five are located in counties without a LOST and the other two are located in counties (Tulare and Stanislaus) that devote less than 10 percent of their sales tax revenues to transit (Lederman, Brown, Albrecht, Taylor, & Wachs, 2017).

Furthermore, 31 percent of respondents reported their agency has decreased/delayed or cancelled vehicle service hours in order to meet TDA eligibility requirements, and 29 percent had done so for vehicle revenue miles. As shown in Figure 5.3, agencies have also reportedly decreased/delayed (35%) or cancelled (4%) transit route extensions and have decreased/delayed (30%) or canceled (10%) new transit routes.

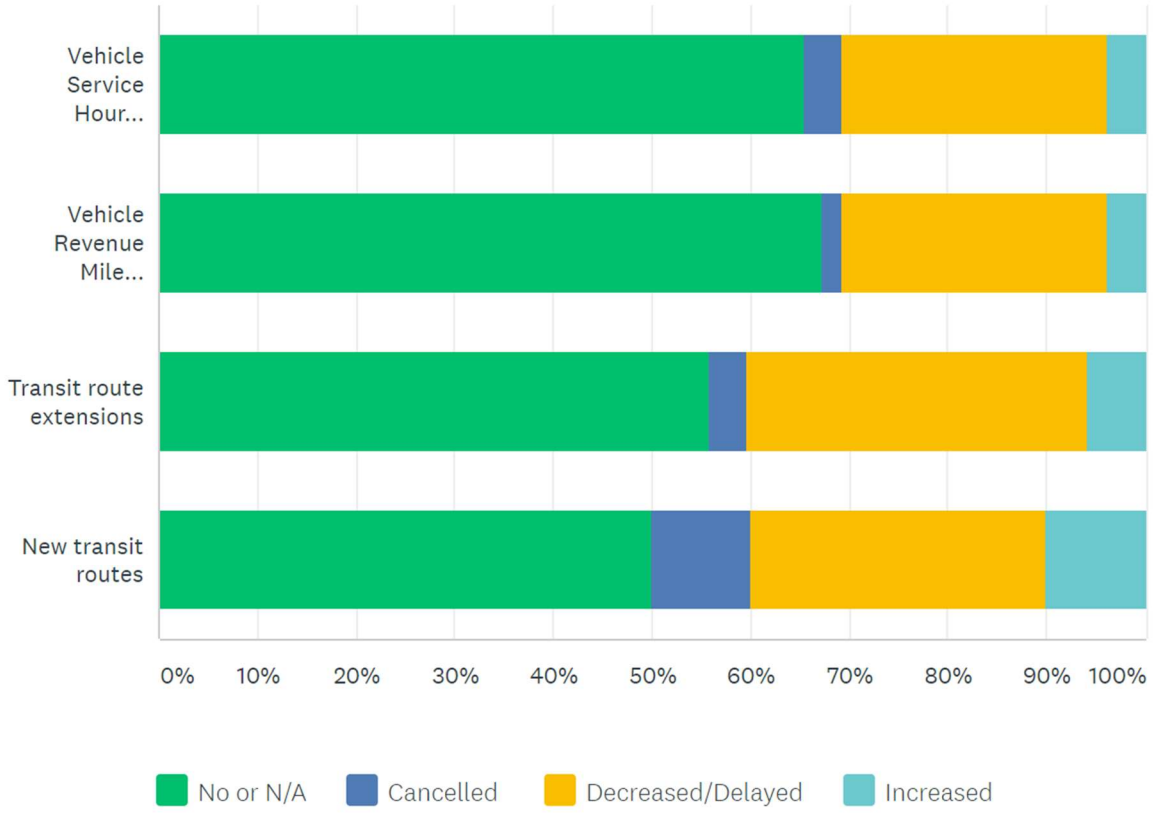

Figure 5.3 Reported responses to meeting TDA requirements in the past five years

(n = 52)

Survey respondents identified the farebox recovery requirement (FRR) as causing a greater challenge to meet than other TDA requirements: as shown in Figure 5.4, 59 percent of agency respondents reported their agency experienced difficulty meeting the FRR, 22 percent reported difficulty meeting the CPI cost escalation limit, 11 percent responded that TDA limits on operations funding cause difficulty.

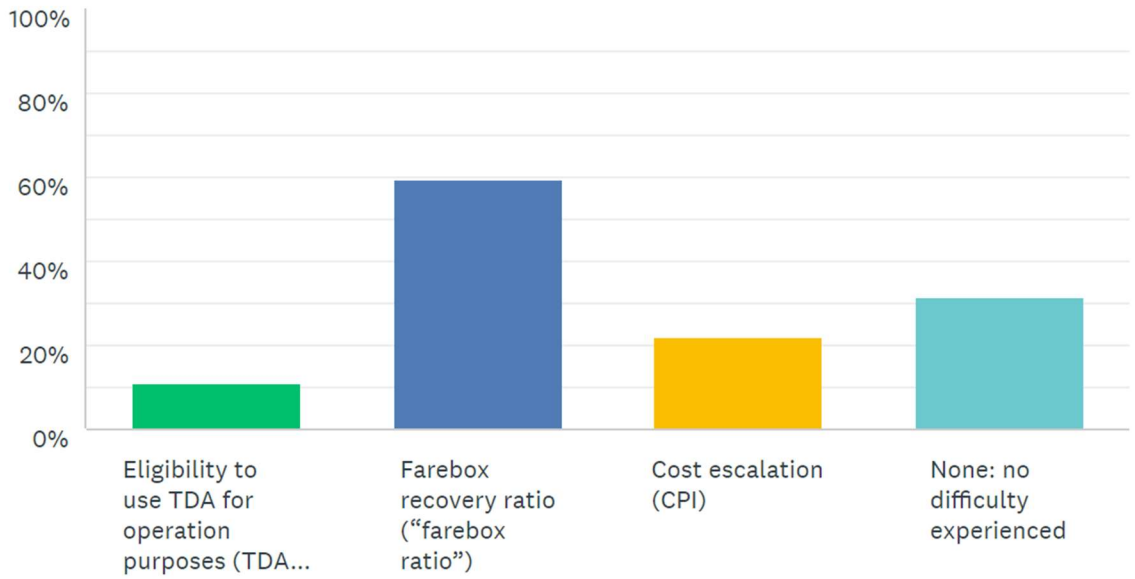

Figure 5.4 Responses to "In the last five years, has your agency experienced difficulty meeting any of the following funding requirements?"

(n=54)

Several respondents noted that an inability to raise fares without losing ridership means that many agencies can meet the FRR only by adding local support, which, in the words of one respondent, "penalizes those agencies that don't have a lot of money. It is often those agencies that 'need' more help providing services to lower income constituents."

Other respondents noted the effect of the FRR on decision-making at their agencies. One transit agency professional wrote: "Route or service planning is difficult because Staff is torn between providing the services needed by so many (transit-dependent riders) and cutting services to just those that meet FRR standards, removing reasonable access to routes, further dropping ridership, resulting in an ever decreasing system."

Apparent effects of performance measurement burdens

Most agencies, whether penalized or non-penalized, report taking no specific action in the past five years to meet the TDA eligibility requirements. However, among agencies

that did take action, significant differences appear in the responses between those agencies that have been penalized and those that have not been.[7]

As shown in Table 5.1, a total of 14 percent of penalized agencies canceled vehicle revenue hours (VRH) compared to none of the non-penalized agencies. Penalized agencies were also more likely to cancel vehicle revenue miles (VRM) than non-penalized agencies. Of penalized agencies, 14% reported canceling VRM and another 14% reported decreasing/delaying VRM, whereas no non-penalized agencies reported canceling VRM (though 30% reported decreasing/delaying mileage).

In addition, 7% of non-penalized agencies reported increasing some transit route extensions, and 12% reported increasing new transit routes to try to meet TDA requirements. In contrast, no penalized agencies reported increasing transit route extensions or new transit routes.

Table 5.1 Agency actions undertaken to meet TDA requirements by status of penalty

ACTIONS REPORTED TO MEET TDA REQUIREMENTS	PENALIZED AGENCIES	NON-PENALIZED AGENCIES
Canceled vehicle revenue hours (VRH)	14%	0%
Canceled vehicle revenue miles (VRM)	14%	0%
Increased transit route extensions	0%	7%
Increased new transit routes	0%	12%

That penalized agencies appear to respond to penalties by reducing service and/or foregoing service extensions suggests that penalties are not effective mechanisms for achieving the policy goal of improved transit service, at least in the short-term.

Moreover, that most agencies report making no adjustments in order to meet TDA eligibility requirements and that most adjustments made result in decreased/delayed or cancelled service suggests that eligibility requirements themselves might be counterproductive to improving overall transit service.

[7] All penalized respondents reported being penalized by the farebox recovery rate; none reported being affected by the CPI cost escalation requirement.

Stated preferences for alternative performance measurements

We subsequently asked respondents to describe their support or opposition to the use of each of eight other performance measures in place of the existing farebox recovery rate (FRR) and/or the CPI cost escalation requirement. These other performance measures were:

- Passenger miles traveled
- Unlinked passenger trips (UPT)
- Passengers per revenue-vehicle hour
- Passengers per revenue-vehicle mile
- Subsidy per passenger
- Operating ratio (all revenue divided by all costs)
- Operating cost per vehicle run
- Fare revenue per passenger

Survey respondents expressed the highest level of support for both passenger miles traveled (PMT) and passengers per revenue-vehicle hour; as shown in Figure 5.5, 43% of respondents either strongly supported or supported these metrics. Unlinked passenger trips (UPT) had nearly as much support, with 38% strongly supporting or supporting the metric.

Respondents were notably more strongly opposed to operating cost per vehicle run as a metric than any other, with 20% strongly opposed, and 24% opposed. Overall, more respondents (44%) were opposed to fare revenue per passenger than any other metric, though less strongly: 34% opposed and 11% strongly opposed it.

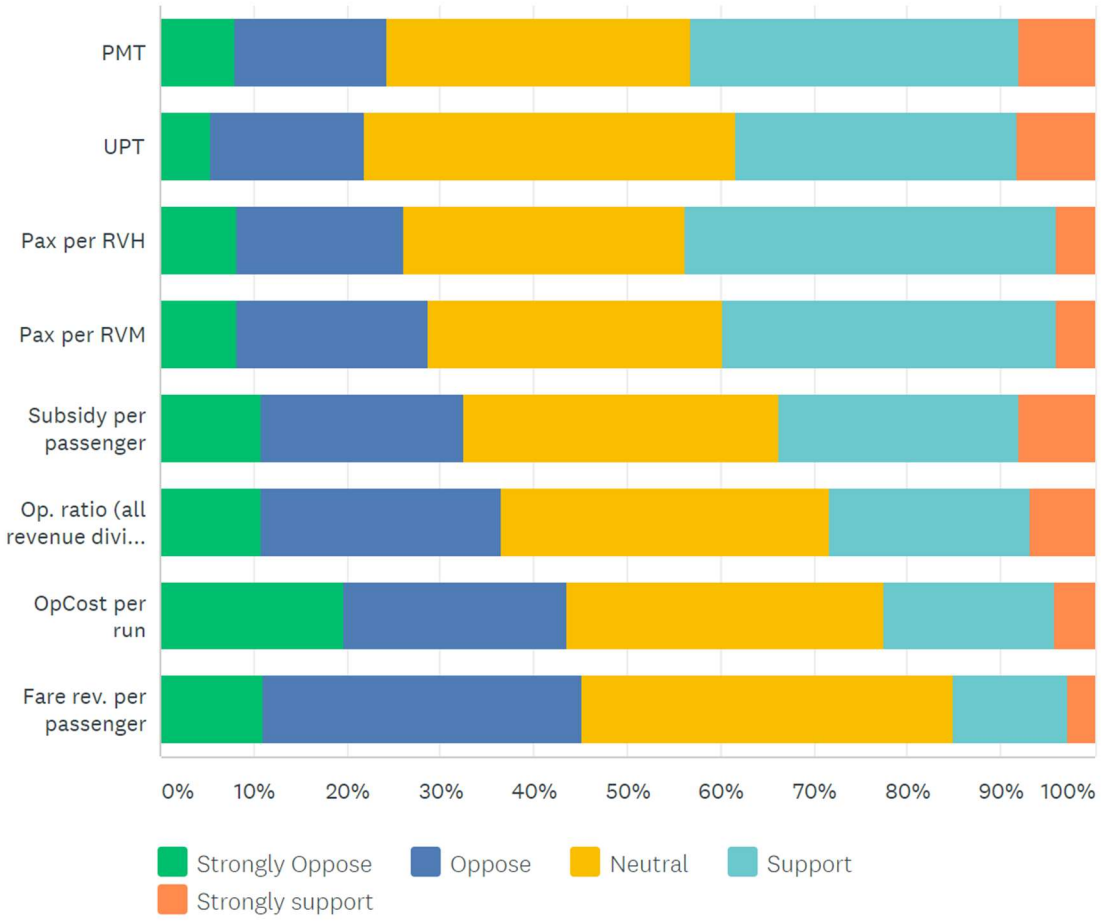

Figure 5.5 Levels of support or opposition to potential replacements for farebox recovery rate and/or CPI cost escalation limit

(n = 78)

In general, performance metrics related to outputs (service consumption) were more favored than those that concerned inputs (such as cost or fares). It is possible this preference reflects a perception among agency managers that they have more influence over ridership than over controlling costs or fares, both of which are often fixed by long-term contracts and/or governed by an agency's board.

Summary

We surveyed California transit agency and RTPA agency professionals. A plurality of respondents told us that the TDA's requirements in general and the farebox ratio requirement in particular are increasingly difficult to meet. Nearly one-third of all agency respondents reported decreasing, delaying, or cancelling transit service in order to meet TDA eligibility requirements.

Respondents from counties without a local option sales tax (LOST) reported difficulty in significantly higher numbers; in addition, five of the seven agencies that reported being penalized were in counties without a LOST. Penalized agencies appear to respond to penalties by reducing service and/or foregoing service expansions.

When asked about their preferences for alternative performance measures, respondents most favored output-oriented metrics like passenger miles traveled (PMT) and passengers per revenue-vehicle hour, and most opposed the input-oriented metrics of operating cost per vehicle run and fare revenue per passenger.

In the next section (Section 6), we discuss what performance measures other states use.

6. What other states use for performance measurement

We also studied several states that are most similar to California in their funding contributions to transit, i.e., states that spend at least $200 million annually on transit operations, including at least 10% from state-controlled funds, and have at least 10 transit operators in the state, as recorded in the National Transit Database (NTD). The states meeting these criteria are: Connecticut, Florida, Illinois, Maryland, Massachusetts, New York, North Carolina, Michigan, Minnesota, Pennsylvania, Tennessee, Virginia, and Wisconsin.[8]

Figure 6.1 below illustrates that our selected states vary widely from Florida, with a low share of operating funding from the state but a high number of transit operators, to Connecticut, with a high share of state funding to cover operating expenses but a relatively small number of transit operators. For comparison, California has a percent of state operating funding of approximately 14% and 158 transit operators in the NTD (which is such an outlier that we have omitted California from the chart).

[8] The California State Legislature also requested that we examine Maryland and North Carolina.

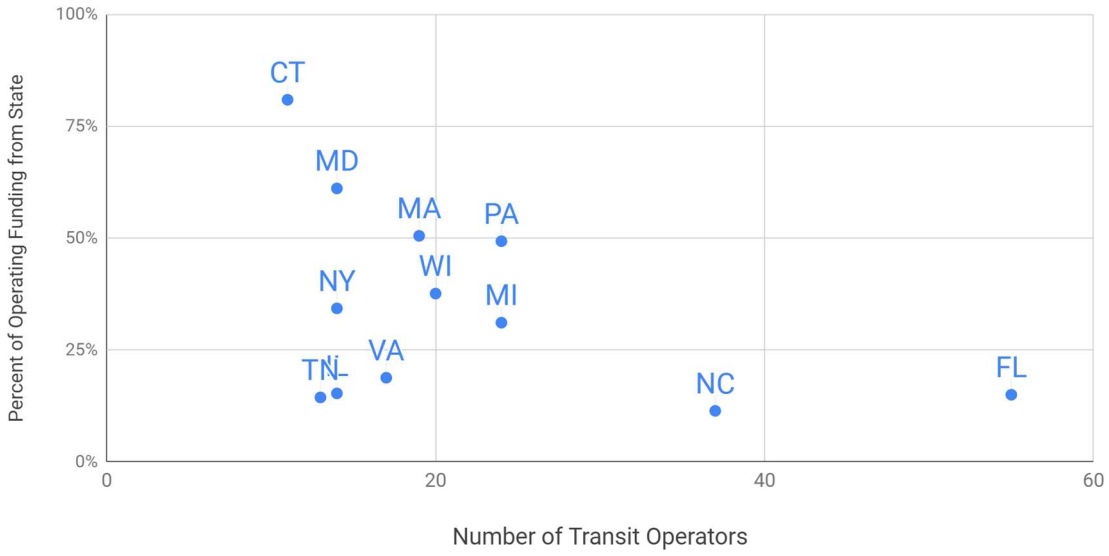

Figure 6.1 Selected states' transit operations funding and number of operators

Methodology

We first reviewed current academic and policy literature, which focused more on the sources of revenues and finance mechanisms for transit than on the funding allocation to transit operators. (Our efforts to review reports on differences in transit funding allocation across states were hampered as much of this literature was outdated as many states have recently implemented mechanisms to increase state revenues for transportation.)

We then reviewed state transportation law to determine whether state law mandated any allocation formula or performance review metrics. We then researched state department of transportation websites, state budget analyses, and any required reporting by transit agencies. For additional context, we referenced third-party sources and took note of any press releases, policy reports, or media coverage that gave some indication of recent or forthcoming changes to transit funding models and disbursement/allocation methods.

For each state, we first identified the number, size, and type of transit operators in the state. We found that, unlike California, many states have one large urban operator and many rural operators. In these cases, we noted that the methods of allocating funding and the use of performance metrics are distinctly different for urban and rural agencies. We next outlined any state law provisions related to transportation finance and performance evaluation and summarized any recent legislation. We noted how

revenues are distributed to transit operators by the state, drawing attention to any allocation by formula or performance. We then summarized transit operator reporting requirements, any measures used for tracking agency performance over time, and any performance goals set by the state. Detailed summaries of our findings for each state are contained in the Appendix. The next section summarizes our seven key overall findings.

Key Findings

1. Most states do not use performance measures to allocate funding

Our research found that California's mechanism for allocating transit funding is largely unique in its use of performance measures. No other state uses a single, unweighted, "threshold" performance measure (e.g., the farebox recovery rate) to determine eligibility for funding.

Of the 13 states we studied, eight tracked performance measures for at least one statewide transit funding program. In many states, the state department of transportation or a state commission or commissioner has the discretion to choose which performance measures to use. Some states (Illinois, Massachusetts, New York, Pennsylvania, and Wisconsin) have specific performance measures (or goals, in Massachusetts' case) codified in state law.

Although most states use performance measures, they do not apply them uniformly across all transit systems. Except for Pennsylvania, all states fund urban and rural systems separately; performance measures often apply to urban systems, for example, but not rural ones. In addition, most states have separate programs for specific populations; we examined only the programs that used allocation formulas.

In addition, most states use performance measures only for assessment and not to determine state transit funding allocations. Only two states we studied (North Carolina and Pennsylvania) use performance measures to allocate funding, and only Pennsylvania[9] uses performance measures in its general allocation of all statewide transit funds.[10]

[9] As of July 1, 2019, Virginia law describes "performance-based funding" for transit. The law delegates the specification of "service delivery factors, based on effectiveness and efficiency" to the Commonwealth Transportation Board (CTB). However, the current metrics used are better described as "system characteristics", e.g., revenue vehicle hours, ridership, etc. Please see Appendix for details.
[10] Although performance measures are used in Pennsylvania's general funding allocations, a "hold harmless" provision provides a funding backstop to Pennsylvania's agencies, guaranteeing agencies some stability in funding regardless of performance.

Table 6.1 lists common performance measures and the states in which they are used in at least one transit funding program; states that use a given performance measure in their funding allocation are in bold. As the table shows, the most common cost-efficiency measures are operating cost per revenue mile and operating cost per revenue hour. The most common service-effectiveness measures are passengers per revenue-vehicle hour and passengers per revenue-vehicle mile. The most common cost-effectiveness measure is operating cost per passenger trip. Notably, the farebox recovery ratio is used in only two of the thirteen states studied.

Table 6.1 Performance measures used in at least one transit funding program

PM TYPE	PERFORMANCE MEASURE*	STATES THAT USE PM**
Cost-efficiency	Operating cost per revenue mile	FL, IL, MA, MD, NY
	Operating cost per revenue hour	FL, MD, **PA**, WI
	Operating cost per vehicle trip	NC
Service-effectiveness	Passengers per revenue-vehicle hour	IL, MD, NC, **PA**, WI
	Passengers per revenue-vehicle mile	MD, NY
Cost-effectiveness	Operating cost per passenger trip	FL, MD, **PA**, WI
	Farebox recovery ratio (%)	MA, WI
	Operating ratio	MD, NY
	Fare revenue per passenger	IL
	Operating revenue per revenue vehicle hour	**PA**

We omitted performance measures related to safety (monitored by three states) and travel time reliability (monitored by two states) from this chart because they are not well-defined metrics.
****Boldface indicates in what states the performance measure is used in funding allocations.***

2. Funding allocations use system characteristics more than performance measures

States more commonly use system characteristics, such as revenue vehicle miles, ridership, or simply area population, than they do performance measures.

System characteristics differ from performance measures in that they refer to attributes of a transit operating context that are important to its function and funding needs but are largely if not entirely outside the direct influence of transit managers and only weakly tied to agency decision-making. In other words, system characteristics reflect the geographic and/or demographic demand for transit service but usually not the quality, effectiveness, or efficiency of its supply.

As shown in Table 6.2, the most commonly used system characteristic metrics for funding allocation are: ridership/unlinked passenger trips, revenue vehicle miles, percent of residents with access to transit, and revenue vehicle hours.

Table 6.2 Most common system characteristics and states of their usage

SYSTEM CHARACTERISTIC	IMPUTED MANAGEMENT GOAL	STATES*
Ridership/unlinked passenger trips	Increase ridership	CT, IL, **FL,** MA, **PA**, TN, **VA**[11]
Revenue vehicle miles	Increase service coverage	**FL**, IL, **PA**, TN, **VA**, WI[12]
Percent of residents with access to transit	Increase service in dense areas	**FL**, MA, WI[13]
Revenue vehicle hours	Increase service	IL, **PA, VA**
Local funding	(None)	**NC,** FL
Population (UZA)	(None)	**TN, FL**
Number of scheduled trips	Increase service hours	MA
Senior passenger premium	Increase service to seniors	**PA**
Operating cost	(Ambivalent)	**VA**[14]
System area	(None)	**FL**
Passenger miles traveled	Increase ridership on long routes	**VA**[15]
Boldface indicates the system characteristic is used in funding allocations.		

In several cases, where system characteristics are used for allocating funding, but performance measures are not (Florida, New York, and Tennessee), the state's transit funding is based on factors that are mostly outside the direct influence of transit managers.

Table 6.3 illustrates the combinations of usage in performance measures and system characteristics used across the states we studied. A few states use performance measures and system characteristics for all or some of their funding determinations (Categories I & II). A few more use only system characteristics for funding purposes (Category III). In some states (Category IV), neither performance measures nor system characteristics determine funding; they are used solely for assessment purposes. Finally, some states use one or the other for limited purposes (Categories V and VI).

[11] Bus systems only.

[12] Wisconsin recommends that agencies use "the ratio of revenue hours to service area population", i.e., *revenue hours per capita*.

[13] Wisconsin recommends that agencies use the similar metric of "the ratio of passengers, as expressed in unlinked trips to service area population," i.e., *passengers per capita*.

[14] Bus systems only.

[15] Commuter rail systems only.

Table 6.3 Categories of performance measures and system characteristics usage in allocating transit funding

	CATEGORY I	CATEGORY II	CATEGORY III	CATEGORY IV	CATEGORY V	CATEGORY VI
Performance measures used for allocating funding	Yes, for **all** state transit funding	Yes, within certain programs only	No, for assessment only	No, for assessment only	Not used	No, for assessment only
System characteristics used for allocating funding	Yes, for **all** state transit funding	Yes, within certain programs only	Yes, within certain programs only	No, for assessment only	Yes, within certain programs only	Not used
States in category	Pennsylvania	N. Carolina	Florida New York	Illinois Mass. Maryland Michigan Minnesota	Tennessee Virginia[16]	Connecticut Wisconsin

Note that, as mentioned previously, most states distinguish between urban and non-urban transit operations in their funding allocations. As Table 6.3 shows, only Pennsylvania applies the same performance measures and system characteristics criteria to all transit systems regardless of operating context.

Examples of state transit funding allocations

Pennsylvania

As mentioned above, Pennsylvania uses both performance measures and system characteristics to determine general across-the-board funding allocations.

Pennsylvania's law (Act 44) establishes a framework for measuring agency performance (Pennsylvania Department of Transportation, 2018). Agencies set their own targets; the Bureau of Public Transportation (part of the state transportation agency, PennDOT) conducts performance reviews of each agency and provides technical assistance on meeting goals. The formula Pennsylvania uses for allocating funds is based on individual transit system characteristics but *requires* that each

[16] Virginia first splits funding between urban and rural systems, but then applies the same formulas to each. Its state law delegates the determination of funding to its Commonwealth Transportation Board which must use "service delivery factors, based on effectiveness and efficiency" in its funding determinations; these are reviewed every three years. The current factors used are system characteristics such as ridership, operating cost, and revenue vehicle miles/hours.

system meet performance goals relative to past performance and peer group performance. PennDOT has the discretion to withhold funding from systems that fail to meet their performance goals. The performance measures that Pennsylvania uses to assess individual agencies' performance relative to their peer groups' include:

- Passengers per revenue vehicle hour
- Operating costs per revenue vehicle hour
- Operating revenue per revenue vehicle hour
- Operating costs per passenger

Virginia

Effective as of July 1, 2019, all state transit operating funds are distributed "on the basis of service delivery factors, based on effectiveness and efficiency…", evaluated every three years and announced one year in advance of their adoption. The state's new methodology uses system characteristics weighted by system size relative to other state agencies. The weights are calculated with the following formula:

*Agency size-weight = (Sum of Agency Sizing Metric / Statewide Totals) * Weight*

Performance measures differ by mode as follows:

BUS SYSTEMS	COMMUTER RAIL SYSTEMS
● Operating cost (50%) ● Ridership (30%) ● Revenue vehicle hours (10%) ● Revenue vehicle miles (10%)	● Passenger miles traveled (33%) ● Revenue vehicle hours (33%) ● Revenue vehicle miles (33%)

North Carolina (State Maintenance and Assistance Program)

North Carolina uses performance measures to allocate some of its transit funding through specific programs. Its State Maintenance and Assistance Program (SMAP) disburses funds according to the following formula (North Carolina Department of Transportation, 2018):

- 10% equal share
- 30% local commitment
- 60% performance
    - 30% trips relative to the statewide average[17]

[17] This is presented by North Carolina as a performance metric, but under our rubric we would consider it a system characteristic.

- 30% net cost per trip relative to the statewide average[18]

More details about these and other states' allocation formulas are available in the Appendix.

3. Allocation formulas are most often used for specific state programs

We also found that most states do not use allocation formulas as a basis for general transit operations funding. Allocations are instead made within a subset of the state's transit services, i.e., for either urban transit systems or for specific targeted operations programs, such as services under the ADA or for the elderly.

Large urban systems are typically funded by a combination of dedicated revenue streams from both state and local sources. For example, New York MTA and Illinois RTA are funded partially by a regional tax and MBTA in Massachusetts receives a dedicated 1% of the state sales tax.

Most states we reviewed did not use formulas to fund rural operators; states only provided matching funding for FTA grants or provided funds to cover operator deficits.

4. California's transit context differs from most other states' due to its distinct geography and history

California is distinct geographically from almost all the states we studied. California has multiple regions with many and comparatively large transit systems. This is shown in Figure 6.2, which charts the number of both Census-designated Urbanized Areas (UZAs) and transit operators that are recipients of federal funding in the top 25 states/regions. No other state has as many UZAs or transit operators as California. Florida, the state with the second-most operators and that is most like California in its multicentric geography, has fewer than half as many UZAs and operators as California.

The contrast is even starker across other states. Many of the states we studied have a single large operator and many rural operators, presenting a significantly different funding landscape. In many of these states (e.g. Massachusetts, New York, Maryland), the large urban provider is funded through a dedicated revenue stream and/or line item legislative appropriations. Rural transit providers generally receive a lower percentage of funding from state sources, typically used as matching funds for FTA grants, with funding distributed based on ridership or system size (system characteristics).

[18] Defined as total expenses minus fares and other operating revenues divided by total trips.

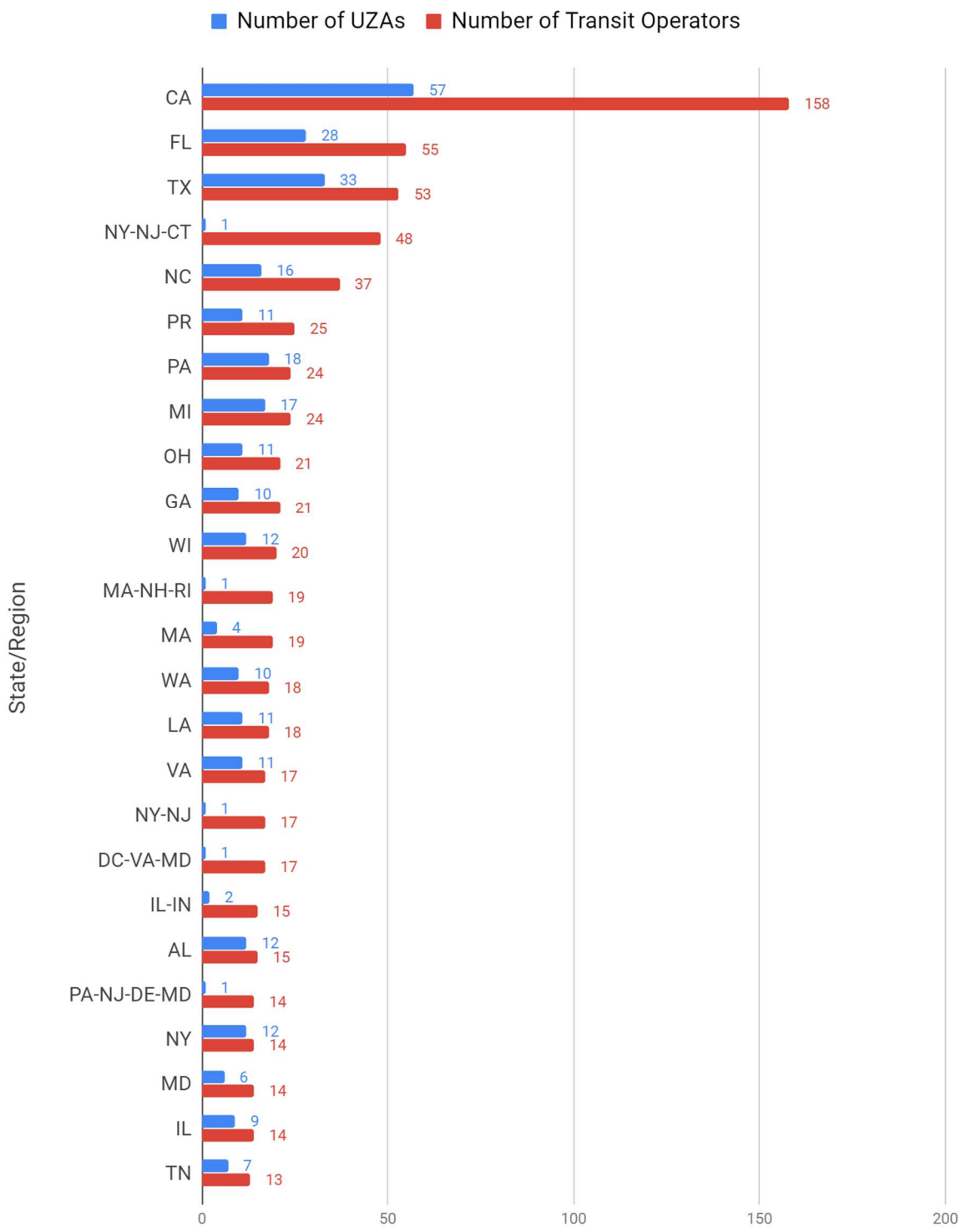

Figure 6.2 Number of UZAs and Transit Operators, Top 25 State/Regions

Most state transit finance systems were developed relatively recently compared to California; the longevity of the TDA additionally differentiates California from most of the other states we reviewed. Massachusetts, Pennsylvania, Maryland, Illinois, and North Carolina all had major overhauls of transit funding mechanisms since 2007, partially in reaction to the scarcity of federal transportation funding. In these states we found movement towards implementing performance measures through legislation. As for the remainder of the states, New York and Iowa have both had their transit funding systems since 1993 (barring minor amendments), and Florida's DTTF program has been in place since 1989. The history of Ohio and Tennessee's funding schemas are unknown.

5. Some states use peer comparisons in their allocations

We also find that in some states, or for some programs, performance measures are benchmarked by "peer groups." In Pennsylvania, performance measures linked to funding are benchmarked on performance relative to peers, both statewide and nationwide. These measures are: (i) Total revenue hours, (ii) Total revenue miles, (iii) Vehicles in maximum service, and (iv) Service area population. Both the Illinois RTA and the Maryland MTA also evaluate transit performance relative to "peer" systems nationwide, though these comparisons are not used for funding allocation.

In North Carolina, urban transit funding programs use performance measurements to determine how to distribute funding among operators statewide. Available state funding is proportionally allocated among operators using a combination of performance measures and system characteristics. These formulas allocate greater amounts of funding to both larger and better-performing transit systems.

Pennsylvania, North Carolina's ROAP Program and Florida's TDTF proportionally allocate funding to transit systems within the state based solely on system characteristics.[19] For example, allocating funding based on a specific transit system's share of all transit trips taken statewide.

6. Many states provide backstops for transit funding

Even where funding is allocated on performance metrics or single measurements, we find that states frequently include provisions that ensure that transit agencies do not receive less funding year to year even if performance standards are not met.
For example, although Pennsylvania transit operators are required to meet performance standards, a "hold harmless" provision in the base allocation formula

[19] New York allocates bus system funding based on absolute, as opposed to comparative, system measurements. Transit operators receive a fixed amount per passenger and per revenue vehicle mile.

ensures that no system will receive less funding than in prior years if it meets its performance requirements. Where performance decreases, the department of transportation can waive required funding reductions, and agencies can have two years to improve their performance or apply for another waiver.

Similarly, rural transit operators in Massachusetts are assured funding based on historical levels.

7. California is different from other states

California is different. The fact that California has multiple major metropolitan centers immediately distinguishes it from nearly every other state. No single operator dominates transit as it does in some states, where transit funding allocations are prescribed by its needs.

As a result, only one state we studied has a directly-relevant method of transit allocation: Pennsylvania.

Pennsylvania blends several approaches: 1) A stable base of funding to each agency (based on 2007 levels, and predictably escalated each year), with a 15 percent local match requirement; 2) Additional funding based on a system-characteristic driven formula; and 3) Funding conditioned on performance reviews and goal-setting relative to peer operators on a five-year cycle. Furthermore, the state's "hold harmless" provision guarantees agencies have predictable levels of funding and the opportunity to correct shortfalls. Pennsylvania's approach gives operators stability in funding while also keeping them accountable.

Compared with California's current method of allocating transit funding, Pennsylvania's is simpler, more consistent, and offers transit operators more predictability. We believe adoption of Pennsylvania's approach in California is possible, though it would require a legislative commitment to a) obligating consistent funding to agencies, using a universal allocation method across urban and rural areas regardless of population, and b) committing to a standard 15% local match requirement.

Compared to the thirteen states we examined, California's use of a single "threshold" performance measure to determine funding eligibility is unusual, as is its use of a CPI cost escalation cap. Few other states link funding decisions to performance measures at all; performance assessment is considered separately. In addition, all other states we studied use multiple performance measures to evaluate system performance, and some use peer groups to ensure that cross-agency comparisons are meaningful.

Summary

As this section describes, California stands apart in its use of performance measures, possibly a result of California's unique context but also likely a result of the TDA's nearly half-century history. Many states we studied have developed their methods of performance measurement more recently and as a result take advantage of improved transit assessment methodologies, the research into which by and large developed after the TDA was written. In the following section (Section 7), we take a similar look at performance audits, discussing how California's audit approach compares with other states' and how California's transit professionals think they are working.

7. How California's performance audits compare with other states' and how California transit professionals perceive them

While our main charge from the Legislature was to examine the use of performance measures to qualify for state funding, we also examined the related triennial performance audits, which historically have been aimed at improving agencies' performance and consider a wider array of performance measures.

As discussed below, we found that few states conduct regular audits and California's extensive use of audits is rare.

Perception of triennial performance audit burdens

The survey of California transportation professionals we conducted, other results of which we discuss in Section 4, also included several questions which invited respondents to comment on the current annual and triennial audit processes.
A total of 39 respondents provided comments on the audits. Their comments reveal a wide range of perspectives on the favorability of the audits (triennial in particular). Table 7.1 illustrates a breakdown of comments received.

Table 7.1 Tally of comments about audits by area of concern

COMMENT	NUMBER OF RESPONDENTS' COMMENTS	PERCENT OF TOTAL
Favorable (or no concern)	12	31%
Standardization	8	21%
Unfavorable (non-specific)	7	18%
Timing	5	13%
Cost/bidding	5	13%
Training	2	5%
Total	39	100%

The largest group of commenters expressed favorable views concerning the current triennial audit, finding that it is "smooth," "fine the way it is," and "works well." These respondents liked the overview that the audits provide and its function as a way for improvements to be advanced; one respondent commented that the holistic nature of the audit allowed for more relevant information to be conveyed.

The second largest group of comments concerned report standardization. Respondents wished to see greater alignment with federal reporting and more coordination with "a more robust Short Range Transit Plan process" so that agencies receive more substantial recommendations on performance improvements while reducing the reporting burden. Another respondent noted duplication with the SRTP as a reason to eliminate the triennial audit in favor of local standards and the annual fiscal audit "to ensure funds are used properly." In addition, one respondent noted that standardizing the interval between triennial audits would be helpful.

Other respondents complained about various aspects of the triennial audit. Most concerns centered on timing and a lack of synchrony among NTD, SCO, TDA and GASB data requirements. Several respondents made comments similar to this one: "it would be helpful if the State Controller's report process was better aligned with the NTD reporting process, both in terms of timing and content (e.g., we report three modes to NTD, but only two to the SCO, so the numbers never match up)."

Another respondent noted that the January 31 deadline is not workable for audits in that region, which are not completed until March 31 (using the extension). Several other respondents asked for a later deadline for the SCO reports to allow for financial reports to be completed so as to avoid "revisions and/or inaccurate information." One respondent complained that three-year old data are too out of date to use for developing funding allocations and that more frequent (annual or bi-annual) audits would be more helpful.

In addition, some respondents expressed concerns about the high cost of triennial audits and/or complications in the process of bidding for consultants to perform the audits. Two respondents said more training for auditors is needed.

A full set of comments that we received, anonymized and organized by theme, is included in the Appendix.

Performance audits in other states

Other states use a variety of approaches in audits of transit agency performance.[20] Some ambiguity surrounds the term "audit." Some states use the term to refer to externally reviewed documents and verified data; other states use the term in reference to evaluations or even reports. Underscoring this ambiguity, the Minnesota State Legislature formerly required Transportation System Audits that were, and are now called, Transportation System Performance Evaluation reports (Metropolitan Council, 2017).

We used California's de facto definition of "audit": externally-conducted, regularly-scheduled, with particular aspects of the audit (i.e., performance measures) specified. As stipulated by PUC Section 99246, California's triennial audit requires that an entity "other than itself" evaluate the "efficiency, effectiveness and economy of the operation of the entity being audited." The PUC specifies that the audit shall include a verification of performance indicators specified in PUC 99247, specifically:

- Operating cost per passenger
- Operating cost per vehicle service hour
- Passengers per vehicle service hour
- Passengers per vehicle service mile
- Vehicle service hours per employee

[20] We searched for mentions of performance measures and audits both in publicly available documents and reports as well as in the relevant sections of each state's statutes. We excluded those audits required by the federal government, such as the OMB "single audit" or those concerning Transit Asset Management (TAM).

As shown in Table 7.2, California's type of audit is rare. Few states require regular audits of any kind beyond those required federally. Of the 14 states we studied, only three others (Pennsylvania, Wisconsin, and Maryland) require regular, externally-conducted audits of their transit operators. (Illinois' audits appear not to have a specific timeframe.)

Of those state audits, most concern protecting public funds and assets from fraud and misuse. Pennsylvania, for example, requires all operating and capital funding grantees to complete annual audits performed by a certified public accounting firm, but the audit concerns "the level of compliance with regard to the accounting and reporting procedures, and the management of grant funds pursuant to PennDOT requirements," not transit performance (Pennsylvania Department of Transportation, 2017).

Apart from California, only Wisconsin appears to require audited performance measure data, though the state makes allowances for the delay of "several years" for audits to be completed and incorporates unaudited data in performance measurement reporting in the meantime (Wisconsin Department of Transportation, 2017).

Some other states conduct audits of performance measures, but not regularly. For example, the Office of the New York State Comptroller conducted an audit of the Metropolitan Transportation Authority/New York City Transit and MTA Bus Company's bus wait times, mean distance between service interruptions, and adherence to the agency's service guidelines manual. The audit, which assessed a 42-month period of performance between 2015 and 2018, appears to be unscheduled and single-instance (Office Of The New York State Comptroller, 2019).

Table 7.2: Performance measure reporting, audit requirements, and PMs used in audits, by state

STATE	REGULAR PM REPORTING	EXTERNAL AUDITS REQUIRED (BY STATE) *NO = NOT FOUND*	PM(S) SPECIFIED IN AUDIT REQUIREMENT
California	*Annual, Triennial*	*Yes*	*Yes*
Connecticut	Quarterly[21]	No	N/A
Florida	Triennial	No	N/A
Illinois	No	Yes; with varied frequency	None
Maryland	Annual	Yes, every four years	None
Massachusetts	Annual	No	N/A
Michigan	Annual	No	N/A
Minnesota	Annual	No[22]	N/A
New York	Annual	No	N/A
North Carolina	Annual	No	N/A
Pennsylvania	Annual and 5-year	Yes	None
Tennessee	No	No	N/A
Virginia	Annual	No	N/A
Wisconsin	Annual and 5-year	Yes	Yes

Note that although few states include performance measures in their audits, most states do require regular reporting of performance indicators of the type that California includes in the audit verification. (These are discussed in greater detail in Section 4.) Many states either require the reports to be public or they are public as a matter of practice. (Presumably, this public access provides a degree of accountability.) In

[21] A complete biennial report was last compiled for FY 2002/2003; some performance measures are tracked quarterly by mode, however.

[22] Formerly named "Transportation System Audits" are now described as reports.

Florida, agencies must publish each year in a local newspaper their annual performance measures (passenger trips, revenue miles, total operating expenses, operating revenue, vehicles operated in maximum service, base fare, revenue miles between vehicle system failures, days/hours service is available, and operating expense per passenger trip) (Florida Department of Transportation, 2016).

Summary

Our evaluation of other states' audit methods show that California's approach to audits is somewhat unusual. Most states do not specify performance measurements to be used in audits and most do not require regular external audits (relying on performance measurement reporting instead). California transit professionals' opinions on the current audit process are mixed. The most common concerns centered on the measures and the reporting deadlines used being "out of sync" with other mandatory reporting. We make recommendations for changing the audit process in our next section (Section 8).

8. Proposed Policy Options

Motivation for change

Based on the preceding analysis, we find that the TDA, as currently structured, conflicts with a variety of state policies and goals for public transit; specifically:

1. The state's goals for transit have changed and broadened considerably since 1971 when the TDA became law and 1978 when the farebox recovery requirement was added;
2. Our survey of California transportation professionals reveals the current TDA requirements appear to influence agency management decisions in ways that do not align with the state's current goals for transit;
3. Our review of peer states (i.e., states that invest heavily in transit) indicates that California does not follow the current best practice in performance assessment.

Accordingly, we recommend that changes be considered in:

- The specific measurement of performance (the farebox recovery rate) and the number of performance measures used;
- The grouping of peer agencies;
- How non-compliance is identified;
- The use and frequency of audits;
- The consequences for initial and chronic non-compliance.

The funding policies of several states are instructive and Pennsylvania's in particular is a model from which we draw many of the proposed policy options discussed below.

Recommendations

We present six recommendations concerning transit performance measurement in California, discussed in detail below:

1) Replace the (current one-size-fits-all) farebox recovery rate and CPI cost escalation threshold requirements with multiple performance measures that align with state goals for public transit
2) Adopt peer group comparisons
3) Use standard deviation analysis to identify agency outliers
4) Use audits to identify specific needs for technical assistance
5) Provide technical assistance through RTPAs or a state Transit Excellence Center to agencies with lagging performance records
6) Establish a framework and authority for remedial action, including agency restructuring.

Recommendation #1: Replace the farebox ratio and CPI cost escalation threshold requirements with multiple performance measurements that align with state goals

Past research (discussed in Section 3) indicates the importance of selecting appropriate performance measures as they become not merely indicators but *de facto* goals that affect outcomes, particularly if they are tied to funding: "what you measure is what you get" (Kaplan & Norton, 1992). Importantly, and as Table 3.1 illustrates, no single performance measure is sufficient to capture or compare meaningfully the performance of transit efficiency and effectiveness. We therefore advise against using any single performance measure in isolation.

We propose replacing the farebox ratio in particular because it is an "opaque" composite measure: while it provides managers with useful supplemental, summary information on their individual agency's performance, the farebox ratio gives others outside an agency no indication of what is behind the measure. Whether the ratio is low because costs are high or because ridership and/or revenues are low cannot be determined, as those inputs are masked in the ratio. This limitation may explain why, although it is a common measure, no other state we studied uses the farebox ratio in its transit funding determinations.[23]

Using multiple performance measurements instead will provide a clearer, more transparent, and more comprehensive assessment of transit performance. It is worth noting that all 13 states we studied used multiple measurements to assess the performance of individual transit agencies.

Based on our examination of other states' systems, we recommend a blend of the following performance metrics (drawn from Pennsylvania and Wisconsin):

- Unlinked passenger trips (UPT)[24] per vehicle revenue hour (VRH)
- Operating expenses (OpEx) per vehicle revenue hour (VRH)
- Operating revenue (OpREV) per vehicle revenue hour (VRH)

[23] Massachusetts and Wisconsin use the farebox ratio in performance assessment but not in funding determinations. Maryland recently abandoned the use of the farebox ratio in performance assessment.

[24] Unlinked passenger trips are equivalent to boardings. They do not take into account passenger transfers, which introduces the significant measurement problem that many passenger trips are double-counted. Whether new boardings arise from new passenger demand or from new transfer-forcing service changes is not possible to know when UPT is the measure used. The measure of "Linked passenger trip," which count a passenger's entire origin-to-destination journey as one trip, is superior for planning and policy purposes. Though technology is improving how linked trips can be estimated, its use has historically been limited by its being more difficult to track, with the result that UPT is more commonly used, despite its limitations.

- Operating costs (OpEx) per unlinked passenger trip (UPT)
- Unlinked passenger trips (UPT) per capita
- Vehicle revenue hours (VRH) per capita

These suggested measures constitute two cost-efficiency measures, three service-effectiveness measures, and one cost-effectiveness measure.

The use of multiple measures also makes it easier to align performance measurement with state goals. We identify three contemporary state goals for transit as: increasing ridership, increasing operating efficiency, and increasing effectiveness. While each of these goals is individually desirable, a single focus on any one excludes important aspects of the others, underscoring the need for multiple measures. Table 8.1 shows how each suggested measure aligns with each transit goal:

Table 8.1: Performance measure, type, and goal alignment

		STATE GOALS ALIGNMENT		
SUGGESTED PERFORMANCE MEASURE	TYPE	INCREASE RIDERSHIP	INCREASE OPERATING EFFICIENCY	INCREASE EFFECTIVENESS
Operating costs (OpEx) per vehicle revenue hour (VRH)	Cost-efficiency		✔	
Operating costs (OpEx) per unlinked passenger trip (UPT)	Cost-efficiency		✔	
Unlinked passenger trips (UPT) per vehicle revenue hour (VRH)	Service-effectiveness	✔		✔
Unlinked passenger trips (UPT) per capita	Service-effectiveness	✔		✔
Vehicle revenue hours (VRH) per capita	Service-effectiveness			✔
Operating revenue (OpREV) per vehicle revenue hour (VRH)	Cost-effectiveness	✔	✔	

Each performance measure has limitations and will affect some agencies differently based on their context. For example, the UPT per VRH and OpEx/UPT metrics will favor higher-ridership urban systems.

Note that these metrics need not be equally weighted. One or several of the measures could be weighted differently to reflect state officials' priorities.

Local flexibility can mitigate the inequities of a universally-applicable performance measure. Two strategies for providing this local flexibility include:

1. Some or all of the prescribed performance metrics could be locally-determined through an MPO or RTPA
2. Agencies could be evaluated only in relation to their peer group (our next recommendation).

CURRENT TDA	PROPOSED CHANGE	ANTICIPATED EFFECT
● Single performance measure used as a threshold requirement ● Farebox recovery rate used	● Multiple performance measures used ● No farebox recovery rate used	● Better identification of agency-specific problems ● More comprehensive performance reporting ● Performance more aligned with state goals for transit

Recommendation #2: Adopt peer group comparisons

Cross-agency performance assessment is more meaningful when agencies are similar in operating context and size. Currently, the TDA only distinguishes between urban and non-urban operators, with some provisions for urban areas in low-population counties. This distinction is too crude in the modern transit operating environment and results in "apple-to-orange" comparisons of agencies that operate in vastly different contexts.

One method for grouping peers that we believe merits further study is Pennsylvania's method, based on four criteria:

1. Total revenue hours
2. Total revenue miles
3. Vehicles in maximum service
4. Service area population

While the exact composition of groups of California's agencies using these criteria would need to be determined, the grouping of similar agencies will provide the state with the ability to compare cross-agency performance more meaningfully. In addition, peer groups such as these enable more sophisticated methods of identifying agency-specific problems. One example of such a method is using standard deviations, our next recommendation.

CURRENT TDA	PROPOSED CHANGE	ANTICIPATED EFFECT
• No peer groups (except in broad urban, non-urban categories)	• Agencies' performance compared only with peers	• More meaningful cross-agency comparisons • Better identification of agency-specific problems

Recommendation #3: Use standard deviation analysis to identify agency outliers

The TDA currently uses the fare recovery rate and CPI escalation limits to identify whether or not agencies are in compliance. As discussed in Section 3, "threshold" performance measures like these direct managers' focus toward not "crossing the line" and provide no incentive for performing better than the prescribed standard. Moreover, when threshold measures are combined with penalties, managers have a strong incentive to avoid reaching the threshold by taking drastic actions (such as cutting service) that are counterproductive in the long-term. This (rational but undesirable) response could be called "managing to the measure."

We recommend using standard deviation measurements to identify agencies where performance trends are outside of the norm. Several states, including Pennsylvania and Wisconsin, use this approach.

Pennsylvania considers agencies to be in compliance when their system performance metrics are within one standard deviation of the peer group average. The state transportation agency (PennDOT) has the discretion to require an action plan and/or

withhold some funding from transit systems with performance measures below one standard deviation of the average.[25]

Identifying out-of-compliance agencies with standard deviations has the advantage of preventing agency managers from "managing to the measure" while still allowing the state to keep agencies accountable. Sanctions for agencies out of compliance are addressed in Recommendations #4, #5, and #6.

CURRENT TDA	PROPOSED CHANGE	ANTICIPATED EFFECT
• Thresholds determine compliance • Agencies are either in compliance or not	• Agencies' performance measured in standard deviations from the mean of their peer group	• Fewer management incentive distortions • Better identification of agency-specific problems

Recommendation #4: Use audits to identify need for technical assistance and adjust audit schedule

The current annual audits present an opportunity to identify where technical assistance is needed. We recommend that audits move from serving as compliance checks to identify areas of (needed) improvement and long-term goal-setting. The technical assistance itself need not be provided by the auditors themselves; rather, we suggest that auditors assist agencies in need of improvement with any necessary data collection and with receiving technical assistance from the state through a Transit Excellence Center (our next recommendation).

In addition, to concentrate audit resources where they are most needed, we suggest that current triennial audit intervals be variable and adjusted by the severity of issues. Agencies with few or no performance issues, for example, could be audited on a 4- or 5-year cycle. Agencies that are lagging but not out of compliance could be audited every 2-3 years or more frequently.

[25] Provisions (such as waivers) exist to allow agencies to improve performance before their full funding is affected. See Appendix for details on the mechanics of Pennsylvania's funding guarantees and penalty withholding.

CURRENT TDA	PROPOSED CHANGE	ANTICIPATED EFFECT
• Audits used to check compliance • Audits occur annually	• Use audits to identify areas in need of improvement and/or technical assistance • Audit intervals vary based on level of compliance	• Improved use of agency resources

Recommendation #5 Provide technical assistance through RTPAs or a state-funded Transit Excellence Center (TEC)

We recommend the state create a program for transit agencies to receive technical assistance either through RTPAs or through an independent, state-funded Transit Excellence Center, which could be composed of both peer and academic experts from around the state. Centralized, permanent sources of expertise would enable transit agency managers to receive consulting-type service when needed to help them improve their agency's performance. By establishing this channel for technical assistance, the state would capitalize on existing (but decentralized) expertise at RTPAs and/or at the states' transportation institutes.

CURRENT TDA	PROPOSED CHANGE	ANTICIPATED EFFECT
N/A	• Establish technical resources at either RTPA or at new, state Transit Excellence Center	• Improved average statewide transit performance

Recommendation #6: Establish framework and authority for remedial action, including agency restructuring

If annual audits and multiple consultations with the RTPAs and TECs do not bring an agency into compliance after a predetermined time, agency-level action may be warranted. We recommend that the state establish a framework for agency reorganization and/or restructuring, and that the state delegate sufficient authority to presiding MPOs to oversee and, if necessary, organize the agency's restructuring. The framework and established process would allow transitions in service to occur with greater consideration to riders' needs.

CURRENT TDA	PROPOSED CHANGE	ANTICIPATED EFFECT
N/A	• Add framework for agency reorganization and/or restructuring; give MPOs authority to oversee process	• Improved statewide average transit performance

We list a summary of proposed changes in Table 8.2 below.

Table 8.2 Summary of Proposed Changes

	CURRENT TDA	PROPOSED CHANGES
PERFORMANCE MEASURES USED	Farebox recovery rate (LTF and STA); CPI cost escalation cap (STA)	Multiple cost-efficiency, service-efficiency, and cost-effectiveness measures
COMPLIANCE DETERMINATION	"Threshold" requirements: agencies are in compliance or not	Standard deviation from the peer group mean; agencies below one standard deviation are out of compliance
PEER GROUP DETERMINATION	None (except for urban, non-urban differences in threshold requirements)	Peer groups determined by performance and system characteristics
CONSEQUENCES FOR NON-COMPLIANCE	Financial penalties	Required consultation with RTPA or state-funded center for technical assistance; persistent non-compliance leads to restructuring evaluation by MPO
AUDITS	Annual and triennial; compliance-based	Audit frequency varies based on compliance; audits focus on need for technical assistance

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Appendices

- Detailed summaries of state findings
- Survey questions distributed to RTPA and transit agency professionals

Appendix A:
Detailed Summaries of State Findings

Connecticut

The state appears to track performance measures quarterly as a matter of practice, rather than by legislative requirement. Performance measures do not appear to be tied to funding allocations.

The performance measure that the state Department of Transportation (CTDOT) tracks and reports for bus systems is reliability (average miles between road calls). For rail, the quarterly data include metrics of reliability (mean distance between failures), on-time performance, and ridership.

A "Public Transportation Biennial Report," a collection of statewide bus and rail statistics was last compiled for the 2002/2003 fiscal year.

Florida

The State Transportation Trust Fund (STTF) is primarily derived from fuel taxes, motor vehicle/rental car sales taxes/surcharges, and motor vehicle title and registration fees, and serves as the source of state funding for public transportation. Section 206.46(3), F.S., requires, in each fiscal year, a minimum of 15 percent of all state revenues deposited into the STTF to be committed annually by FDOT for public transportation projects (aviation, transit, rail, intermodal and seaports).[26] According to the National Transit Database, state funding provided 15% ($229M) of statewide transit operating expenditures in 2017.

Florida's Transportation Disadvantaged Trust Fund[27] supports service for the elderly, disabled, and low-income populations served by all operators. The fund is administered by the Commission for the Transportation Disadvantaged (CTD) and distributed to county/regional Community Transportation Coordinators (CTCs) and approved operators. Under Florida state legislation, the CTD is charged with

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[26] *Florida Transit Systems Overview and Funding* (Rep.). (2011, August). Retrieved 2019, from The Florida Senate, Committee on Transportation website: https://www.flsenate.gov/PublishedContent/Session/2012/InterimReports/2012%224.pdf

[27] *2018 Annual Performance Report* (Rep.). (2019, January 1). Retrieved 2019, from Florida Commission for the Transportation Disadvantaged website: https://ctd.fdot.gov/docs/AORAPRDocs/ApprovedAOR2017-2018.pdf

conducting cost comparisons and evaluating cost efficiency relative to the cost of transporting the general public. Operators are required to maintain service levels year-over-year and to report efficiency metrics in support of discussions regarding efficiencies that a provider might adopt to reduce costs. These efficiency metrics do not feed into formula allocations; rather, each operator is required to report efficiency metrics on an annual basis to demonstrate proper use of funds.[28]

Regarding allocation, each applicant/operator receives a minimum base allocation based on funding levels during CTD's 1999-2000 Fiscal Year. Additional funds above the base amount is allocated based on a comparative ranking of all eligible applicants in each of the following four categories:

- The applicant's total county area in square miles as a percentage of the total square miles of all eligible applicants (25%)
- Total system passenger trips provided as a percentage of all eligible applicant trips reported (25%)
- Total system vehicle miles traveled as a percentage of all eligible applicants' vehicle miles traveled and reported (25%)
- Total county population as a percentage of the total population of all eligible applicants (25%).[29]

Performance measures are required to be reported annually; these include: Operating Expense Per Total Passenger Trip, Operating Expense Per Paratransit Passenger Trip, Operating Expense Per Vehicle Mile, Operating Expense Per Driver Hour, Local Funding of System, Potential Transit Disadvantaged Population Served, Average Trips Per Driver Hour, Average Trips Per Paratransit Passenger, Accidents Per 100,000 Miles, Miles Between Roadcalls (Reliability). These reported performance measures are not tied to specific targets or funding allocations.

Performance Measures

Florida DOT has a triennial review process, but does not stipulate specific performance metrics or targets, instead encouraging continuous improvement and highlights areas of concern for each audit. Florida requires that grant recipients for all programs report passenger trips, revenue miles, total operating expense, operating revenue, vehicles operated in maximum service, base fare, revenue miles between system failures,

[28] Melendez, E. (2019, April 24). Conversation re: CTD transit funding [Telephone interview]. Florida Commission for the Transportation Disadvantaged

[29] Grants Program, § 41-2.014 (2004). State of Florida Administrative Code

days/hours service is available, and operating expense per passenger trip, annually within local newspapers.[30,31]

Illinois

According to the National Transit Database, state funding provided 15.3% ($428M) of statewide transit operating expenditures in 2017.

The Regional Transportation Authority (RTA) is charged with financial oversight, funding, and regional transit planning for Northeast Illinois' transit operators or Service Boards: the Chicago Transit Authority (CTA), Metra and Pace Suburban Bus and Pace Americans with Disabilities Act (ADA) Paratransit. Illinois law authorizes the RTA to impose a sales tax throughout the six-county Northeastern Illinois region. The RTA sales tax is collected by the Illinois Department of Revenue and paid to the Treasurer of the State of Illinois to be held in trust for the RTA outside of the State treasury. Proceeds from the RTA sales tax are paid directly to the RTA monthly.

The sales tax rates imposed by the RTA differ in order to recognize the differing levels of transit service provided in the six-county region. In Cook County the RTA imposes a 1.25% sales tax whereas in DuPage, Kane, Lake, McHenry, and Will Counties the rate is .50%. The State fiscal year 2018 budget included a permanent 2% surcharge that will be retained by the State before the RTA sales tax is disbursed to the RTA, reducing RTA sales tax receipts by -$24M annually.

The RTA evaluates transit performance relative to national peers, both by operators and by mode, using the Federal Transit Administration's National Transit Database (NTD). These comparisons are not tied to funding levels. Key performance metrics are related to service coverage (vehicle revenue miles and unlinked passenger trips), service efficacy and effectiveness (operating costs per vehicle miles and trips), service maintenance (miles between major mechanical failures), and service level solvency (fare revenues per trip, farebox recovery ratios).[32] These comparisons are purely for comparison and auditing purposes, they are not used for funding allocation, nor does the RTA set goals for these metrics.

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[30] *State Management Plan* (Rep.). (2016) Retrieved 2019, from Florida Dept. of Transportation website: https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/content/transit/pages/statemanagementplan20160208.pdf

[31] *Triennial Review* (Rep.). (2015) Retrieved 2019, from Florida Dept. of Transportation website: https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/content/transit/pages/5307trpg20150810.pdf?sfvrsn=ab77d601_0

[32] Peer Performance Reports, RTA Chicago. (n.d.). Retrieved 2019, from https://www.rtachicago.org/plans-programs/performance-measures/peer-performance-reports

The RTA is required to develop a Strategic Plan every five years to define goals and objectives related to "the adequacy, efficiency, geographic equity and coordination" of public transportation in the state. Per Illinois state legislation, the Strategic Plan must establish performance standards and measurements regarding travel times and on-time performance, ridership, equipment failure rates, employee and customer safety, and customer satisfaction.[33]

Public Transportation Fund

Illinois law provides that the State Treasurer is authorized and required to transfer from the State of Illinois' General Revenue Fund to the Public Transportation Fund an amount equal to 30% of the revenue realized from the RTA Sales Tax and 30% of the revenue realized from the Chicago Transit Authority's portion of the Real Estate Transfer Tax (RETT) in the City of Chicago. Consequently, the state money dedicated to public transportation increases or decreases at a rate equal to the growth or decline of both the sales tax and the RETT. The RTA expects to receive approximately $400 million from the State Public Transportation Fund in 2017.

Illinois distributes the fund to service boards (Board of the Commuter Rail Division of the Authority, the Board of the Suburban Bus Division of the Authority and the Board of the Chicago Transit Authority) using specified allocation percentages of sales tax revenue from each individual county, per Sec. 4.03.3. of 70 ILCS 3615.[34]

Downstate Operating Assistance Program (DOAP)[35]

The Downstate Operating Assistance Program (DOAP) provides funding to public transit providers within local governments or mass transit districts (MTDs) outside Northeast Illinois to support operating, capital, and administrative costs of public transit systems in urbanized and rural regions. These funds are based on 7.5%[9] of the sales tax generated in the service area and are allocated to the local government or MTD through the state's General Revenue Fund. Each transit agency's DOAP appropriation is required by law to increase by 10% each year.

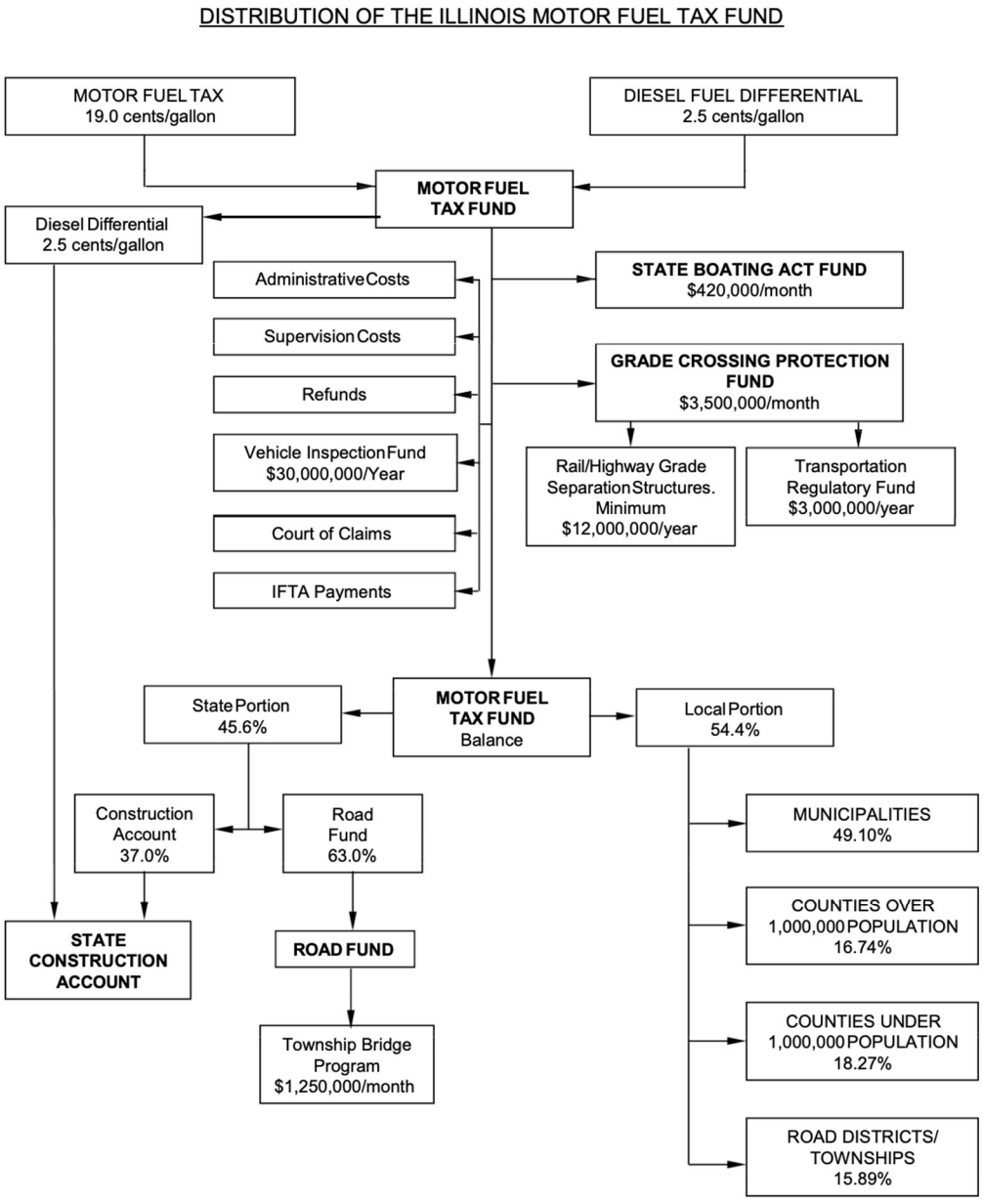
Currently, DOAP pays up to 65% of eligible expenses and each eligible participant receives an annual appropriation from the general assembly. For applicants, Illinois evaluates operating deficits, defined as the amount by which eligible operating expenses exceed revenues from non-reimbursable fares, rental of properties, advertising, and any other amounts collected or received in the process of providing

[33] Regional Transportation Authority Act, § 70-3615 (Illinois General Assembly 2005).

[34] Regional Transportation Authority Act, § 70-3615 (Illinois General Assembly 2005).

[35] Operating Revenue and Funding, RTA Chicago. (n.d.). Retrieved 2019, from https://rtachicago.org/finance-management/operating-revenue-and-funding

public transportation.[36] DOAP requires quarterly reports to be submitted in order to review operating deficits and operating expenses and makes an eligibility determination based on whether deficits and expenditures conform to program expectations. Transit agencies seeking DOAP funds must submit forms detailing fare revenues, ridership numbers, revenue vehicle miles, and revenue vehicle hours as part of their application.[37]



[36] By law this is equal to 80% of 3/32 of the net revenue realized from the Retailers' Occupation Tax Act, the Service Occupation Tax Act, the Use Tax Act, and the Service Use Tax Act. Downstate Public Transportation Act, § 30-740 (Illinois General Assembly 2005).

[37] Batty, S. (n.d.). Public Transportation Providers, IDOT Illinois. Retrieved 2019, from http://idot.illinois.gov/transportation-system/local-transportation-partners/public-transportation-providers/

Figure A.1 Illinois' Motor Fuel Tax Fund distribution[38]

Maryland

The Maryland Transit Administration (MTA) is a division of the Maryland Department of Transportation. MTA operates the Baltimore region's transit systems as well as MARC commuter trains and commuter buses.[39] The MTA also provides funding and assistance to Locally Operated Transit Systems (LOTS) throughout the state. According to the National Transit Database, state funding provided 61.1% ($560M) of statewide transit operating expenditures in 2017.

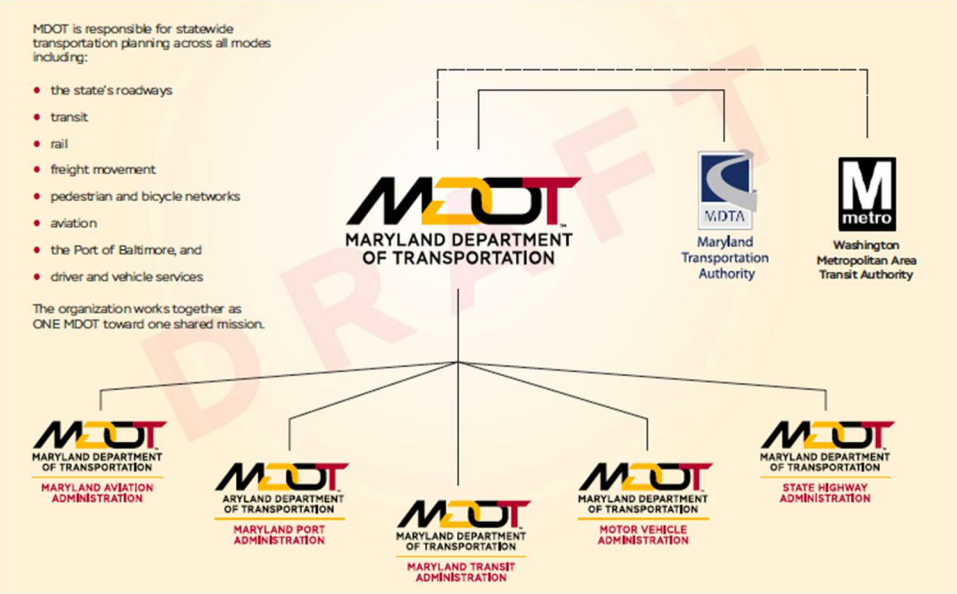


Figure A.2 Maryland Transportation Agency organization[40]

[38] *Motor Fuel Tax Funds Source, Distribution and Uses for County* (Rep.). (2017). Retrieved 2019, from Illinois Dept. of Transportation website: http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Guides-&-Handbooks/Highways/Local-Roads-and-Streets/MFT/Motor%Fuel%Tax%Funds%Source,%Distribution%and%Uses%for%County.pdf

[39] The state also funds Maryland's share of funding for the Washington Area Metropolitan Transit Authority. A summary of this funding has been omitted since the system is managed jointly by Maryland, Virginia, and Washington, DC. Maryland's share is by appropriation. HB 372, passed in 2018, fixed Maryland's appropriation at $167 million annually.

[40] Maryland Department of Transportation, 2040 Maryland Transportation Plan (2018). Available at http://www.mdot.maryland.gov/newMDOT/Santoria/2040MTP_Draft_Plan_September_2018.pdf.

State Funding Sources

The Maryland DOT, including the MTA, is funded by the Transportation Trust Fund (TTF) established in 1971. The TTF funds all MDOT activities, including debt service, maintenance, operations, administration, and capital projects.[41] TTF is funded by transportation related revenues including motor fuel taxes, vehicle excise (titling) taxes, motor vehicle fees (registrations, licenses and other fees), operating revenues (e.g., transit fares, port fees, airport fees) and federal-aid. In addition, small percentages of revenues from corporate income taxes and state sales taxes.[42]

Repeal of Farebox Recovery

Before 2017, MTA was required to recover at least 35% of its total operating costs from fares and other operating revenue,[43] while not reducing the level of services.[44] Since 2009, MTA had a rate of 28% and was struggling to provide service.[45] HB 271 (2017) repealed farebox recovery as a basis for allocation of state funding for transit.[46]

An early draft of HB 271 included five additional performance measures which were not supported by MTA and were ultimately not passed into law.[47] These included:

- Reliability: measured by on-time performance for each mode of transit service
- Speed: measured by average trip travel times for each mode of transit service
- Usage: measured by the number of passengers for each mode of transit service
- Access: measured by the proportion of jobs located in the core service area that are accessible within a 45-minute transit commute for the average resident of the core service area. and

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[41] MD Transportation Code § 3-216 (2014)

[42] Maryland Department of Transportation. (2013). *Transportation Trust Fund.* Retrieved from http://www.mdot.maryland.gov/newMDOT/Finance/TransportationFund.html.

[43] Transportation Article, § 7-208(b)(2)) (2016). Department of Legislative Services, Maryland General Assembly, FISCAL AND POLICY NOTE House Bill 271. (2017). Available at http://mgaleg.maryland.gov/2017RS/fnotes/bil_0001/hb0271.pdf.

[44] Chapter 397, Acts of 20 11 (HB 72). Retrieved from http://dlslibrary.state.md.us/publications/Exec/MDOT/MTA/TR7-208(b)_2015.pdf.

[45] O'Malley, Brian. (2017, March 15). How Maryland Handcuffs its Transit System and How that Could Change. Greater Greater Washington. March 15, 2017. Retrieved from https://ggwash.org/view/62712/how-maryland-handcuffs-its-transit-system-and-how-that-could-change.

[46] Maryland Open Transportation Investment Decision Act of 2016 HB1013, 2016 Md. Laws, Chap. 36 [House Bill 1013]). Department of Legislative Services, Maryland General Assembly, FISCAL AND POLICY NOTE House Bill 271. (2017). Note that fare increases indexed to CPI are still required every five years. Article II, Section 17(b) of the Maryland Constitution - Chapter 24 (b-1). Retrieved from https://codes.findlaw.com/md/transportation/md-code-transp-sect-7-208.html, http://dlslibrary.state.md.us/publications/Exec/MDOT/MTA/TR7-208(b)_2015.pdf.

[47] House Bill 271. (2017). Retrieved http://mgaleg.maryland.gov/2017RS/fnotes/bil_0001/hb0271.pdf. Shaver, Katherine. (2017, February 22). Should Maryland transit systems be required to cover a share of their operating costs with fares? Washington Post. Retrieved from https://www.washingtonpost.com/news/dr-gridlock/wp/2017/02/22/should-maryland-transit-systems-be-required-to-cover-a-share-of-their-operating-costs-through-fares/?noredirect=on&utm_term=.2261e6053510.

- Frequency: measured by the percent of the total population in the core service area that lives within one-half mile of full-day high-frequency transit for which average headways are 15 minutes or less.

Maryland Transportation law stipulates that MTA track specific performance indicators but does not link those to funding. Sec 7-208 specifies that "the Administration shall implement performance indicators to track service efficiency for the Administration's mass transit services, including: (i) Operating expenses per revenue vehicle mile; (ii) Operating expenses per passenger trip; (iii) Passenger trips per revenue vehicle mile."[48]

MTA is also required to compare its yearly performance on these measures to similar "peer" systems nationwide. These performance measures are reported in testimony submitted to the Maryland Department of Budget and Management in response to a yearly budget analysis performed by the Maryland Department of Legislative Services.[49]

Funding for transit operations

Funding for transit operations is subject to legislative discretion,[50] and state transportation law does not specify an allocation procedure.[51] MTA operations in the Baltimore-Washington metropolitan area include more than 50 local bus lines in Baltimore, and other services such as the light rail, metro subway, commuter buses, Maryland Area Regional Commuter (MARC) trains, and mobility/paratransit vehicles.[52] MTA is frequently funded through discretionary line-items in the state budget and has no dedicated funding stream.[53]

Local operated transit systems (LOTS)

Local Operating Transit Systems (LOTS) operate in all 23 Baltimore counties, ranging from extensive fixed-route service to specialized paratransit services. The Office of Local Transit Support (OLTS) provides a variety of technical assistance services to the LOTS. LOTS are eligible to receive state funding from:

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[48] Md. Code Ann., Transportation § 7-208. MDOT Maryland Transit Administration, Operating Budget Analysis 2018FY. Retrieved from http://mgaleg.maryland.gov/pubs/budgetfiscal/2018fy-budget-docs-operating-j00h01-mdot-maryland-transit-administration.pdf.

[49] Maryland Department of Budget and Management. FY 2020 Responses to DLS Operating Budget Analysis and Testimony. Available at https://dbm.maryland.gov/budget/Pages/operbudget/HearingTestimony.aspx. (See documents beginning with J00).

[50] Maryland Transportation Code § 3-216 (d)(2) (2013).

[51] Maryland Transportation Code available at https://law.justia.com/codes/maryland/2017/transportation/

[52] Department of Legislative Services, Maryland General Assembly, FISCAL AND POLICY NOTE House Bill 271. (2017). Available at http://mgaleg.maryland.gov/2017RS/fnotes/bil_0001/hb0271.pdf.

[53] Dresser, Michael. (2018, April 5). Maryland legislature gives final OK to bill that would increase MTA funding, The Baltimore Sun. Retrieved from https://www.baltimoresun.com/news/maryland/politics/bs-md-mta-funding-20180402-story.html

- State Transit Operating and Capital Matching Funds: State matching funds dictated by federal funding programs.

- State Americans with Disabilities Act (ADA) Funding Program: Operations funding allocated by need.

- Statewide Special Transportation Assistance Program (SSTAP): SSTAP is a State-funded program to provide general purpose transportation to elderly individuals and individuals with disabilities. These funds are annually apportioned to the counties and Baltimore City based on a formula (60 percent equally among the jurisdictions and 40 percent based on combined population of elderly individuals and individuals with disabilities). Funds can be used for operating and capital with a local share required – minimum 25 percent for the net operating deficit and five percent for capital projects. Each County and the City of Baltimore is eligible to apply for the SSTAP funds.

- State Large Urban Program: Grant program offers state funds for operating and capital assistance in large urban areas. In FY 2018, the City of Annapolis, Anne Arundel County, Cecil County, Howard County, Montgomery County, Prince George's County, and Queen Anne's County were eligible to receive these funds.[54]

In addition, MTA instituted the Statewide Transit Innovation Grants (STIG) program in 2018, distributing $515,377 for innovative projects including capital and operations.[55]

Table A.1 Summary of Maryland LOTS funding programs

FUND	PURPOSE	METHOD	DESCRIPTION
State Transit Operating and Capital Matching Funds	Capital and Operations	Federal Formula	State matching funds for federal transit grant programs
State Americans with Disabilities	Operations	By Need	Operations funding to comply with

[54] Maryland Transit Administration. (2017). Locally Operated Transit Systems (LOTS) Program Manual. Retrieved from https://s3.amazonaws.com/mta-website-staging/mta-website-staging/files/Regional+Transit/2017_LOTS_Manual.pdf.

[55] Mass Transit Magazine, "MDOT MTA Awards Over $500,000 for Innovative Public Transportation Projects in Maryland, "September 14, 2018. Available at https://www.masstransitmag.com/technology/fare-collection/press-release/12429890/maryland-transit-administration-mta-mdot-mta-awards-over-500000-for-innovative-public-transportation-projects-in-maryland.

Act (ADA) Funding Program			ADA
Statewide Special Transportation Assistance Program (SSTAP)	Capital and Operations	State Formula	To meet the needs of elderly and disabled transit users
State Large Urban Program	Capital and Operations	Grant	Supplemental funding for larger systems

Maryland does track performance indicators for LOTS operations and publishes targets for different classification of transit systems. LOTS are required to submit financial and operating data to their MTA Regional Planner on a quarterly basis. LOTS are classified as Small Urban, Large Urban or Rural.[56] The performance indicators listed below are collected for all LOTS, but the performance requirement levels differ by classification:

- Operating Cost per Hour
- Operating Cost per Mile
- Operating Cost per Passenger Trip
- Local Operating Revenue Ratio
- Farebox Recovery Ratio[57]
- Passenger Trips per Mile
- Passenger Trips per Hour[58]

These performance indicators are not explicitly linked to funding allocation but may be reviewed for grant funding applications. The LOTS manual lists the following objectives of the performance monitoring program: i) to ensure that resources are being used wisely, so that services are operated efficiently, ii) to meet reporting requirements established through federal and state mandates; iii) to identify how well services are being provided to transit riders; and iv) to obtain accurate information about services to support actions designed to improve performance.[59]

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[56] Maryland Transit Administration. (2017). Locally Operated Transit Systems (LOTS) Program Manual. (Page 55). Retrieved from https://s3.amazonaws.com/mta-website-staging/mta-website-staging/files/Regional+Transit/2017_LOTS_Manual.pdf.

[57] This manual was published before the farebox recovery repeal, but it is the most recent. They could still be tracking this but not basing funding on it.

[58] Maryland Transit Administration. (2017). Locally Operated Transit Systems (LOTS) Program Manual. Attachment 3-F. Retrieved from https://s3.amazonaws.com/mta-website-staging/mta-website-staging/files/Regional+Transit/2017_LOTS_Manual.pdf.

[59] Maryland Transit Administration. (2017). Locally Operated Transit Systems (LOTS) Program Manual. Page 3-16. Retrieved from https://s3.amazonaws.com/mta-website-staging/mta-website-staging/files/Regional+Transit/2017_LOTS_Manual.pdf.

Massachusetts

The state provides funding to all transit agencies, but laws governing the funding of the Massachusetts Bay Transportation Authority (MBTA) are distinct from those affecting the other 15 Regional Transit Authorities. In 2009, "An Act Modernizing the Transportation Systems of the Commonwealth of Massachusetts" (Chapter 25 of the Acts of 2009), commonly referred to as the Transportation Reform Act), consolidated all transportation services in Massachusetts under the Massachusetts State Department of Transportation (MassDOT).

MassDOT currently oversees and supports nearly 10,000 lane miles of roadway, over 5,000 bridges, and 36 airports. The MBTA, governed by MassDOT,[60] is the nation's fifth largest transit system, with 2,500 buses and trains carrying 1.3 million passenger trips per-day across 175 communities. Massachusetts' 15 Regional Transit Authorities operate an additional 1,400 vehicles across 231 communities.[61] According to the National Transit Database, state funding provided 50.5% ($1,093M) of statewide transit operating expenditures in 2017.

Transit funding

The Act reconstituted the Highway Find and created two separate state funds used for transit in Massachusetts: the Commonwealth Transportation Fund (CTF)[62] and the Massachusetts Transportation Trust Fund (MTTF). The CTF uses gas taxes and registry fees to pay debt service, and transfers remaining revenues to the MTTF. The CTF is subject to annual appropriation by the legislature.[63] The MTTF is administered by MassDOT and is not subject to legislative appropriation.[64] The MTTF is funded by transportation system revenues, the majority of which is raised through bridge and turnpike tolls.[65]

In 2013, An Act Relative to Transportation Finance (Bill H.3535) raised additional annual resources for transportation.[66] The legislation included an estimated $519 million per year in new taxes, of which $390 million per year is dedicated to transportation. These

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[60] Mass. Gen. L. c. 6c, §53.

[61] Massachusetts Budget and Policy Center. (2017). What Does Massachusetts Transportation Funding Support and What Are the Revenue Sources. Retrieved from http://www.massbudget.org/report_window.php?loc=What-Does-MA-Transportation-Funding-Support.html.

[62] Mass. Gen. L. c. 6c, §4.

[63] Mass. Gen. L. c. 29, §2ZZZ.

[64] Massachusetts Budget and Policy Center. (2017). What Does Massachusetts Transportation Funding Support and What Are the Revenue Sources. Retrieved from http://www.massbudget.org/report_window.php?loc=What-Does-MA-Transportation-Funding-Support.html.

[65] Mass. Gen. L. c. 6c, §4.

[66] 2013 Mass. Acts. 3535.

resources included increasing the motor fuels tax by three cents and indexing it to the rate of inflation, planned MBTA fare increases, dedicating motor sales tax collection to transportation, and reinstituting tolling on the western exits of the Massachusetts Turnpike.[67] Sec. 6a of the law also specified goals for transit performance:

> *...(8) for the Mass Transit division, an increase in the farebox recovery ratio of at least 10 per cent for each transit authority for each rolling 5-year period; (9) for the Mass Transit division, an increase in the on-time performance percentage for 53 each transit authority of at least 2 per cent for each rolling 5-year period, until that percentage reaches 98 per cent; and (10) for the Mass Transit division, an increase of at least 5 per cent in the revenue miles per active vehicle reported to the Federal Transit Administration for each transit authority for each rolling 5-year period.*

[67] Transportation for Massachusetts. (2014). Keeping Track. Report. Received from http://www.clf.org/wp-content/uploads/2014/03/FRG-MAP-TranspReport-Feb14-1.7-web.pdf.

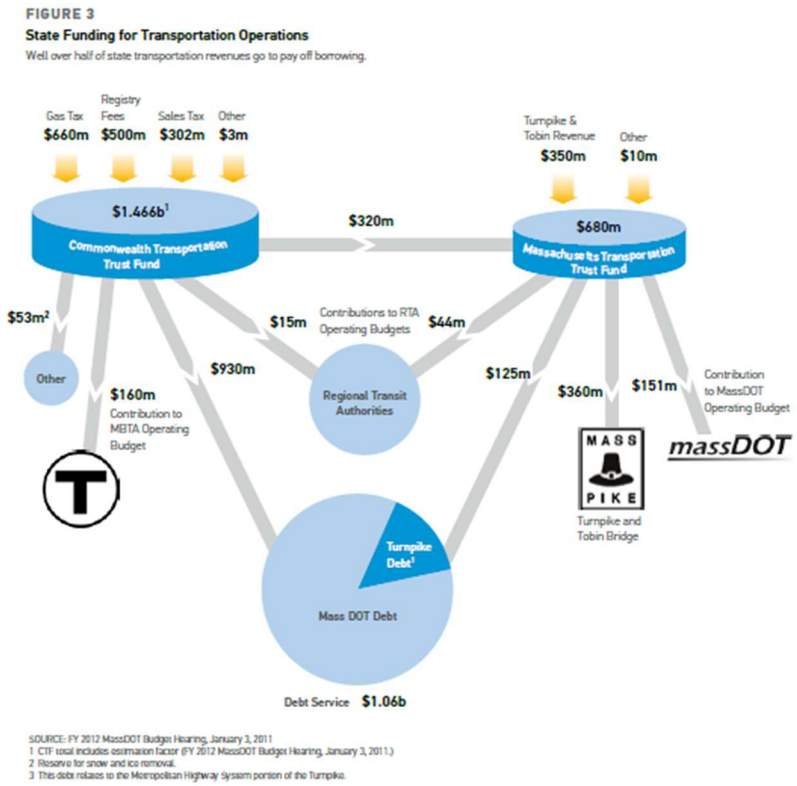

Figure A.3 Maryland state funding for transportation[68]

[68] Massachusetts Budget and Policy Center. (2017). *What Does Massachusetts Transportation Funding Support and What Are the Revenue Sources*.

MBTA

Since 2000, the bulk of state assistance for MBTA transit operations come from 1% state sales tax revenues dedicated to MBTA operations.[69] By statute, MBTA also receives a baseline of $160,000,0000 annually from the Commonwealth Transportation Trust Fund, which can be augmented by line-item appropriation.[70]

Regional Transportation Authorities

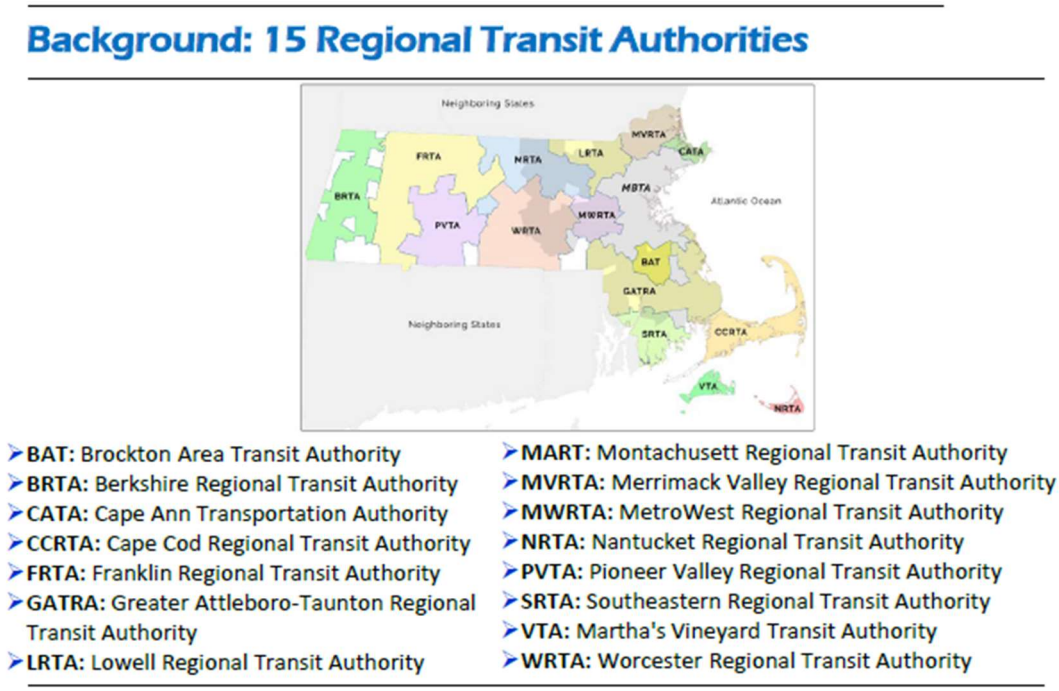

Figure A.4 Massachusetts' Regional Transit Authorities[71]

By statute, RTAs receive a baseline of $15,000,0000 annually from the CTTF.[72] State assistance in 2017 was over $82 million, accounting for 39% of RTA operating revenue.

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[69] Massachusetts Bay Transportation Authority. (2018). *Financial Statements.* Retrieved from https://cdn.mbta.com/sites/default/files/financials/audited-financials/fy2018-audited-financials.pdf.

[70] Mass. Gen. L. c. 29, §2ZZZ.

[71] Massachusetts Department of Transportation. (2018). Regional Transit Authorities: New Metrics and Funding Provisions in FI19 Budget. Regional Transit Authorities: New Metrics and Funding Provisions in FI19 Budget. Retrieved from https://www.mass.gov/files/documents/2018/09/18/RTA_Taskforce_091718.pdf

[72] Mass. Gen. L. c. 29, §2ZZZ.

Massachusetts must use State Contract Assistance (SCA) to fund at least 50% of the RTAs' Net Cost of Service. SCA distribution is currently based on historical funding levels at the time of the Transportation Reform Act. Other sources of RTA funding include FTA funding, local assessments and fare revenues. In total, RTAs receive 37% of their funding through State Contract Assistance, ranging from a low of 25% and a high of 47% depending on the system. In 2018 MassDOT assembled a task force to explore how to incorporate performance metrics into RTA funding. Beginning in 2019, they plan to supplement existing formula allocation with $4 million in discretionary grants to agencies that encourage data-driven decision making.[73]

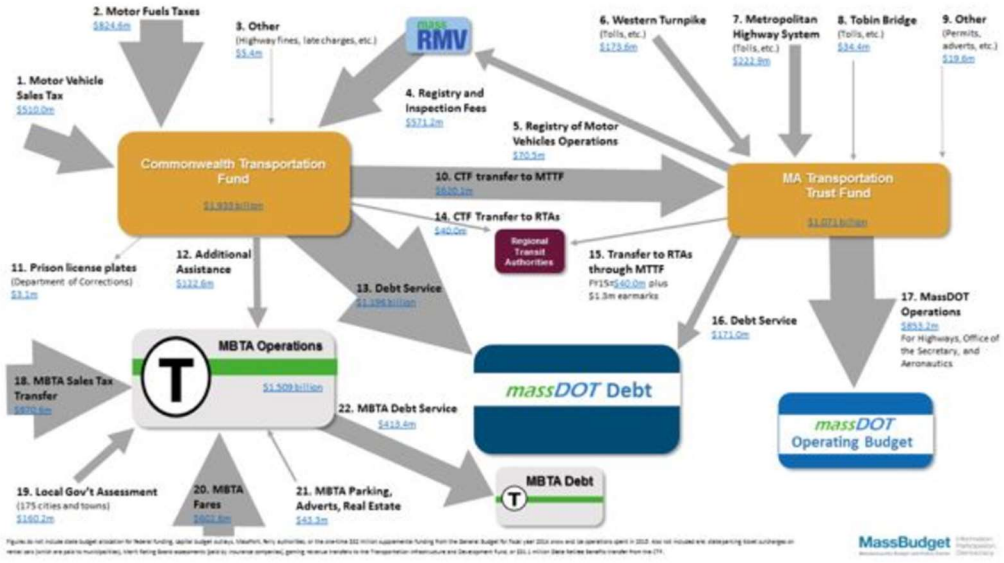

Figure A.5 Massachusetts Transportation Funding Flow Chart, FY 15[74]

Performance measures not linked to revenue

The 2009 Transportation Reform Act required MassDOT to submit a yearly Performance Management Report to the state legislature. The report includes numerous performance measures assessing the MBTA and the 15 RTAs and includes targets for some metrics. These performance measures are not linked to yearly funding

[73] Massachusetts Department of Transportation. (2018, September). *Regional Transit Authorities: New Metrics and Funding Provisions in FY19 Budget.* Presentation. Retrieved from https://www.mass.gov/files/documents/2018/09/18/RTA_Taskforce_091718.pdf.

[74] Baxandall, P. (2017, January 17). What Does Massachusetts Transportation Funding Support and What Are the Revenue Sources. Retrieved from http://www.massbudget.org/report_window.php?loc=What-Does-MA-Transportation-Funding-Support.html

allocation.[75] Since 2016, a selection of these performance metrics is presented on a regularly updated "dashboard."[76]

Selected performance measures for RTAs include number of scheduled trips, operating expense per vehicle revenue mile, safety indicators, farebox recovery ratio, annual ridership, and percentage of Massachusetts residents with access to fixed route transit.[77]

Selected performance measures for MBTA include: service reliability and passenger travel time, fare recovery ratio, safety recovery indicators, percentage of residents within one half mile of transit, and unlinked passenger trips.[78]

Michigan

Michigan statutes guarantee funding for transit based on allocations untethered to performance measurements. The state's "Local Bus Capital and Operating Assistance Programs" guarantee operating funding: "Nonurbanized areas and urbanized areas under 100,000 population will receive state operating assistance for up to 60 percent of eligible expenses. Urbanized areas over 100,000 population will receive state operating assistance for up to 50 percent of eligible expenses."[79] The program also seeks to provide a state share to match federal Section 5307, 5339, Small Urban, 5311(f), STP, and CMAQ funds.

Local agencies submit annual local transportation programs to the state transportation department (MDOT); these programs describe planned service for the following fiscal year. The information agencies must submit is: "contemplated routes, hours of service, estimated transit vehicle miles, costs of public transportation services, and projected capital improvements or projects."[80] MDOT evaluates and approves each agency's annual public transportation program.

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[75] Massachusetts Department of Transportation. (2017, Nov.). MassDOT's Annual Performance Report. P. 42-43. Retrieved from https://www.mass.gov/files/documents/2018/04/20/Tracker2017.pdf.

[76] MBTA Dashboard. (2019). Available at http://mbtabackontrack.com/performance/index.html#/home.

[77] Massachusetts Department of Transportation. (2017, Nov.). MassDOT's Annual Performance Report. P. 42-43. Retrieved from https://www.mass.gov/files/documents/2018/04/20/Tracker2017.pdf.

[78] Massachusetts Department of Transportation. (2017, Nov.). MassDOT's Annual Performance Report. P. 42-43. Retrieved from https://www.mass.gov/files/documents/2018/04/20/Tracker2017.pdf.

[79] Michigan Department of Transportation. (n.d.). Local Bus Capital and Operating Assistance Programs. Retrieved from https://www.michigan.gov/mdot/0,4616,7-151-11056_11266-26940--,00.html

[80] Michigan Department of Transportation. (1997). *A Reprint of Act 51 Public Acts 1951 As Amended*. *A Reprint of Act 51 Public Acts 1951 As Amended*. Retrieved from https://www.michigan.gov/documents/ctfact51_18079_7.pdf

MDOT encourages agencies to conform to federal transportation improvement program standards in developing their programs.

A prescribed formula determines how the state DOT funds transit. State law authorizes the department to pay "100% of the portion of the cost not eligible for reimbursement by the federal government for eligible capital projects authorized by the state transportation commission…"

Funding for local bus service is similarly prescribed: new approved local bus services "not in their fourth year" are funded "in the following percentages of eligible operating expenses as determined by the department:

a) Startup 100%
b) First year 90%
c) Second year 80%
d) Third year 70%
e) Fourth year and each year thereafter, as determined by and from funds provided under subsection (4) (a)."

Local bus capital funds are also stipulated in state law as being "not less than $8,000,000…"

In addition a "Local Bus Capital and Operating Assistance" program provides state operating assistance of up to 60% of expenses for nonurbanized areas and urbanized areas with populations of under 100,000, and up to 50% of operating expenses for urbanized areas with populations greater than 100,000.

Minnesota

State law requires the commissioner of the state department of transportation to submit to the legislature an annual report on transit services "outside the metropolitan area;" the commissioner's report must provide a "descriptive overview" of transit in the state and a "descriptive summary" of funding sources and assistance programs, as well as a summary of each public transit system receiving state funding. Financial and performance data included in the report are:

- Operating and capital costs
- Funding sources
- Amount of federal funds from each federal program.

In addition, the commissioner must report a "summary of differences in program implementation requirements and aid recipient eligibility between federal aid and state sources of funds."

In each odd-numbered year, the commissioner must also provide an "analysis of public transit system needs and operating expenditures on an annual basis" with a five-year forecast, taking into account local sources of revenue. The state law also requires a "comprehensive transit assistance percentage for each transit system classification," a ratio of expenditures to subsidy. The commissioner also reports "the amount of surplus or insufficient funds available" for fully implementing "the greater Minnesota transit investment plan."

New York

The New York State Department of Transportation distributes about $3.0 billion annually to approximately 130 transit operators.[81] As of 2017, state transit aid accounts for approximately one-third of the operating resources used to support the state's transit systems.[82] New York has two dedicated transit funding programs: the State Dedicated Fund (SDF) provides funding for capital projects and the Statewide Mass Transportation Operating Assistance (STOA) provides funding for transit agency operations. According to the National Transit Database, state funding provided 34.3% ($5,042M) of statewide transit operating expenditures in 2017.

Statewide Mass Transportation Operating Assistance (STOA)

The STOA began in 1975 funded by appropriations from the State's General Fund and administered by the Commissioner of Transportation (Sec. 18-b). STOA funds distributed pursuant to the original 18-b provisions of the State Transportation Law require a 100% local match.[83] STOA consists of two distinct, dedicated funds: MTOA and DMTTF.

Mass Transit Operating Assistance (MTOA)

The Mass Transit Operating Assistance (MTOA), established in 1981, is funded by dedicated portions of multiple taxes.[84] MTOA funds two distinct programs: "downstate" - the 12-county New York metropolitan transportation commuter district, and "upstate" (all other transit systems).

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[81] Includes those not directly receiving federal funds. NY. SFL. Section 88-A. Retrieved from: https://www.nysenate.gov/legislation/laws/STF/88-A

[82] New York State FY 2018 Executive Budget. Retrieved from https://www.budget.ny.gov/pubs/archive/fy18archive/exec/fy1718littlebook/Transportation.pdf

[83] (n.d.). *Section 88-A Mass transportation operating assistance fund*. *Section 88-A Mass transportation operating assistance fund*. The New York State Senate. Retrieved from https://www.nysenate.gov/legislation/laws/STF/88-A

[84] American Public Transportation Association. (2010). *Survey of State Funding for Public Transportation.* Retrieved from https://www.apta.com/resources/reportsandpublications/Documents/survey_state_funding_FY_08.pdf.

- The Metropolitan Mass Transportation Operating Assistance account funds New York City regional transit and select systems in the Capitol Corridor between NYC and the state capitol in Albany. Downstate transit systems are funded by a portion of the Petroleum Business Tax (PBT); the MTA Corporate Tax Surcharge; a 1/4 Percent Sales Tax in the MTA region; and the Transmission Tax.[85] In 2018, MMTOA collected a total of $2.3 billion. The MTA received $1.7 billion, and other downstate operators received the balance.[86] This funding is frequently supplemented with line-item funding in the state budget using general funds.[87]

- The Public Transportation Systems Operating Assistance account funds upstate transit systems.[88] The upstate systems receive a dedicated portion of the PBT only.[89]

Dedicated Mass Transportation Trust Fund (DMTTF)[90]

This DMTTF was created in 1993 and is funded by additional dedicated revenues from the Petroleum Business Tax. The Mass Transportation Trust Fund receives 37 percent and the remaining 63 percent goes to the Highway and Bridge Trust Fund. The Mass Transportation Trust Fund is further split 34 percent to the MTA and 3 percent to the non-MTA systems.[91] The non-MTA funds can be used for operations or as the required match for federal capital funding.[92]

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[85] New York Department of Transportation. (n.d.). State Transit Operating Assistance. Retrieved from https://www.dot.ny.gov/divisions/policy-and-strategy/public-transportation/funding-sources/STOA.

[86] Rivoli, Dan. (2018, May 25). MTA Budget: Where the money comes from. New York Daily News. http://interactive.nydailynews.com/project/mta-funding/#subsidies

[87] American Public Transportation Association. (2010). Survey of State Funding for Public Transportation. Retrieved from https://www.apta.com/resources/reportsandpublications/Documents/survey_state_funding_FY_08.pdf. New York Department of Transportation. (n.d.) Chapter II Transit Finance and Capital Assistance. Retrieved from https://www.dot.ny.gov/divisions/policy-and-strategy/public-trans-respository/chapter2_0.pdf.

[88] New York Department of Transportation. (n.d.) Chapter II Transit Finance and Capital Assistance. Retrieved from https://www.dot.ny.gov/divisions/policy-and-strategy/public-trans-respository/chapter2_0.pdf.

[89]New York Department of Transportation. (n.d.). State Transit Operating Assistance. Retrieved from https://www.dot.ny.gov/divisions/policy-and-strategy/public-transportation/funding-sources/STOA.

[90] NY. SFL. Section 89-c.

[91] New York Department of Transportation. (n.d.) Chapter II Transit Finance and Capital Assistance. Retrieved from https://www.dot.ny.gov/divisions/policy-and-strategy/public-trans-respository/chapter2_0.pdf.

[92] New York Department of Transportation. (n.d.). Transit State Dedicated Fund (SDF) Program. Available at https://www.dot.ny.gov/divisions/policy-and-strategy/public-transportation/funding-sources/SDF.

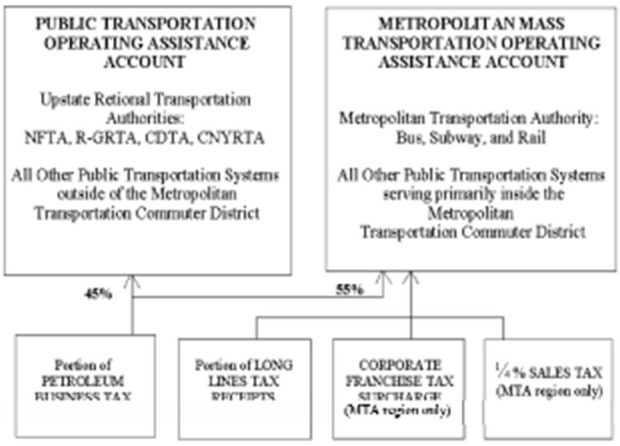

Figure A.6 New York's Mass Transportation Operating Assistance Fund[93]

Local Bus System Allocation from STOA

Upstate bus systems receive STOA through an incentive based passenger and vehicle mile formula.[94] Under 18-b of the New York Transportation Law, "the Commissioner [of Transportation] may develop a single formula to distribute mass transportation operating assistance payments authorized by separate appropriations in order to facilitate program administration and to ensure an orderly distribution of such funds." This is specified as the "combined service and usage distribution formula."[95] The current formula is $.405 per passenger, $.69 per revenue vehicle mile for both upstate and downstate systems.[96,97]

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[93] New York Department of Transportation. Chapter II Transit Finance and Capital Assistance. (n.d.)

[94] American Public Transportation Association, Survey of State Funding for Public Transportation, (2010). Available at https://www.apta.com/resources/reportsandpublications/Documents/survey_state_funding_FY_08.pdf. The only bus systems that are not "upstate systems" are Metropolitan Transportation Authority (MTA); New York City Department of Transportation - Staten Island Ferry (SIF); New York City Department of Transportation - Private Franchised operators; Niagara Frontier Transportation Authority (NFTA); Rochester-Genesee Regional Transportation Authority (RGRTA); Capital District Transportation Authority (CDTA); Central New York Regional Transportation Authority (CNYRTA); Westchester County Bee-Line; Nassau County - Long Island Bus; and Suffolk County - Suffolk County Transit.

[95] 17 CRR NY 975.12. Available at https://www.dot.ny.gov/divisions/policy-and-strategy/public-trans-respository/stoarr.pdf.

[96] Transportation Law, § 18-b.

[97] New York Department of Transportation. (n.d.) Chapter II Transit Finance and Capital Assistance. Retrieved from https://www.dot.ny.gov/divisions/policy-and-strategy/public-trans-respository/chapter2_0.pdf.

Performance Metrics Not Linked to Funding Allocation

The New York State Department of Transportation is required to annually report on the efficiency, effectiveness and economy of transit service. Performance reports are public and are submitted to the Senate Finance Committee and the chairman of the Assembly Ways and Means Committee, and to the Director of the Budget.[98] State law provides the following example of qualified indicators:

> *"Economy, efficiency and effectiveness indicators" shall refer to a series of criteria established by the Department to measure the performance of transit operations in terms of their operating and capital cost input, as compared to their service quantity, quality and usage output. Examples of indicators that may be used are: (1) revenue vehicle hours per employee hour; (2) revenue vehicle miles per employee hour; (3) operating cost per vehicle hour; (4) operating revenue compared to operating cost; (5) operating revenue plus voluntary local assistance per passenger mile; (6) revenue passengers per vehicle hour; (7) revenue passenger miles per vehicle hour; (8) revenue passenger miles per vehicle mile; (9) operating cost per revenue passenger mile; (10) operating loss per revenue passenger mile; (11) revenue passengers per employee hour; (12) revenue passenger miles per employee hour; and (13) percent on time performance.[99]*

NYDOT currently uses the following performance indicators to meet these requirements.

- Effectiveness: revenue passenger to revenue vehicle mile ratio
- Efficiency: operating cost per revenue vehicle mile ratio
- Economy: operating revenue to operating cost ratio.[100]

North Carolina

As of 2017, North Carolina had 99 public transportation systems throughout the state that serve more than 70 million passengers. These systems ranged from large, urban systems to both public and private community transit services.[101] According to the National Transit Database, state funding provided 11.4% ($48.7M) of statewide transit operating expenditures in 2017.

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[98] Transportation Law, § 18-b. 17 CRR-NY 975.8.

[99] 17 CRR-NY 975.4 (o)

[100] New York Department of Transportation, CHAPTER III STATUS AND PERFORMANCE OF MAJOR TRANSIT SYSTEMS (n.d.). Available at https://www.dot.ny.gov/divisions/policy-and-strategy/public-trans-respository/chapter3_0.pdf.

[101] North Carolina Department of Transportation. (2018). N.C. Public Transit Systems. Retrieved from https://www.ncdot.gov/divisions/public-transit/Pages/nc-transit-systems.aspx.

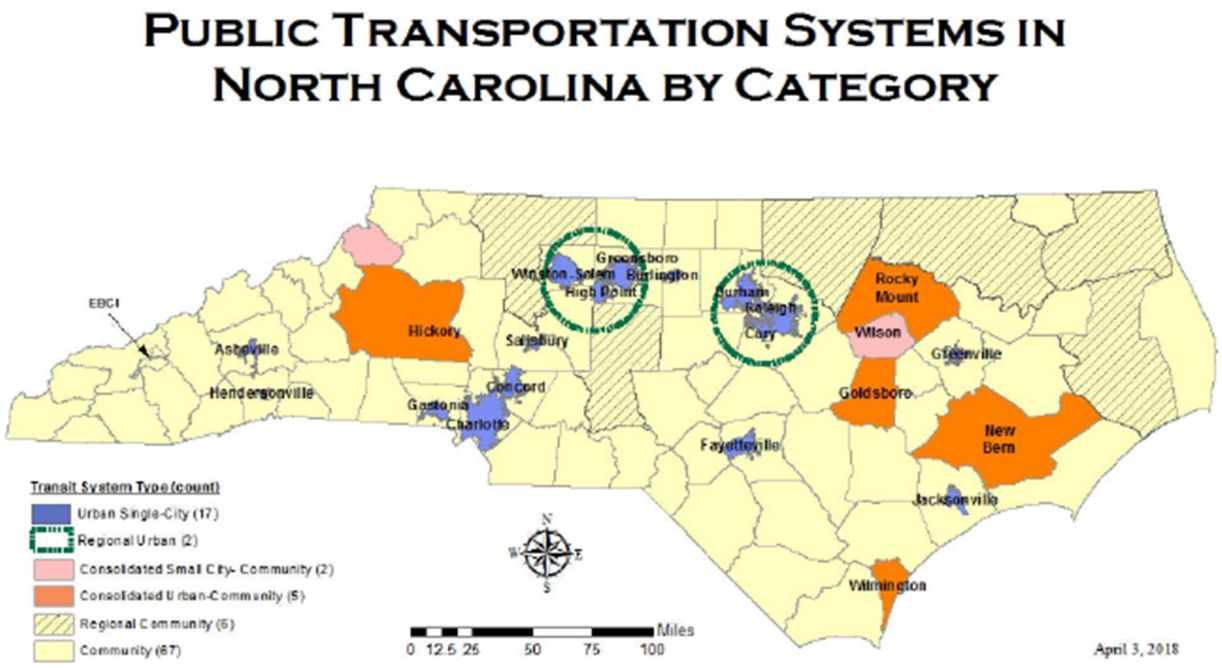

Figure A.7 Public Transportation Systems in North Carolina by Category[102]

Revenue Sources

In 2017, North Carolina invested $52.4 million in state operating funds, which helped bring in $287 million in federal and local funds for NCDOT funding. Motor fuel taxes provide 55% of NCDOT funding, DMV fees provide 25%, and a highway use tax on vehicle title transfers provides the remaining 20%.[103]

Funding Allocation for Transit Operations

State funding for transit operations in North Carolina are distributed through multiple grant programs.[104]

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[102] (2018). *Public Transportation Systems in North Carolina by Category*. *Public Transportation Systems in North Carolina by Category*. North Carolina Department of Transportation. Retrieved from https://www.ncdot.gov/divisions/public-transit/Documents/NC_public_transit.pdf

[103] North Carolina Department of Transportation. (2018). Finance and Budget. Retrieved from https://www.ncdot.gov/about-us/how-we-operate/finance-budget/Pages/default.aspx.

[104] North Carolina Department of Transportation. (n.d.). Grants & Annual Reporting Forms. Retrieved from https://connect.ncdot.gov/business/transit/pages/transit-grants.aspx.

State Maintenance Assistance Program (SMAP)

The State Maintenance Assistance Program (SMAP) provides funding for urban, regional and small urban areas to use as a match for federal funding programs. Funds are allocated annually based on a formula approved by the North Carolina Board of Transportation. The funds must be used for operating expenses, with the exception that preventive maintenance and ADA service costs that are defined as capital eligible expenses for federal grants are still considered operating expenses for the State Maintenance Assistance Program (SMAP) funds. SMAP funds may not be used as matching funds for other state programs.[105]

In 2018, SMAP was budgeted $32,528,557 by the legislature, and disbursed funds according to the following formula: 10% equal share, 30% local commitment, 60% performance (30% trips/per vehicle hour relative to the statewide average and 30% net cost per trip relative to the statewide average[106]).[107] In FY2018, an additional $2M was distributed to regional providers based on a connectivity score. For FY 2019, SMAP funding was reduced by 26%.[108]

Rural Operating Assistance Program (ROAP)

The Rural Operating Assistance Program (ROAP) is a state-funded public transportation program administered by the North Carolina Department of Transportation Public Transportation Division (PTD). ROAP funds are distributed to county governments or other rural transit system operators and can be used as the local match for federal transit grants. ROAP includes three programs:[109]

- Elderly & Disabled Transportation Assistance Program (EDTAP) - Provides operating assistance for the transportation of the state's elderly and disabled citizens. Originally enacted by legislation in the 1989 Session of the North Carolina General Assembly (Article 2B, 136-44.27). EDTAP can fund up to 100% of the cost of service, and is distributed using the following formula:
    - 50% divided equally among all counties;
    - 22 ½ % based on the number of senior residents per county as a percentage of the state's total senior population;
    - 22 ½ % based on the number of disabled residents per county as a percentage of the state's total disabled population; and

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[105] North Carolina Department of Transportation, Public Transportation Division. (2016). *State Maintenance Assistance for Urban and Small Urban Program*. Retrieved from https://www.nctreasurer.com/slg/lfm/audit_acct/single_audit/compliance_supplements/2016%20Compliance%20Supplements/DOT-9-2016.pdf.

[106] Defined as total expenses minus fares and other operating revenues divided by total trips.

[107] North Carolina Department of Transportation. SMAP Program Guidance Revised. (2018).

[108] North Carolina Department of Transportation. (n.d.). *Grants & Annual Reporting Forms*. Retrieved from https://connect.ncdot.gov/business/Transit/Documents/SMAP%20Application%20and%20disbursement%20FY%2019.zip.

[109] North Carolina Department of Transportation. (2017, August 9). ROAP Program Guidance Revised.

    - 5% based on a population density factor that recognizes the higher transportation costs in rural, sparsely populated counties

- Employment Transportation Assistance Program (EMPL) – Program to help Department of Social Services clients as part of Workforce Development programs, or travel to work for disadvantaged populations. EMPL can fund up to 100% of the cost of service, and is distributed using the following formula:
    - 10% divided equally among all counties;
    - 45% based on the population of each county as a percentage of the total state population; and
    - 45% based on the number of unemployed individuals in the labor force as a percentage of the number of unemployed individuals in the labor force in the state

- Rural General Public Program (RGP) – Provides transportation services to individuals who do NOT have a human service agency or organization that will pay for the transportation service but live in a county with a transit operator. RGP can fund up to 90% of the cost of service, and is distributed using the following formula:
    - 50% divided equally among all eligible counties; and
    - 50% based upon the rural population of each county as a percentage of the total state rural population.

Performance Metrics

The NCDOT performance report does not discuss transit.[110] The Public Transit Division has internal performance measurements and goals, but they relate to agency performance, asset management, and customer satisfaction, and not to specific transit performance measures. They do, however, measure overall ridership increase, but this is not linked to a specific goal or tied to funding allocation.[111]

Pennsylvania

Pennsylvania DOT oversees operating and capital investments for transit in Pennsylvania, investing over $1.5 billion annually in public transportation in 2017. PennDOT oversees 35 fixed route systems,[112] 44 community transportation systems,

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[110] North Carolina Department of Transportation. (2018). *2018 Annual Performance Report.* Retrieved from https://www.ncdot.gov/about-us/our-mission/Documents/2018-annual-report.pdf.

[111] North Carolina Department of Transportation. *SUCCESS Plan 2017-2018*. Retrieved from https://connect.ncdot.gov/business/Transit/Documents/NCDOT%20SUCCESS%20PLAN%2020170807F%20(002).pdf.

[112] This includes any scheduled bus service.

passenger rail service between Pittsburgh and Philadelphia, and 12 intercity bus routes provided by two intercity bus companies.[113] According to the National Transit Database, state funding provided 49.3% ($1,018M) of statewide transit operating expenditures in 2017.

Transit Operations Funding

The passage of Act 44 in 2007,[114] established the Public Transportation Trust Fund to provide all operating and most capital funding for transit in Pennsylvania. Trust fund revenues include:

- Dedicated 4.4% of state sales tax ($400 million in 2007)
- $85 - $90 million from the Lottery fund for the Free Transit for Senior Citizens Program
- $125 million in state bond funding for capital projects
- Annual deposit of $450 million from the Pennsylvania Turnpike Commission through FY 2021-22. This payment will be reduced to $50 million in subsequent years.[115,116]

Table A.2 Transit funding amounts under Act 44[117]

Act 44 as Amended by Act 89
Annual Funding Requirements
($ 000s), Fiscal Year End May 31

	Transit			Mult-Modal	Total
	Operating	Capital (*)	Subtotal	Programs	Funding
2016	$110,000	$310,000	$420,000	$30,000	$450,000
2017	$110,000	$310,000	$420,000	$30,000	$450,000
2018	$25,000	$395,000	$420,000	$30,000	$450,000
2019	$25,000	$395,000	$420,000	$30,000	$450,000
2020	$25,000	$395,000	$420,000	$30,000	$450,000
2021	$25,000	$395,000	$420,000	$30,000	$450,000
2022	$25,000	$395,000	$420,000	$30,000	$450,000
2023-2057	$25,000	$25,000	$50,000	$0	$50,000

(*) Includes funding for Alternative Energy and Projects of Statewide Significance

[113] Pennsylvania Department of Transportation. (2019). *Public Transit.* Retrieved from https://www.penndot.gov/Doing-Business/Transit/Pages/default.aspx.

[114] This was subsequently amended by Act 89 in November 2013. Act 44 (P.L. 169) as amended by Act 89 (P.L. 794).

[115] 74 P.S. §1506.

[116] Before Act 89, $200 million of the $450 million annual payment from the Pennsylvania Turnpike Commission was used to fund highway and bridge projects.

[117] PFM Group. (2017). *Pennsylvania Turnpike Commission Act 44 Financial Plan Fiscal Year 2018*. *Pennsylvania Turnpike Commission Act 44 Financial Plan Fiscal Year 2018*. Pennsylvania Turnpike Commission. Retrieved from https://www.paturnpike.com/pdfs/business/finance/PTC_Fiscal_2018_Act_44_Financial_Plan.pdf

Under Act 44, each transit agency receives base funding, and additional funding allocated by formula. State operating funding requires a 15% local match. Base funding levels were based on historical funding levels when Act 44 passed in 2007 and are increased each year by a multiplier of 1.0506.[118] Additional funding is allocated using the following formula:

- Number of passengers - 25%
- Senior Passenger Premium - 10%
- Revenue Vehicle Hours - 35%
- Revenue Vehicle Miles - 30%.[119]

Performance Measures

Performance metrics and goals are published in the Pennsylvania Public Transportation Annual Performance Report. Transit performance reviews and goal setting are conducted on a five-year cycle for each agency.[120] Transit operating funding is explicitly linked to regular performance reviews (74 PA Code § 1513). Under Sec. 1513(e) the DOT may periodically perform reviews and issue reports that:

- highlights exceptional performance and identifies any problems that need to be resolved;
- assesses performance, efficiency and effectiveness of the use of the financial assistance;
- makes recommendations on follow-up actions required to remedy any problem identified; and
- provides an action plan documenting who should perform the recommended actions and a time frame within which they should be performed.

Under 1513(f), the Department uses the following performance criteria: passengers per revenue vehicle hour, operating costs per revenue vehicle hour, operating revenue per revenue vehicle hour, operating costs per passenger. The Department has the discretion to develop additional performance criteria.

Each system's requirements are determined by its past performance and a comparison to its peers, both within Pennsylvania and throughout the county. Peers are grouped

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[118]74 P.S. §1513; Pennsylvania Department of Transportation. (2017). *Act 44 Transportation Funding.* Retrieved from https://www.penndot.gov/Doing-Business/Transit/Funding%20and%20Legislation/Documents/Act44FundPresentation.pdf.

[119]Pennsylvania Department of Transportation. (2017). Act 44 Transportation Funding. Retrieved from https://www.penndot.gov/Doing-Business/Transit/Funding%20and%20Legislation/Documents/Act44FundPresentation.pdf.

[120] Pennsylvania Department of Transportation, Annual Performance Report, FY2016-17. Available at https://www.penndot.gov/Doing-Business/Transit/InformationandReports/Documents/BPT%20Annual%20Report%202016-17.pdf.

based on four criteria: (i) Total revenue hours, (ii) Total revenue miles, (iii) Vehicles in maximum service, and (iv) Service area population. Special exceptions are made for the state capitol and university towns. Compliance requires that system performance metrics are within one standard deviation of peer group mean. If they do not meet these goals or follow an action plan to remediate, PennDOT has discretion to withhold funding.[121]

Under Act 44, a "hold harmless" provision ensures that no system shall receive less funding than in prior years if it meets its performance requirements. Under Sec. 1513(g), if performance decreases compared to a previous review, the department may waive any required decrease in funding via formula to bring the system back up to the required performance level. If the operator is unable to attain the required performance level within two years, they can submit to the DOT an application for a waiver containing "an action plan to improve system performance that contains key measurable milestones" and submit quarterly progress reports to the Department. The operator will remain eligible for full formula funding throughout the waiver period. If the system has not improved by the end of the waiver period, the waiver will be withdrawn and the recipient will be responsible for any funding that was given to bring the system up to performance level.

Tennessee

The transportation program in Tennessee is funded by state highway user taxes and fees. No money from the state's general fund (funded largely by sales tax revenues) is used in any of the programs of the Tennessee Department of Transportation (TDOT).[122] According to the National Transit Database, state funding provided 14.4% ($35.8M) of statewide transit operating expenditures in 2017.

State Operating Assistance Program: Provides capital and operating assistance to support fixed route and complementary paratransit service in urban core areas of Tennessee. Annual program funds are approved by the State Legislature and allocated to predetermined public transportation providers by formula. The formula is based on population reported in the 2010 Census. Funding for Pigeon Forge and Gatlinburg, where ridership is mainly driven by tourists and is significantly higher than other rural agencies and operators would not receive sufficient funding from the population-based formula, is taken off the top, then the remaining funds are allocated based on

[121] Pennsylvania Department of Transportation. (2010, December 17). *General Overview of Transit Agency Performance Review Process*. Retrieved from https://www.penndot.gov/Doing-Business/Transit/InformationandReports/Documents/Act%2044%20Performance%20Reviews/Additional%20Documentation/TPR_Presentation.pdf.

[122] Gas Tax, TN DOT. (n.d.). Retrieved 2019, from https://www.tn.gov/tdot/finance/gas-tax.html

UZA population among agencies with fixed route transit. [123] Match requirements for the first $500,000 in total expenses are 80% state, 20% local; after first $500,000 in total expenses, this changes to 50% state, 50% local.[124]

Virginia

State law (SB 1140 Mass Transit) stipulates performance-based funding for mass transit with revenues over $160 million. The 2013 law created the Transit Service Delivery Advisory Committee to advise the state Department of Rail and Public Transportation on specific funding allocations. Although the law describes "performance-based funding," the law delegates the specification of "service delivery factors, based on effectiveness and efficiency" to the Commonwealth Transportation Board (CTB), which must re-evaluate them every three years and make any changes available for public comment one year before they go into effect.

Prior to 2018, operating fund allocations were formula-based, whereby roughly two-thirds of funds were based on cost amount and the remainder based on "performance measures" (actually operating characteristics) that include operating costs, ridership, revenue vehicle miles, and revenue vehicle hours.[125] HB 1539, passed in 2018, revised the methods of allocation to be entirely performance-based beginning in FY 2020, as described below.

The Code of Virginia section 33.2-1526.1 Use of the Commonwealth Mass Transit Fund determines how funds are allocated and stipulates that local matches are required for state funding. The Director of the state Department of Rail and Public Transportation must make annual recommendations for allocations within the categories defined and shares of state funding defined by the Code as follows:

- 31% of funds to be allocated to support transit operating costs, distributed "on the basis of service delivery factors, based on effectiveness and efficiency…" evaluated every three years and announced one year in advance of use
- 12.5% for capital purposes, excluding the Washington Metropolitan Area Transit Authority (WMATA)
- 53.5% for the Northern Virginia Transportation Commission for WMATA for capital and operating assistance

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[123] Castrodad, F. G. (2019, April). TN state transit funding [E-mail]. Director of Planning and Grants, WeGo Public Transit

[124] *UROP Fact Sheet* [PDF]. (n.d.). Tennessee DOT. Retrieved 2019, from https://www.tn.gov/content/dam/tn/tdot/multimodaltransportation/program-admin-docs-/UROP_Fact_Sheet_4.1.17.pdf

[125] Commonwealth Transportation Board. (2019). *Resolution of the Commonwealth Transportation Board*. *Resolution of the Commonwealth Transportation Board*. Retrieved from http://drpt.virginia.gov/media/2733/6.pdf

- 3% for special programs including ridesharing, demand management, experimental transit, studies, assistance, etc.

The Board may reallocate funds from capital purposes and special programs to transit operating funds "in times of statewide economic distress or statewide special need." In addition, the DRPT can reserve a balance of up to five percent of Fund revenues to provide year-over-year funding stability.

The state's new methodology uses performance metrics weighted by system size. Performance is also weighed against all state agencies.[126] The formula is therefore:

Agency size-weight = (Sum of Agency Sizing Metric / Statewide Totals) * Weight

Bus systems

- Operating cost (50%)
- Ridership (30%)
- Revenue vehicle hours (10%)
- Revenue vehicle miles (10%)

Commuter rail systems

- Passenger miles traveled (33%)
- Revenue vehicle hours (33%)
- Revenue vehicle miles (33%)

These metrics are described as being "for the purposes of system sizing," though sizing appears to be explained neither in the policy nor in the Code of Virginia.

Wisconsin

Legislation requires the Wisconsin Department of Transportation (WisDOT) to publish annual "cost efficiency standards" to "gauge efficiency over time and identify areas for potential improvement."[127]

WisDOT uses the following performance indicators to compare the state's transit systems:

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[126] *Ibid.*

[127] Wisconsin Department of Transportation. (2019). *Public Transit System Cost Efficiency Report*. *Public Transit System Cost Efficiency Report*. Retrieved from https://wisconsindot.gov/Documents/doing-bus/local-gov/astnce-pgms/transit/effic-report.pdf

- Operating expenses per revenue hour
- Operating ratio (revenue/expense ratio or “farebox recovery”)
- Operating expenses per passenger
- Passengers (unlinked trips) per revenue hour
- Passengers (unlinked trips) per capita
- Revenue hours per capita.

The state requires that each aid-receiving transit agency set both long-term (annual over 4-year period) and short-term (quarterly) performance goals as well as cost-efficiency standards, based on the indicators above. Goals must be submitted to WisDOT for funding eligibility and WisDOT uses the indicators above to assess each aid-receiving transit system annually. In addition, a management performance audit is required at least once every five years for all urban mass transit systems.

The state divides the systems into six peer groups:

- Milwaukee
- Madison
- Medium bus systems
- Small bus systems
- Commuter bus systems
- Shared-ride taxi systems.

WisDOT compares the performance of the Milwaukee, Madison, and medium bus systems groups with the performance of similarly-sized transit systems nationally, and compares the performance of other systems with peers in the state.

To compare agencies, WisDOT sets standards for each performance measure based on the peer group average. Systems whose performance on at least four of the six minimum performance indicators is within one standard deviation of the average (or “better”) are considered to be “in compliance with the standard for the measure.”

When systems do not meet cost efficiency standards, WisDOT undertakes a time-trend analysis of the 6 performance measures over the most recent five-year period; if in that period, the system is in compliance for 4 of the 6 indicators, WisDOT takes no further action. If not, WisDOT allows for no further action to be taken if the agency is making progress toward the implementation of recommendations made in its most recent management performance audit.

If WisDOT determines that an out-of-compliance agency has made insufficient progress toward actions previously recommended, the state code directs the agency to “provide technical assistance to aid in the implementation of the recommendations.”

The transit agency is obligated to pay the nonfederal share of costs for any necessary consultant services, however.

Out-of-compliance agencies have three years in which to comply before they face a 10% revenue penalty, which remains in effect until the agency reaches compliance.

Appendix B:
Survey questions distributed to RTPA and transit agency professionals

Introduction

Thank you for participating in this study.

Why you received this survey invitation

The California Transit Association has distributed this survey on behalf of the UCLA Institute of Transportation Studies, which is doing research to support the Association's TDA Reform Task Force effort. As part of that research, the Task Force wishes to query Public Transit Operators on their experiences with the TDA and Public Transit Operators and Regional Transportation Planning Agencies about possible changes to the TDA. We value your professional insight and your completing this survey will greatly contribute to this research and the usefulness of the recommendations we will make.

What this research is about

We are seeking to understand how current Transportation Development Act (TDA) requirements and criteria are affecting transit agency decision-making and service outcomes. We are also seeking the opinions of agency professionals on hypothetical changes to funding eligibility requirements. The goal of this research is to inform the California State Legislature's transportation policy committees, concerning possible changes to the Transportation Development Act.

How your responses will be used and your privacy assured

- **None of your individual responses will be presented in any way that identifies you or your agency without your explicit and written authorization.**
- **Your contact information will never be shared with anyone outside the research team.**
- **Your responses will be stored in the survey software (Research.net) and in UCLA's G-Suite Drive, with those services' commercial data security safeguards in place.**
- **Aggregate survey responses may be reported in publications or presentations in a statistically summarized fashion (e.g., 68% of respondents answered 'yes' to 'X'.)**

What to expect

- **Depending on your responses, this survey takes an estimated 20-24 minutes to complete for transit operators and 5-10 minutes for Regional Transportation Planning Agencies.**
- **Questions are single-choice, multiple-choice, and open-ended.**
- **You need not finish the survey in one sitting; you can return to the survey anytime in 14 days.**
- **You can skip any question if you prefer not to answer.**

If you have any questions about this research or your participation in it, feel free to contact:

Juan Matute

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3320 Public Affairs Building
Los Angeles, CA 90095-1656
Telephone: (562) 546-2831
Email: jmatute@ucla.edu
Web: https://www.its.ucla.edu/

Your Rights Regarding Participation and Withdrawal

Your participation in this survey is entirely voluntary, but we value your insights and would appreciate your contributions to this research.

You may withdraw your participation at any time. You are not waiving any legal rights because of your participation in this study. If you have any questions about this research, please contact Juan Matute at jmatute@ucla.edu

* 1. Do you agree to participate in the study?

- ◯ I agree to participate in the study.
- ◯ I decline to participate in the study

About you

2. Your contact information

What is your name?

What is your e-mail address?

3. What is your title and how long have you been in your current role?

Name of agency

Title

Years in current role

* 4. What type of agency do you represent?

If your agency is both a transit operator and an RTPA, please select the type that best matches your professional role.

- ◯ Transit Operator
- ◯ Regional Transportation Planning Agency

About your agency

5. What modes does your agency operate (directly and/or by contracting)?
Please select all that apply.

- [ ] Fixed-route bus
- [ ] Commuter rail
- [ ] Light rail
- [ ] Demand response/paratransit
- [ ] Heavy rail
- [ ] Ferry
- [ ] Other (please specify)

6. What describes your agency's operating area?
Please check all that apply.

PUC 99217: "Urbanized area," means such an area as defined by Section 101 of Title 23 of the United States Code:

The term "urbanized area" means an area with a population of 50,000 or more designated by the Bureau of the Census, within boundaries to be fixed by responsible State and local officials in cooperation with each other, subject to approval by the Secretary. Such boundaries shall encompass, at a minimum, the entire urbanized area within a State as designated by the Bureau of the Census.

	Urbanized	Non-urbanized
County population over 500,000	☐	☐
County population under 500,000	☐	☐

Other (please specify)

7. Is your agency a claimant under any of the following articles in the TDA?
Please select all that apply.

- [ ] Article 4: Public Transportation Operators
- [ ] Article 4.5: Community Transit Services
- [ ] Article 8: Other Allocation
- [ ] I don't know

8. What farebox recovery ratio requirement (FRR) currently applies to your agency's TDA funding eligibility, as defined by PUC § 99268 - 99270.8?
Please select all that apply if different FRRs apply to multiple modes.

- [ ] Greater than 20%
- [ ] 20%
- [ ] 15%
- [ ] 10%
- [ ] I don't know
- [ ] Other

9. Has your agency been penalized because of a failure to meet TDA eligibility requirements (i.e. the farebox recovery ratio governed by PUC § 99268 - § 99270.8 or the CPI cost escalation limit, governed by PUC § 99314.6)?
Please select all that apply.

- [ ] Yes, penalized by **farebox recovery ratio** requirement
- [ ] Yes, penalized by **CPI cost escalation** requirement
- [ ] No
- [ ] I don't know

Meeting TDA eligibility requirements

10. How has your agency been penalized?

11. Approximately what percentage of your agency's STA funding must be spent for capital purposes as a result of not meeting efficiency standards as governed by PUC § 99314.6?

12. Has your agency been subject to any of the following 3-year penalty terms of compliance?
Please select all that apply.

- [ ] One-time grace year
- [ ] Non-compliance year
- [ ] Determination year
- [ ] Penalty year for non-compliance year
- [ ] None of the above

Comment (optional):

13. Is your agency presently in compliance?

- ( ) Yes
- ( ) No
- ( ) I don't know

14. Do you think your agency will be in non-compliance next year (FY 2019-2020)?

- ( ) No
- ( ) I don't know
- ( ) Yes (please say why):

Your funding environment

15. In the last five years, has your agency experienced difficulty meeting any of the following funding requirements? (Check all that apply).

- [ ] Eligibility to use TDA for operation purposes (TDA must comprise less than 50% of operations funding)
- [ ] Farebox recovery ratio ("farebox ratio")
- [ ] Cost escalation (CPI)
- [ ] None: no difficulty experienced

16. Regardless of TDA requirements, over the past five years, what has been the overall trend in the following at your agency?

	Decreased	Stayed about the same	Increased
Local funding (e.g. sales tax for transit)	◯	◯	◯
Labor costs	◯	◯	◯
Non-labor operating costs	◯	◯	◯
Ridership	◯	◯	◯
Fare revenue	◯	◯	◯
Transit revenue miles (VRM)	◯	◯	◯
Transit revenue hours (VRH)	◯	◯	◯
Other	◯	◯	◯

17. Over the past five years, meeting TDA requirements at my agency has become:

◯ Much more difficult ◯ More difficult ◯ No change ◯ Easier ◯ Much easier

18. Why?

19. In the last five years, has your agency increased, decreased/delayed or cancelled any of the following in order to meet TDA eligibility requirements (i.e., farebox recovery ratio, CPI, 50% operating funds limit)?

	No or N/A	Cancelled	Decreased/Delayed	Increased
Vehicle Service Hours (VRH)	◯	◯	◯	◯
Vehicle Revenue Miles (VRM)	◯	◯	◯	◯
Transit route extensions	◯	◯	◯	◯
New transit routes	◯	◯	◯	◯

Comment (optional):

20. In the last five years, has your agency increased or decreased any of the following in order to meet TDA eligibility requirements (i.e., farebox recovery ratio, CPI, 50% operating funds limit)?

	Decreased	Increased
Labor costs	◯	◯
Non-labor costs (not affecting transit service)	◯	◯
Labor costs (not affecting transit service)	◯	◯

Comment

21. Has your agency benefited from legislation to modify the farebox recovery ratio or cost escalation requirements?

◯ Not at all ◯ Not really ◯ Somewhat ◯ Significantly ◯ I don't know

TDA requirements

22. Which bill(s) and year(s) benefited your agency? Please specify the provisions/code sections of the bill that benefitted your agency.

23. To what extent have farebox recovery ratio/cost escalation requirements generated uncertainty in your agency's funding?

◯ Not at all ◯ Not really ◯ Somewhat ◯ Significantly

24. Do you think the TDA's farebox recovery ratio or CPI cost escalation requirement have any of the following effects?

	Definitely not	Probably not	Unclear	Probably	Yes, definitely
Help reduce labor costs in union and contract negotiations	◯	◯	◯	◯	◯
Help reduce non-labor vendor costs during procurement	◯	◯	◯	◯	◯
Lead my agency to make more cost-conscious decisions	◯	◯	◯	◯	◯
Motivate local support for transit (e.g. general fund, county sales tax)	◯	◯	◯	◯	◯
Motivate my agency to increase auxiliary revenues (e.g. advertising, leasing of property)	◯	◯	◯	◯	◯
Motivate better route planning and service coverage decisions	◯	◯	◯	◯	◯
None	◯	◯	◯	◯	◯

Comment (optional):

25. In your opinion, how significant an effect have the following had on the service your agency provides to riders?

	N/A	Significantly adverse	Adverse	Minimal or none	Positive	Significantly positive
Farebox recovery requirement	○	○	○	○	○	○
Cost escalation (CPI)	○	○	○	○	○	○
Operating funds limit (< 50% TDA)	○	○	○	○	○	○

Comment (optional)

Discount Pass Programs

26. What type(s) of free or discounted group fare categories does your agency have?

- [ ] Students (K-12)
- [ ] Students (post-secondary/college)
- [ ] Corporate programs (employer-based)
- [ ] Elderly
- [ ] Residential area permits
- [ ] None
- [ ] Other (please specify)

27. What is the source of funding for the free or discounted group passes funded? (Please check all that apply.)

- [ ] Subsidy/payment from student fee
- [ ] Subsidy/payment from school district or college/university
- [ ] Subsidy/payment from business or business district
- [ ] No funding (reduced fare revenues)
- [ ] Subsidy/payment from other source of funds (please specify):

28. Has the farebox recovery requirement constrained whether your agency offers free or discounted group passes?

- ○ Yes, we would offer group passes but do not because of the farebox recovery requirement
- ○ Yes, we would offer more group passes but do not because of the farebox recovery requirement
- ○ No, it has had no effect
- ○ I don't know

Comments

Possible Changes to the Transportation Development Act

The UCLA ITS research team is considering various alternatives to the use of farebox recovery ratio and the CPI Cost escalation requirement to qualify transit operators for state funding. Possible alternative approaches include augmenting or replacing the performance metrics for required annual reporting or changing the Triennial Performance Audit process.

29. In your opinion, where should state transit funding be prioritized?

Coverage (less service in more areas) — Ridership (more service in fewer areas)

30. To what extent would you support or oppose the replacement of the Farebox Recovery Ratio and/or the CPI Cost Escalation requirement with the following performance measures?

	Strongly Oppose	Oppose	Neutral	Support	Strongly support
Passenger miles traveled (PMT)	○	○	○	○	○
Unlinked passenger trips (UPT)	○	○	○	○	○
Fare revenue per passenger	○	○	○	○	○
Passengers per revenue-vehicle hour	○	○	○	○	○
Passengers per revenue-vehicle mile	○	○	○	○	○
Operating cost per vehicle run	○	○	○	○	○
Operating ratio (all revenue divided by all costs)	○	○	○	○	○
Subsidy per passenger	○	○	○	○	○

31. What frequency of reporting do you think would work best for your agency and for improving transit performance statewide?

- [ ] Quarterly
- [ ] Annually
- [ ] Biannually
- [ ] Triennially
- [ ] Other (please specify)

32. Given a choice between simple and standardized reporting methods (e.g., YOY service hours versus YOY cost increases) versus comprehensive and holistic reporting methods (e.g., Management practices currently underway for improving fare revenue), which do you prefer and how strongly?

Strongly prefer simple/standardized, metric-driven reporting	Indifferent	Strongly prefer comprehensive/holistic reporting that takes into account more qualitative factors

Your general comments

33. Do you have general comments on the current annual reporting process to the State Controller's Office (SCO)?

34. Do you have comments on the current triennial audit process?

35. How would you fix the problems (if any) that you think current TDA funding eligibility requirements present for your agency? What would you change or not change in a revision of the existing law?

36. Do you have any other general comments?

37. May we follow up with you on your responses?

- ◯ No
- ◯ Yes, please contact me at the email address entered earlier
- ◯ Yes, please contact me at a different email address or by phone: