Review of Operating, Governance and Financial Conditions

at the

Washington Metropolitan Area Transit Authority

2017

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EXECUTIVE SUMMARY

This report compares the Washington Metropolitan Area Transit Authority (WMATA) against other large transit agencies on a variety of indicators. Data reflects 2015 unless otherwise stated.

Cost Structure. By multiple measures, WMATA's cost structure is generally average for a large transit agency. All-in labor costs per hour, including salaries, wages and fringe benefits, are average. The unit cost to deliver service, as measured by total operating and maintenance (O&M) spending per hour of service delivered, is average for Metrobus and nine percent above average for Metrorail. Higher than average Metrorail O&M costs derive from rail maintenance spending that is 20 percent or more above average. Costs for rail operations are average.

Although WMATA's unit costs to deliver service are mostly average, it has delivered high levels of both bus and rail service considering the level of ridership. In FY2015, bus service hours per 10,000 passenger trips were 25 percent above average, and rail service hours per 10,000 passenger trips were 22 percent above average. Bus service levels per rider have been high going back at least 15 years. For rail, high service levels per rider emerged mostly after 2009, as service kept expanding while ridership fell. In 2017, WMATA reduced train frequencies significantly and this should bring rail service levels closer to average. Corresponding changes to bus service were more limited.

Two labor policies that contribute to cost were found to be outliers. On average, WMATA's hourly employees contribute 3.1 percent of wages to pension, where the national average among all workers in defined benefit plans is 7.1 percent. In addition, WMATA's unionized employees count overtime earnings in determining post-retirement pension payments. Changing these policies would generate savings, although it should be noted that WMATA's all-in labor costs per hour were average even with these policies in place.

Funds Paid by State and Local Governments in the Region. Under the WMATA compact, any costs not covered by federal grants, fares or other internally-generated revenues are paid by the region's jurisdictions. Even though WMATA's O&M costs are average for a large transit agency, these state and local payments have been growing rapidly, at nearly 10 percent per year. This steep increase in payments is caused almost entirely by four factors:

- The cost of buying new railcars;
- Increased spending on rehabilitating the WMATA rail system;
- Growth in WMATA's contributions to pension plans; and
- A large revenue decline due to falling ridership.

After accounting for these factors, all other WMATA costs grew at around three percent per year.

Board Operations. With 16 members, WMATA's board is large. The average transit agency board has nine members. The WMATA board has nine committees or subcommittees, tied for the highest number among large peer transit agencies. Recent efforts to streamline the committee structure have not been successful. The WMATA board also has many meetings – there were 85 board, board committee and board subcommittee meetings between June 1, 2016 and May 30, 2017.

WMATA's board includes elected officials, a trait it shares with 22 percent of transit agency boards. However, because of the way WMATA is funded, the elected officials on its board could be characterized as 'dual fiduciaries' – that is, accountable for the financial health of both WMATA and a local government that makes payments to WMATA. This arrangement is very rare at other large transit agencies, which are mostly supported with dedicated taxes.

Opportunities for Improved Financial Performance. This report estimates the effects of six measures to improve WMATA finances. In dollar terms, the largest is a return of rail ridership. Metrorail ridership declined 14 percent between FY2015 and FY2017, while other U.S. heavy rail systems saw a decline of just two percent. Returning to FY2015 levels (minus the effects of this broad national decline) would reduce the need for operating subsidies by as much as $57 million per year. WMATA's customers are its biggest funder.

The WMATA bus system is ripe for a major reset that would update where and when service is offered. The scenario analyzed for this report yields a subsidy reduction of as much as $38 million per year, through a combination of reduced costs and increased revenues. Bringing employee contributions to pension up to the national average could be expected to yield $25 million per year. Other changes – decreased fare evasion, more advertising, and lower absenteeism – could yield an additional $35 million per year combined.

Implementing these measures would take several years, and achieving full results on all fronts simultaneously would be difficult. Nonetheless, it is reasonable to estimate a possible reduction in expected operating subsidies of at least $40 million per year after several years. As described below, such a reduction in operating payments by the region's jurisdictions would allow for funds to be shifted to capital needs.

Need for Capital Investment. Metrorail opened in 1976, and many of its components began to reach their 30-year useful life around 2006. An increase in capital funding would have been appropriate at this point. Unfortunately, new federal funds under the Passenger Rail Investment and Improvement Act (PRIIA) were not approved by Congress until FY2009, and did not flow to WMATA until FY2011. It took even longer for WMATA to ramp-up spending. In FY2017, capital investment finally reached a level sufficient to stabilize the system, but the decade-long lag between growing need and lower-than-necessary investment helped create a backlog of deteriorated assets currently estimated at $7 billion. In addition, as each year passes additional assets wear out and must be renewed. From FY2018 to FY2026, this ongoing need is estimated at a further $1.1 billion per year.

To estimate the funding needed to cover all these state-of-good-repair needs, a financial model of WMATA's capital program was developed out to 2040. It estimates that WMATA would require additional capital funds of $540 million per year above current contributions from its federal, state and local funding partners. If savings to the operating budget of $40 million per year are achieved as stated above, this need could be met with $500 million per year in new capital funding. This funding would cover only WMATA's state-of-good-repair needs; any expenditures to enhance the system would require supplemental funding.

To eliminate its state-of-good-repair backlog in a timely manner, WMATA would need to pledge a large portion of new revenues to back new borrowing, estimated by the model at $5.9 billion. For this reason, new funding would need to be dedicated in a manner adequate to secure bonds.

ORIGIN AND METHODOLOGY

In February, 2017, the Commonwealth of Virginia enacted a requirement calling for "an objective review of the operating, governance and financial conditions" at WMATA. The review was required to "compare WMATA to other rail transit systems in the United States". (Conference Report for House Bill 1500, Item 436#3c, 2017.) The Virginia Department of Rail and Public Transportation then contracted with the global consulting and engineering firm WSP to perform the analysis. This report presents the results of this analysis.

The primary source of information used was the National Transit Database (NTD). This database is maintained by the U.S. Department of Transportation's Federal Transit Administration (FTA) and contains data reported by all transit agencies in the U.S. that receive federal funds. At the time this report was prepared, the latest year of NTD data for all agencies was 2015.

This report compares WMATA to eight other large transit systems: the New York Metropolitan Transit Authority (NYMTA); the Chicago Transit Authority (CTA); the Los Angeles County Metropolitan Transit Authority (LAMTA); the Massachusetts Bay Transportation Authority (MBTA); the Southeastern Pennsylvania Transportation Authority (SEPTA); New Jersey Transit (NJT); the San Francisco Bay Area Rapid Transit District (BART); and the Metropolitan Atlanta Rapid Transit Authority (MARTA). Unless otherwise noted, WMATA Metrorail is benchmarked against the heavy rail systems of seven of these eight agencies; NJT is excluded because it operates commuter rail and light rail but not heavy rail. WMATA Metrobus is also benchmarked against seven systems; BART is excluded because it has no bus system.

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PART 1. COMPARISON TO OTHER LARGE TRANSIT AGENCIES

Workforce

During its fiscal year 2017 (July 1, 2016 to June 30, 2017) WMATA had 13,032 authorized positions. Actual employment levels fluctuate below the authorized level during the year due to ebbs and flows in hiring, retirements and other factors. As shown in Figure 1, authorized staffing levels increased from FY2010 to FY2017, with some of this growth associated with the opening of the Silver Line Phase 1 in 2014. For FY2018, authorized staffing levels were reduced by 1,000, with some of the decrease coming from elimination of unfilled positions.

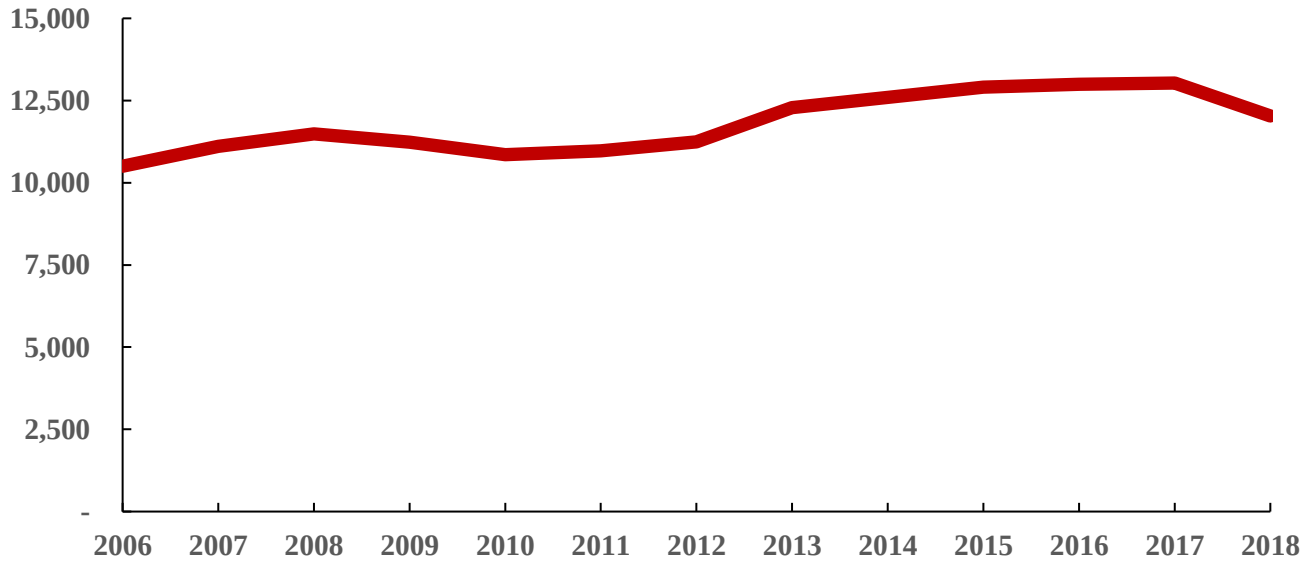

Figure 1. Total approved headcount for WMATA, FY2006 - FY2018. Source: WMATA.

Like most U.S. transit agencies, WMATA's labor force is heavily unionized; 82 percent of employees belong to a union and 18 percent do not. Union representation is divided among five union locals, the largest being the Amalgamated Transit Union (ATU) Local 689, representing 66 percent of WMATA employees.

Wages for WMATA's unionized employees are set through collective bargaining. The last two collective bargaining agreements with ATU Local 689 led to a slight increase in the value of wages. Between 2008 and 2017, ATU Local 689 employees were granted wage increases averaging 1.9 percent per year after accounting for employee contributions to pension. During this period, Washington DC area inflation averaged 1.4 percent per year. As a result, real wages for these employees grew at 0.5 percent per year on average, and in 2017 net wages were four percent higher than in 2008. Most of this net increase accrued between 2014 and 2017, a period when inflation was particularly low. Net annual wage increases granted in these years of low inflation were similar to increases granted in prior years.

Wage and salary levels heavily influence the agency's total cost in delivering service. Figure 2 (next page) compares the all-in cost of WMATA's workforce to its peer transit agencies on an hourly basis, including all salary, wage and fringe benefit costs for both labor and management. In some years WMATA's costs were slightly above the peer average, and in some years they were slightly below. Overall, WMATA's hourly labor costs have been consistently average or close to it.

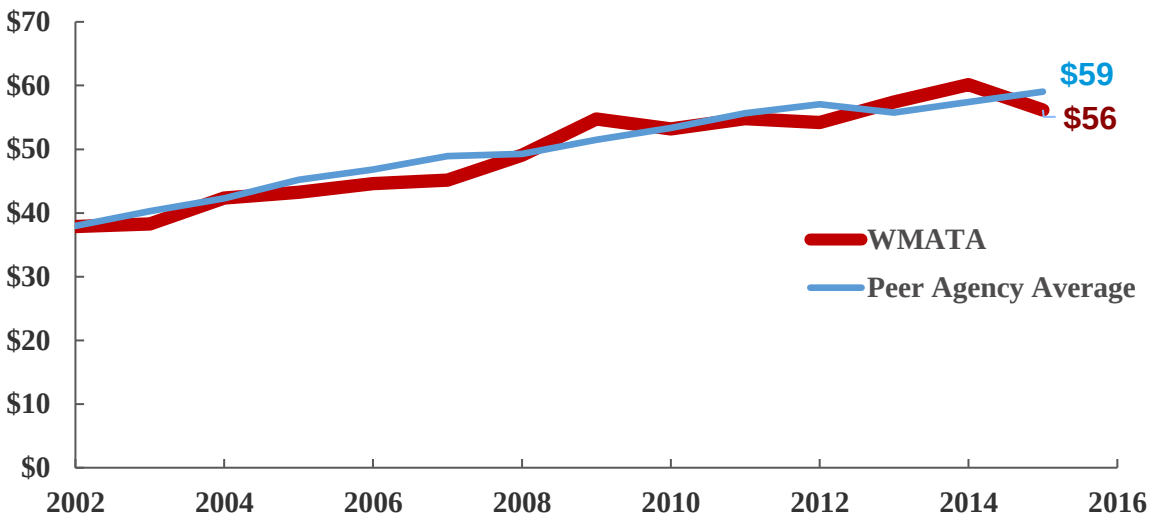

Figure 2. Total cost of wages, salaries and fringe benefits per hour worked, WMATA vs. large peer transit agencies. Source: NTD.

WMATA employees are not allowed to strike. Instead, union employees are subject to binding arbitration if labor and management cannot reach agreement. It has been suggested that a regime giving labor the right to strike and eliminating binding arbitration could lead to lower agency costs. To test this hypothesis, all-in labor costs per hour at agencies that allow strikes were compared to those same costs at no-strike agencies. No difference in labor costs between the two groups was found.

One additional method was used to assess personnel costs. Compensation at each agency, not including fringe benefits, was compared to its region's cost of living. (Cost of living was determined using the Economic Policy Institute's estimate of the cost for one adult and one child to "attain a modest yet adequate standard of living" in various regions of the country.) The average WMATA employee earns 106 percent of the DC region's cost of living, which makes WMATA average among peer transit agencies (Figure 3).

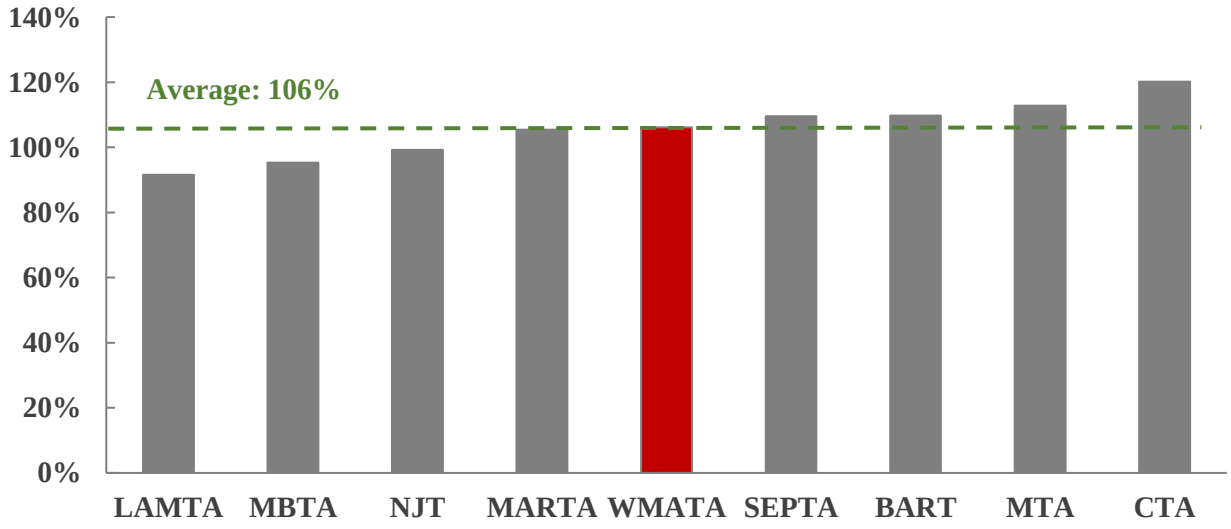

Figure 3. Average wage of transit employees as percent of a region's cost for one adult & one child "to attain a modest yet adequate standard of living", 2015. Sources: NTD; Economic Policy Institute.

WMATA maintains two notable labor policies that were found to be outliers. First, hourly employees contribute an average of 3.1 percent of wages to pension, where the national average reported by the Bureau of Labor Statistics for all workers in defined benefit plans is 7.1 percent. Second, WMATA's unionized employees count overtime earnings in determining post-retirement pension payments. Some public agencies allow this and some do not.

These two items should be viewed in context. First, even with these policies in place, WMATA's all-in labor costs per hour have been average among peer transit agencies. Second, WMATA's method of calculating base retirement payments is slightly less generous than an average of 20 selected local agencies. As shown in Figure 4, the WMATA retirement formula pays an employee retiring at age 62 with 30 years of service 55 percent of their final annual salary. The average paid by the 20 city and county governments shown in Figure 4 is 60 percent.

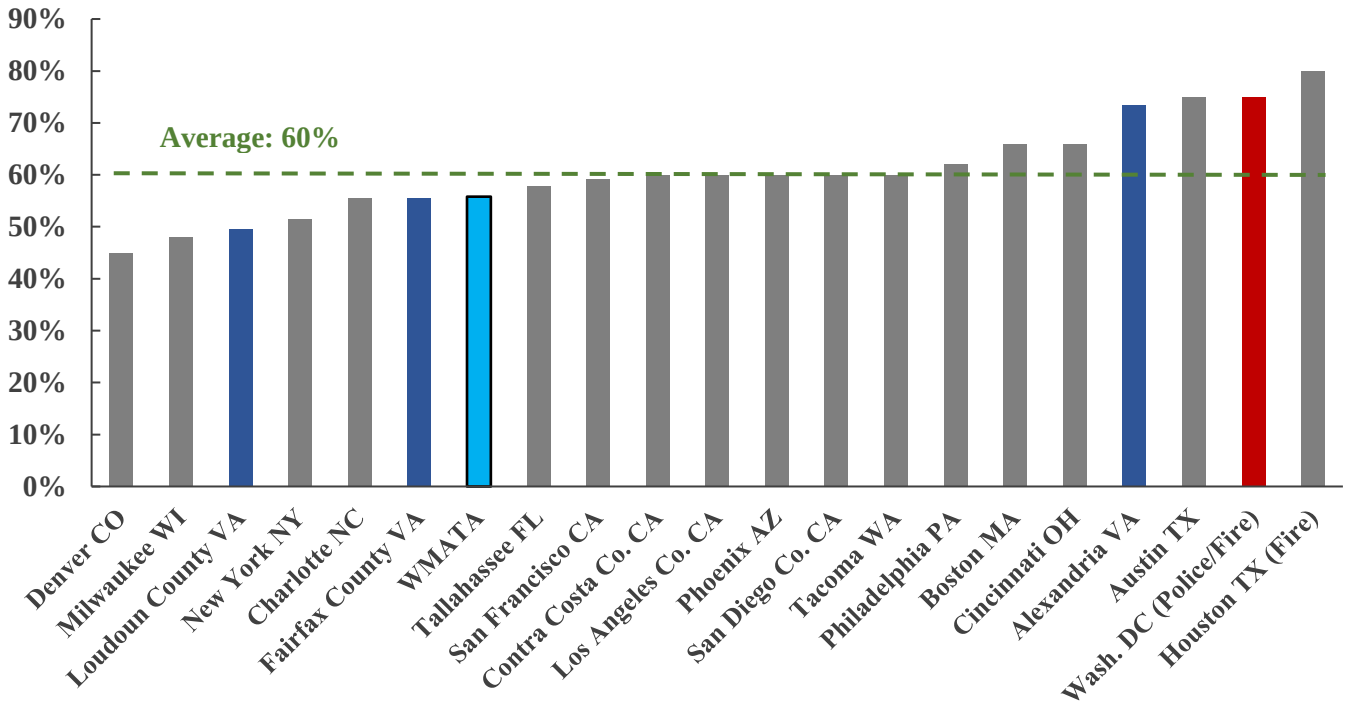

Figure 4. Retirement payments as a percent of final annual salary for an employee with 30 years of service retiring at age 62. Source: Center for State & Local Government Excellence; "Retirement Benefit Decisions by City and County Governments"; WMATA labor agreements.

Pensions

WMATA maintains defined benefit pension plans for most of its unionized employees. Under these plans, employees earn credit based on years of service and final annual salary, and receive benefits after they retire. WMATA management employees are in a defined contribution plan, similar to a 401(k).

Like most government agencies, in recent years WMATA has seen both pension liabilities and annual pension contribution amounts escalate. Several factors are at play.

- People are living longer and this leads to increasing pension liabilities. The expected lifespan of the average American adult has increased by around two years in the last 25 years, which represents more than a 15 percent increase in expected life span after the normal retirement age of 65.

- Most pension payouts to retirees are generated by investment returns on accumulated pension assets. When investment returns are strong, the burden on employers and employees to fund the pension is reduced. Inconsistent investment returns from early 2000s through the recent financial crisis led to increasing demands on employers to make pension contributions out of annual budgets.

One measure of pension health is the 'funding ratio', which represents the total expected value of a pension fund's assets compared to its total expected payouts. Ideally, pension funds should be 100 percent funded, but in practice this is not usually the case. Pensions tend to achieve a 100 percent funding ratio in periods of high investment returns, and fall below 100 percent when investment returns are weaker. As shown in Figure 5, WMATA's pensions were 77 percent funded on average in 2015. This placed them on par with -- or slightly above – both the national average for public pensions (75 percent funded) and major pensions in Maryland and Virginia. DC's two remaining defined benefit pensions were stronger.

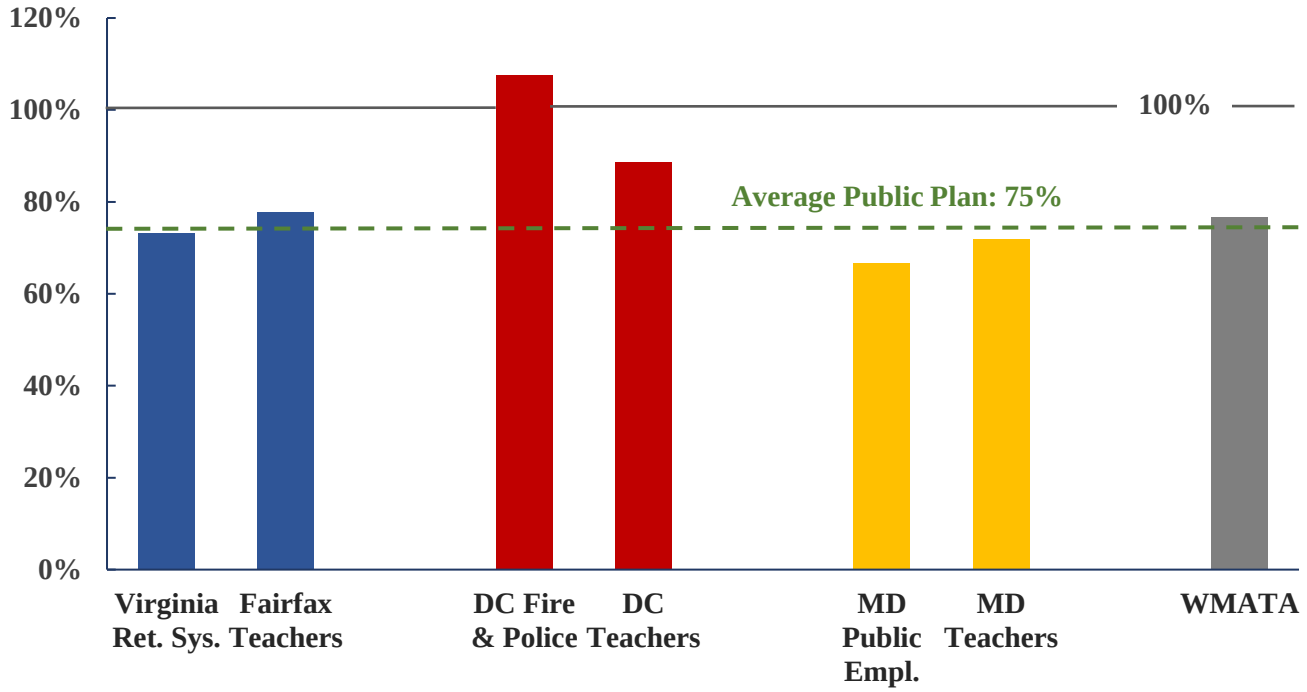

Figure 5. 2015 funding ratios for WMATA pension plans and selected DC, Maryland and Virginia plans. Source: Boston College Public Pension Plan Database; WMATA.

Although escalating contributions to pension have been a major cost item for WMATA in recent years, contribution amounts have stabilized since 2015. This is partly due to new employee contributions to pension arising from the last labor contract cycle, and partly due to stronger investment returns. Employee contributions to pensions dating from WMATA's founding were terminated as part of a labor agreement in the 1980s, and were finally restarted in 2015. In sum, although WMATA has pension problems, there is no evidence these problems are out of character with the similar challenges faced by many other public agencies.

Safety and Security

WMATA's performance on several measures of safety and security is presented in Figure 6.

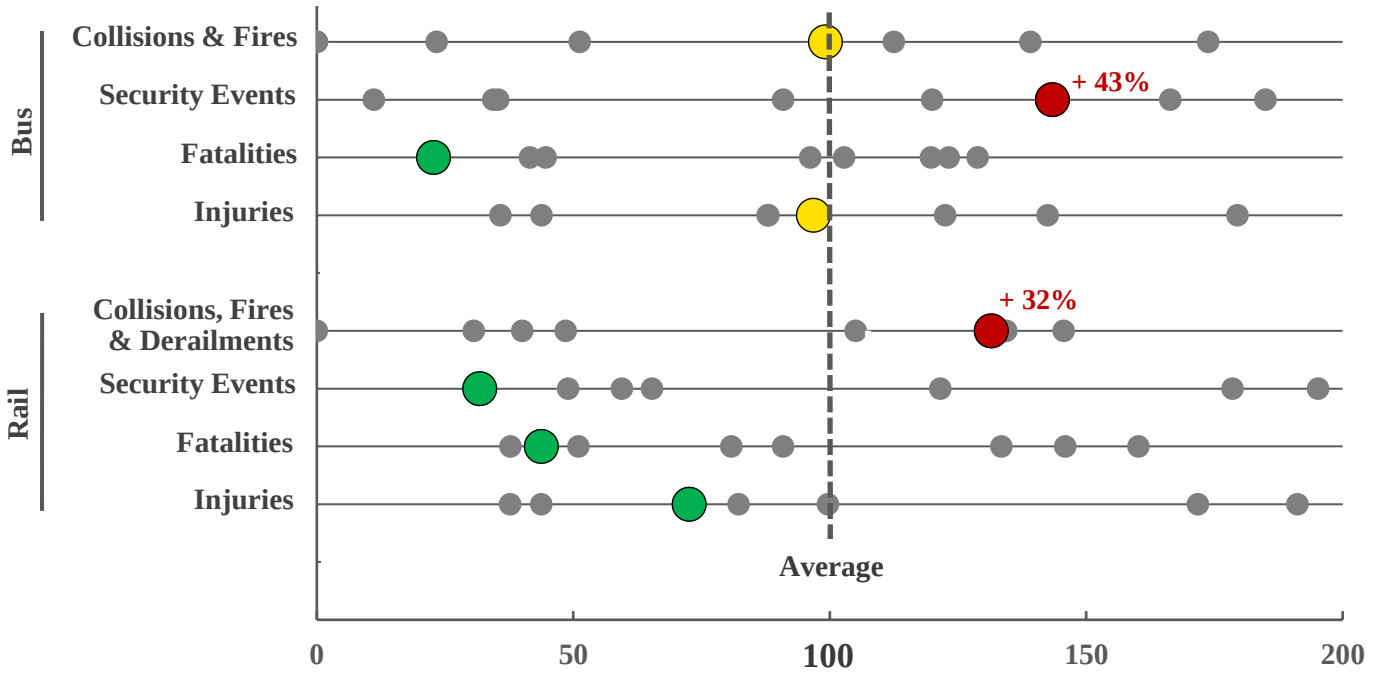

Figure 6. WMATA safety and security events compared to eight peer transit agencies, 2014-2015. Source: NTD.

During 2014 and 2015, WMATA was average or better than average on six out of eight measures, and worse than average on two measures. The number of security events on Metrobus was higher than the average of peer agencies, as were collisions, fires and derailments on Metrorail.

Bus Operations and Maintenance

A common financial measure for transit service is the 'farebox recovery ratio', which measures how much of a service's ongoing operations and maintenance expense is being recovered through fares. In FY2015, fare box recovery for WMATA's Metrobus system was just 23 percent, well below WMATA's peer agencies, which recovered 32 percent of their bus O&M costs on average.

This poor farebox recovery is not due to high costs. WMATA's FY2015 cost to deliver an hour of bus service was average. The components that produce this unit cost are shown in Figure 7, including wages, fringe benefit costs, and the efficiency of both the operations and maintenance workforces.

Poor farebox recovery at Metrobus is due to two non-cost factors. The first is low fares. Until mid-2017, WMATA's bus fare was $1.75, low among its peer agencies. The base fare has since been raised to $2.00, closer to the peer average of $2.16. However, the cost of a weekly pass did not rise and is still $17.50. (Directly comparing real world bus fares between agencies is complicated by the different policies they use to price bus/rail transfers.) The second factor causing low farebox recovery is high service levels given ridership. Hours of bus service offered per 10,000 passenger trips were 25 percent above the peer average.

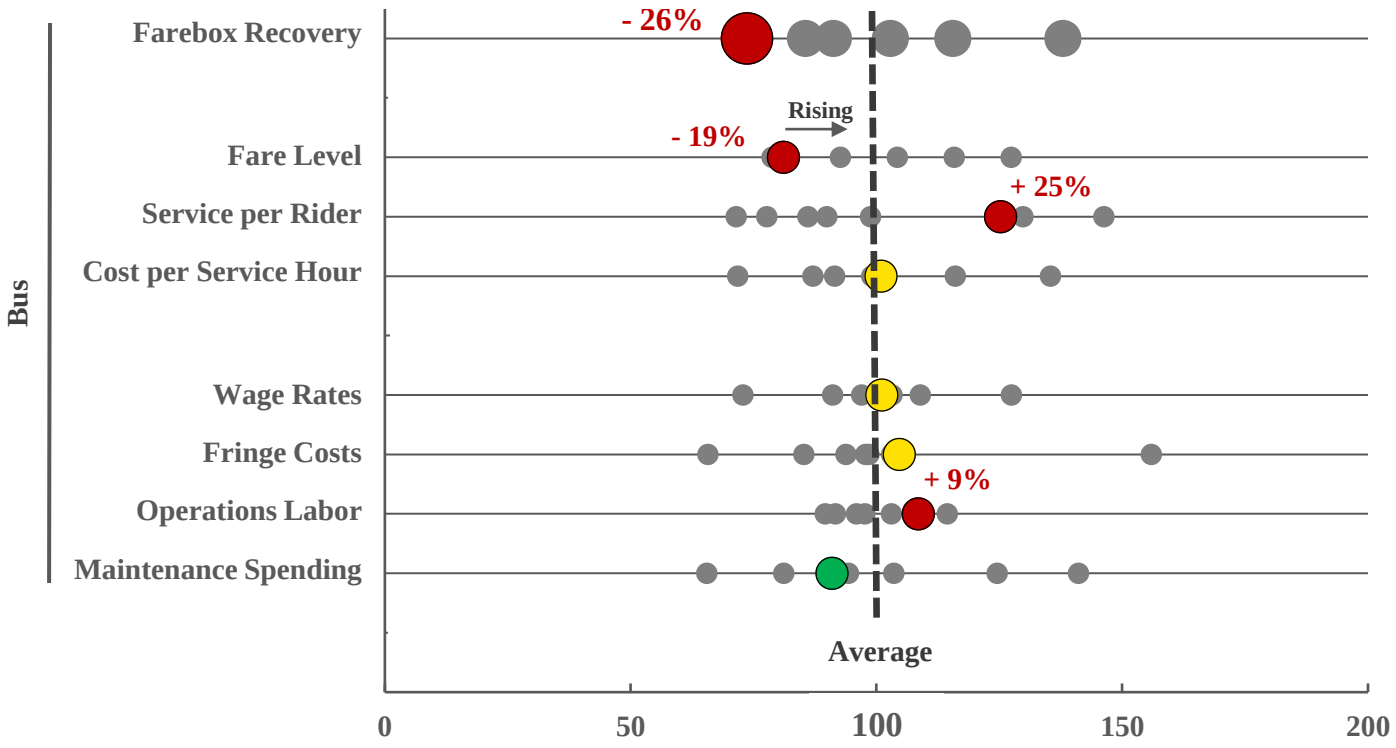

Figure 7. WMATA 2015 bus system performance vs. seven peer agencies. Source: NTD.

Low farebox recovery could be partly caused by fare evasion, but it is difficult to estimate the magnitude of this using publicly available data. Anecdotal evidence suggests that fare evasion has been rising. A consistent pattern of high service levels per rider and low fares on Metrobus has existed for many years. The recent increase to a base fare of $2.00 makes today's Metrobus base fare as high as it has ever been on an inflation-adjusted basis, but still below the average of peer transit agencies.

The indicator labeled 'Operations Labor' depicts the number of labor hours for bus operations and administration that are required to deliver one hour of bus service. The nine percent excess indicates that labor is being used somewhat less efficiently at Metrobus than at peer bus agencies. This is one of the factors supporting the 'bus reset' suggested in Part 2 of this report.

Rail Operations and Maintenance

In contrast to Metrobus, farebox recovery for Metrorail was higher than the peer average in 2015, although declining ridership since then has likely led this figure to drop closer to the peer average.

Higher than average farebox recovery was primarily due to high fare levels compared to other heavy rail systems (shown in Figure 8 as the average fare earned by WMATA per passenger mile of travel.) Service levels on Metrorail were also higher than average – in 2015 WMATA offered 22 percent more rail service per 10,000 passenger trips than the average peer agency heavy rail system. WMATA's operations and maintenance cost per hour of rail service delivered was nine percent above the peer average. This was due to higher than average maintenance spending. Other inputs to unit cost – wage costs, fringe benefit costs and overall operations costs – were average or below average.

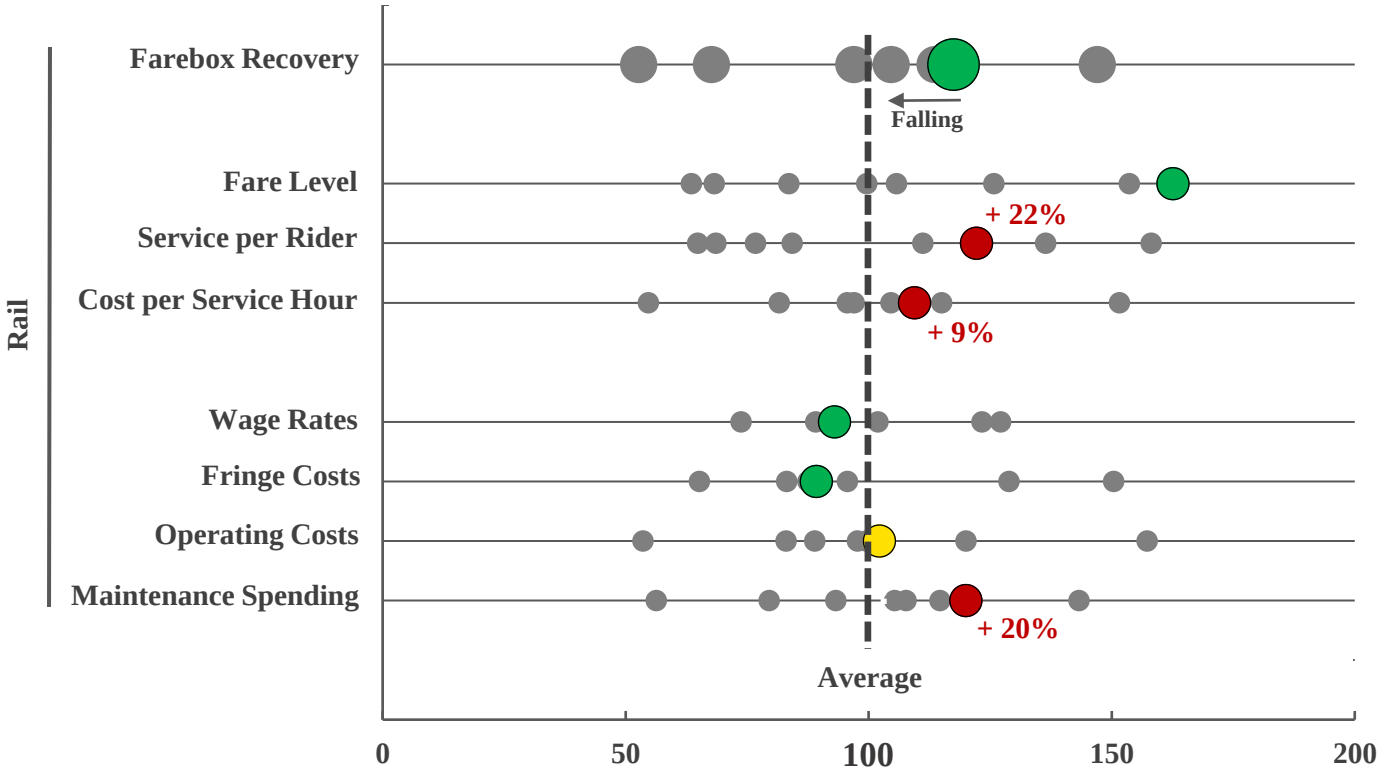

Figure 8. WMATA 2015 rail system performance vs. seven peer agencies. Source: NTD.

Unlike Metrobus, the higher than average level of Metrorail service per 10,000 passenger trips is a relatively recent phenomenon. In 2002, Metrorail's service levels per passenger were exactly average compared to peers. Between 2002 and 2009, both ridership and service levels grew. However, since then ridership has been mostly flat or declining, while service levels have continued to rise. The notable increase in service levels in 2015 shown in Figure 9 is mostly the result of the opening of Silver Line Phase 1.

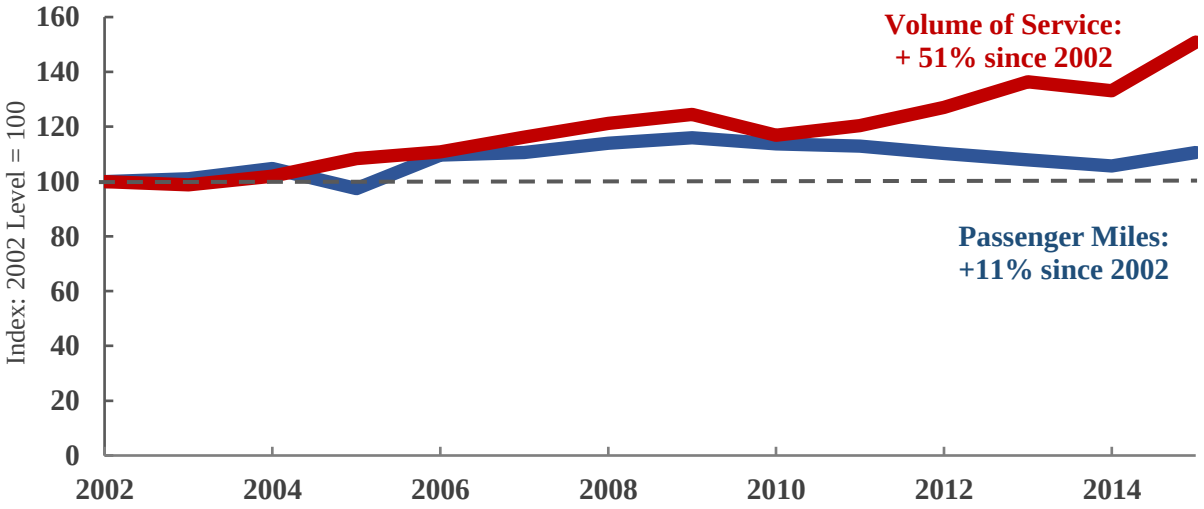

Figure 9. Change in hours of service and passenger miles travelled, WMATA Metrorail. Source: NTD.

Capital Program

WMATA's need for capital investment is determined by the age and condition of its assets. Each asset, from railcars to escalators, has a useful life. Once this useful life is exceeded, the agency must plan to reconstruct or replace the asset. Different types of assets have very different useful lives, but a general rule of thumb is to assume an average useful life of 30 years.

The Metrorail system opened in 1976 and quickly expanded, as shown in Figure 10. In its first 10 years of operation the system grew to roughly 70 miles in length, and today it is over 117 miles long. The original segments of the system began turning 30 in 2006, and today over half the length of the rail system is beyond its theoretical 30-year useful life.

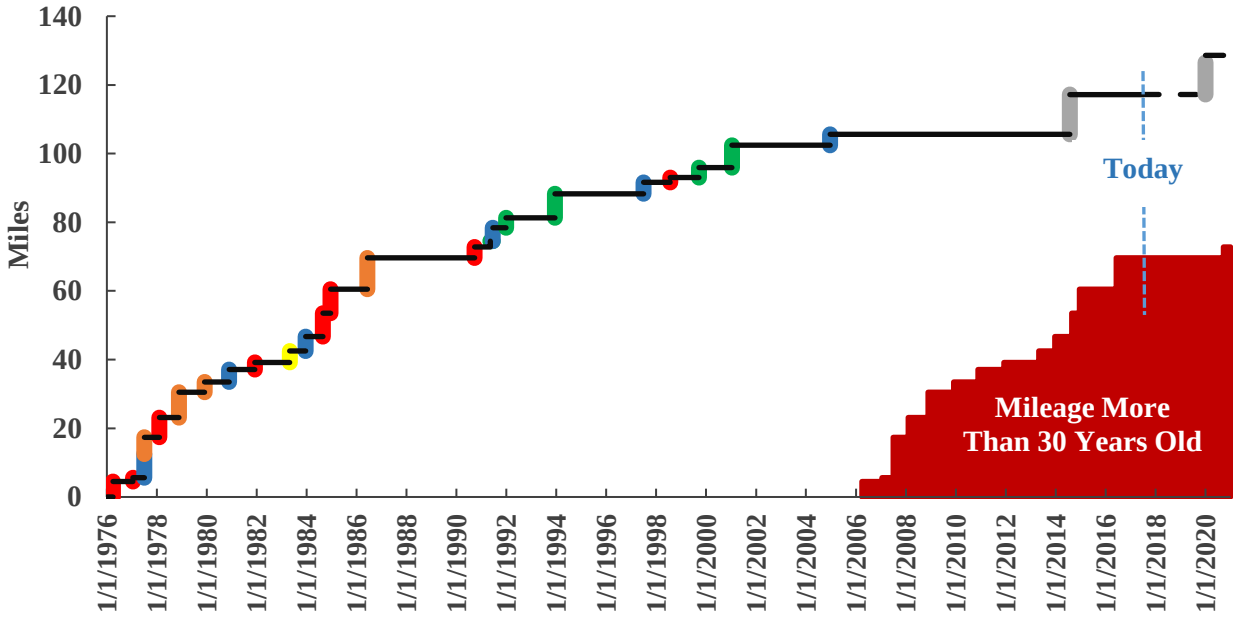

Figure 10. Growth of the Metrorail system since 1976. Source: WMATA.

To address this, an increase in capital investment to a level sufficient to reconstruct or replace assets as they wore out would have been appropriate around 2006. Although it is difficult to determine a correct theoretical investment level, a rough estimate can be made. A recent assessment by WMATA reported the total value of its asset base to be $39 billion. Assuming a 30-year useful life for an average asset, the agency could expect to replace roughly three percent of its asset base each year at a cost of somewhere around $1.2 billion per year.

As shown in Figure 11 (next page), in FY2017 WMATA achieved approximately this level of capital investment and plans to do so again in FY2018. However, this level was only recently achieved. The gap between necessary investment and actual investment in the preceding decade is a major reason for WMATA's backlog of deteriorated assets with an estimated cost of $7 billion.

During this period, efforts were being made to increase capital funding. As far back as 2005 the need was identified, and in 2008 Congress passed PRIIA, which authorized $150 million per year in new federal capital funds to be matched by an equal amount of new state and local funds. Unfortunately, for various reasons WMATA did not begin receiving these funds until FY2011, and even then had significant difficulty

in ramping up spending to utilize the new revenue. The result was a long period of sustained underinvestment.

Although current investment levels are a major improvement over prior years, it is important to note that the levels achieved since FY2016 are not sustainable given current capital funding provided to WMATA by its federal, state and local funding partners. The current baseline of capital contributions by these funders is approximately $800 million per year, well below today's level of actual spending. In FY2016, WMATA drew down unexpended funds from prior years to make up most of the difference, but in FY2017 and FY2018 the capital budget has been sustained by taking on new debt.

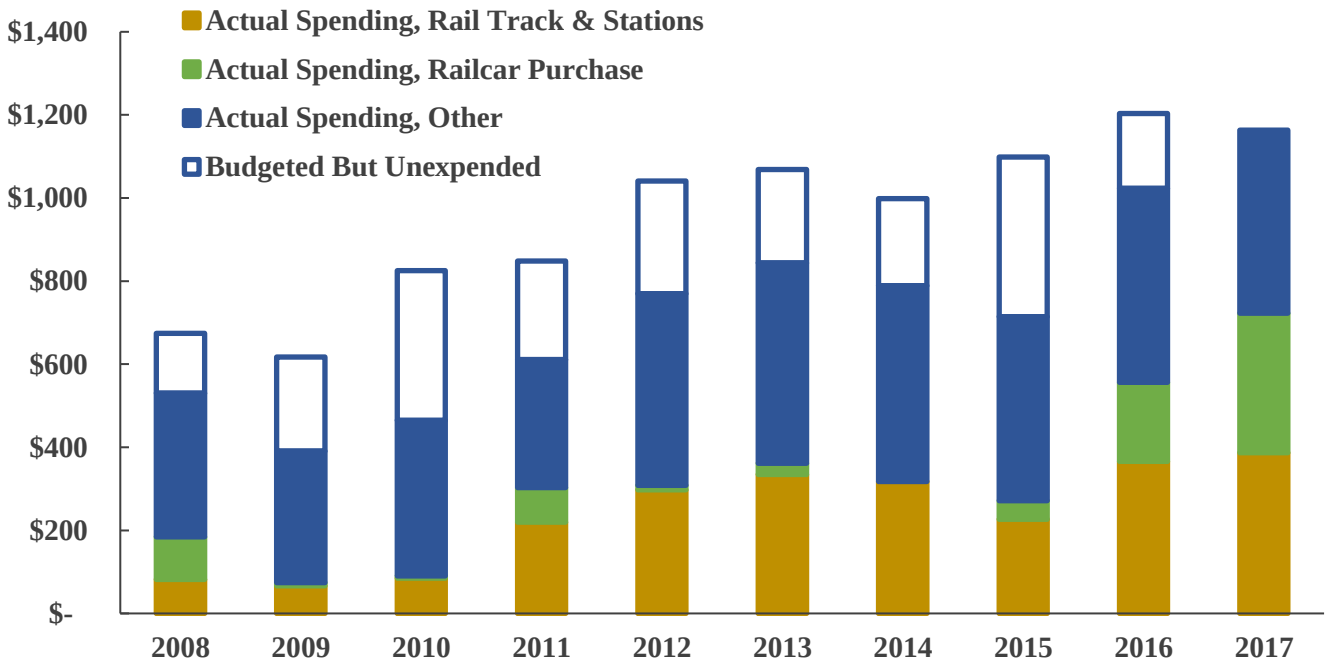

Figure 11. WMATA capital investment, millions of dollars, FY2008 to FY2017. Source: WMATA; WSP calculations.

It will not be possible for WMATA to reduce its backlog of deteriorated assets, or even sustain its current level of investment, without a major commitment of new resources from its funding partners.

Long Term Financial Sustainability

Although WMATA's service delivery costs are generally average for large transit agencies, the level of funds required annually from its state and local funding partners has been growing rapidly, rising at nearly 10 percent per year. As shown in Figure 12, these increases can be traced directly back to four main factors.

- Purchase of new railcars. WMATA is currently replacing a large share of its rail fleet, and expenditures on new railcars rose from zero in FY2014 to over $330 million in FY2017.
- Increased spending on rail system rehabilitation. Investment in the rail system grew by nearly $320 million per year from FY2009 to FY2017.

- Growth in contributions to pension plans. WMATA's contributions to pension have grown by more than $150 million per year since FY2007. After growing rapidly for a decade, contribution levels have stabilized since FY2015.
- A large revenue decline due to falling ridership. Revenue from ridership has fallen by $140 million per year.

Aside from these factors, WMATA's other costs have grown at a relatively reasonable three percent per year for the last dozen years.

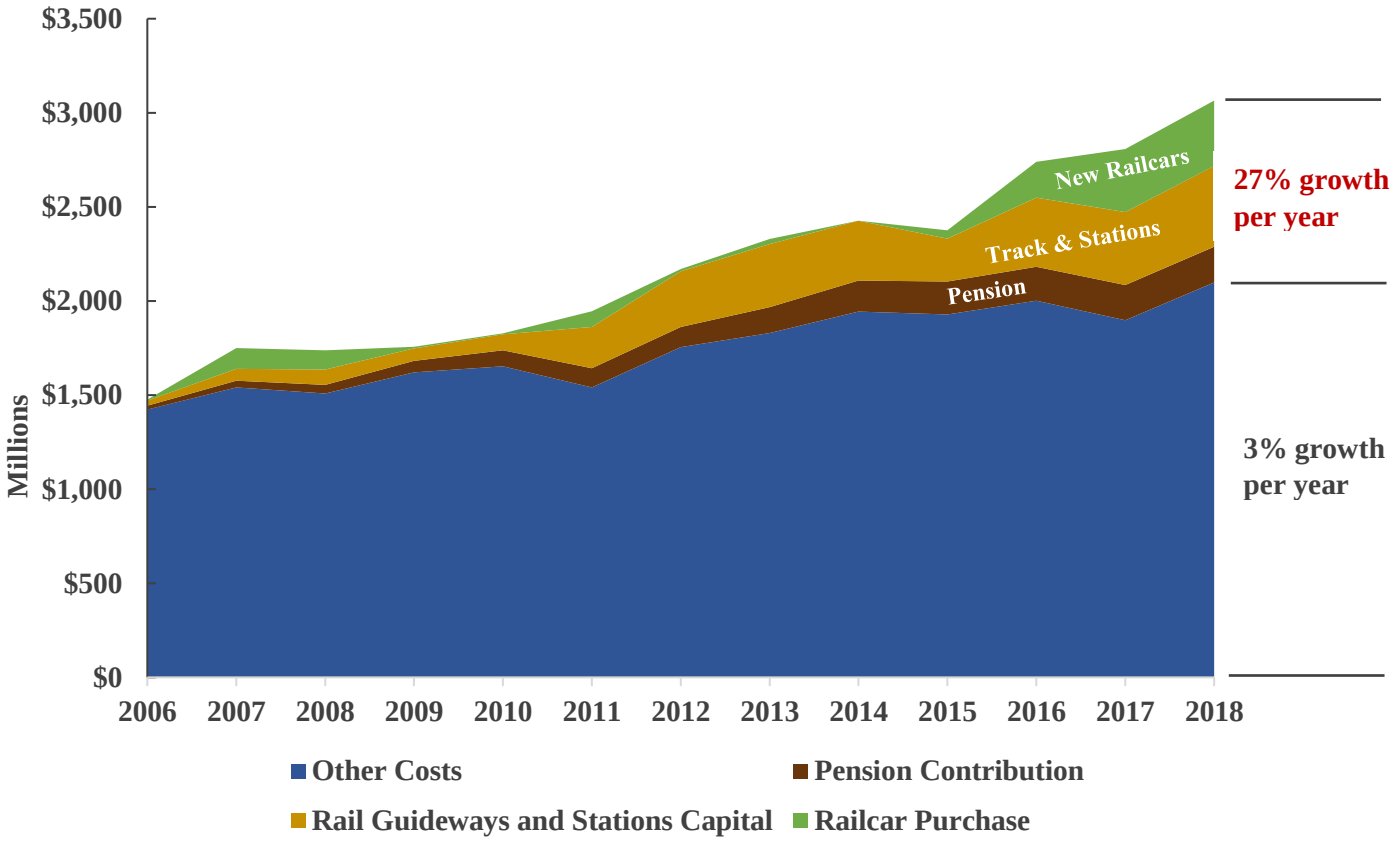

Figure 12. WMATA growth in spending in three major categories vs. all other spending, FY2006 to FY2018. Source: WMATA; WSP calculations.

Within its operating and maintenance budget, WMATA appears to be financially sustainable going forward, although improvements are possible. Several strategies to improve financial outcomes in the O&M budget are described in Part 2 of this report. Under WMATA's proposed budget for FY2019, jurisdictional contributions for operations and maintenance would rise by just three percent. No fare increases are proposed.

Within WMATA's capital budget, spending has risen but must rise even further for the system to achieve a state of good repair. This will not be possible without a substantial increase in the level of capital funding provided to WMATA.

Governance

WMATA's board currently consists of 16 members, eight Principal Members and eight Alternate Members. As shown in Figure 13, WMATA's board is larger than all but one peer agency. The average transit agency board has nine members. No peer agency board has alternate members.

WMATA's board currently has nine board committees and subcommittees, which ties it for the largest number among peer agencies. The WMATA board and its committees and subcommittees meet often. Between June 1, 2016 and May 30, 2017, there were 85 such meetings.

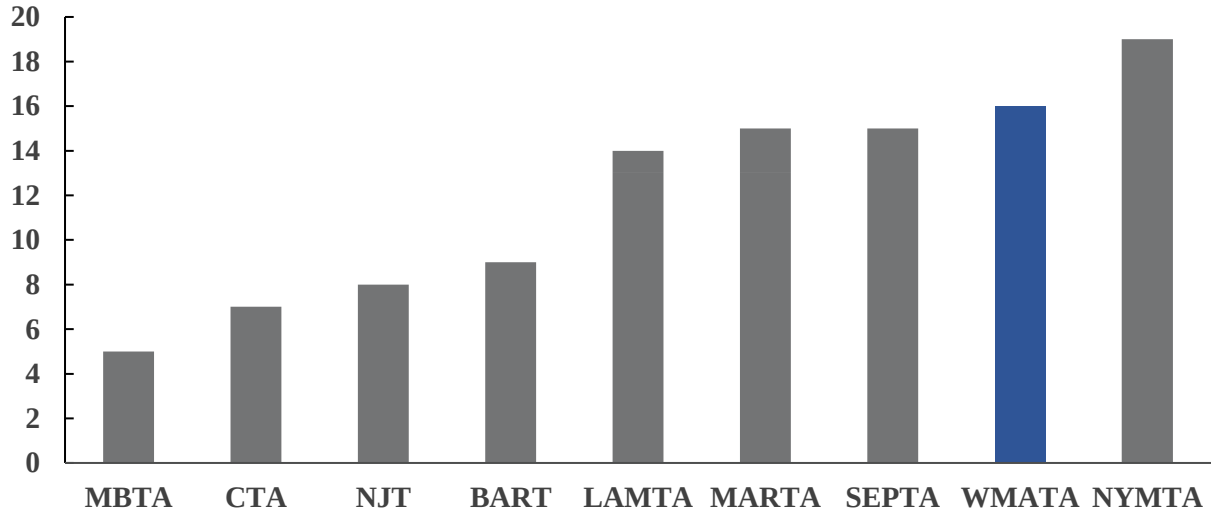

Figure 13. WMATA board size vs. boards at peer agencies. Sources: multiple.

WMATA is unique among peer agencies in giving each board contingents representing one of the three signatory jurisdictions – DC, Maryland and Virginia – a veto over major agency actions. The veto is not exercised often, but anecdotal evidence suggests that its presence nonetheless affects the dynamics of the board. Although none of the peer transit agencies allow a jurisdictional veto, this feature exists at the three other transit agencies in the U.S. that operate under Interstate Compacts: the Port Authority of New York and New Jersey, the Delaware River Port Authority in the Philadelphia region, and the Bi-State Development Agency in the St. Louis region.

WMATA's board includes local elected officials from the region, currently four of the 16 members. Arrangements of this type exist in 22 percent of transit agencies. However, in most of these cases there is a key difference. Where a transit agency is supported directly by dedicated taxes, any elected officials on the board can avoid the awkward position of both requesting funds on behalf of the transit agency and responding to this request on behalf of their home jurisdiction. This so-called 'dual fiduciary' status exists for WMATA's elected official board members. Among peer agencies, only one board member at one other agency has a similar status.

These features of the WMATA board present governance challenges over and above those faced by other transit agencies. With members often appointed to the board with the explicit understanding they will represent their home jurisdiction's policy, operational and financial preferences, WMATA faces major challenges in sustaining both a unified vision for the agency and clear parameters under which management can pursue such a vision.

PART 2. RECOMMENDATIONS

Measures to Reduce Operating Deficits

Figure 14 shows upper bound estimates for the possible financial impact of selected operating deficit reduction measures WMATA could pursue over the next several years. Each measure is described below.

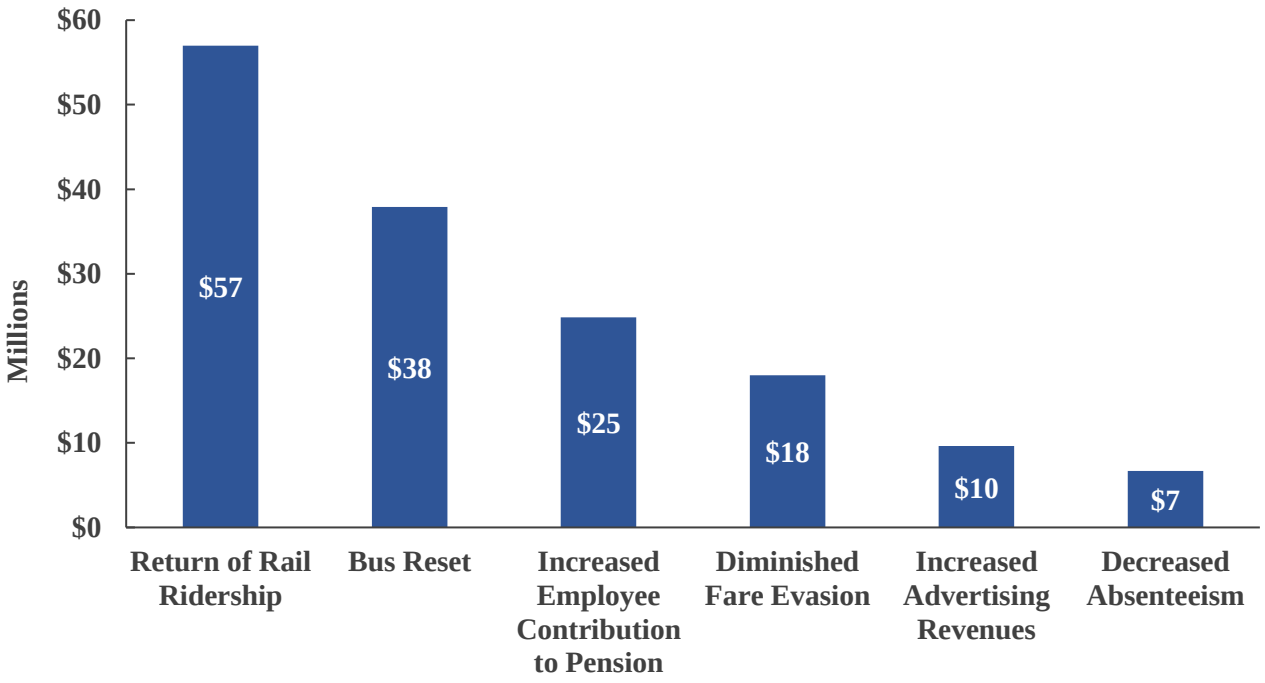

Figure 14. Upper bound estimates for the value of measures to reduce WMATA operating subsidies, in millions of dollars per year at full phase-in. Source: WMATA budget data and WSP analysis.

– *Return of Rail Ridership.* In FY2017 Metrorail ridership was 14.3 percent below FY2015 levels. During this same period, ridership at other U.S. heavy rail systems was also down, but by just 1.9 percent. With WMATA's SafeTrack program of rail system closures now concluded, service reliability is expected to improve, and this opens the possibility that riders who fled the system may begin to return. The scenario depicted here shows the financial effect of Metrorail ridership rising back to a level that is 1.9 percent below the FY2015 level. This is estimated to produce $76 million in new fare revenue and generate $19 million in new costs to run more frequent trains to carry the returning riders. The net benefit to the WMATA O&M budget would be $57 million per year.

  WMATA cannot compel riders to return, and if they do return of their own volition a recovery would likely take several years. Ridership is influenced by many factors, including gasoline prices and the regional economy, but service reliability was a major factor in the loss of riders and will have a large effect on their return. The point of showing this scenario is to focus attention on the how large the effects of changes in ridership can be on agency finances. WMATA's customers are its biggest funder.

– *Bus Reset.* WMATA is among the many transit systems experiencing flat or declining bus ridership, but its difficulties go beyond this. As shown in Figure 7, bus service levels per unit of ridership at WMATA were 25 percent higher than the peer average in 2015. There are several possible explanations for this.

WMATA could be running service on low-performing routes; its bus garages could be in locations that result in long hauls where no passengers are carried; its route structure could be out of date given changing patterns of demand; fare evasion could be masking the actual level of ridership. Each of these could play a role, or all could, but the depth of analysis necessary to understand the source of WMATA's difficulties was not possible for this report.

Nevertheless, a rough estimate was made of the possible financial consequences of a more efficient Metrobus system. The scenario presented here includes several elements. It assumes that bus fares are raised by 10 cents to $2.10, closer to but still below the average base fare among WMATA's peer agencies. In addition, the scenario assumes that WMATA can achieve a five percent reduction in Metrobus operating costs through more efficient routing or other service adjustments or operating practices. In total, this scenario could result in a reduced need for operating subsidies of $38 million per year once fully phased in. The analysis assumes that higher fares and adjusted service could trigger some reduction in bus patronage, but the goal should be the opposite – more efficient operations that both benefit riders and reduce WMATA's need for operating subsidies.

This analysis is presented not to endorse specific bus service changes, but to illustrate the magnitude of the issue. Determining exactly how to adjust Metrobus service will require detailed analysis, so WMATA should consider undertaking a 'bus reset'; that is, a comprehensive bus service study looking at routing, schedules, bus garage locations, work practices and the other major attributes of the bus system. As this report was being finalized, WMATA announced it would be undertaking "a study to overhaul its bus network" that appears similar to what is recommended here.

- *Increased Employee Contribution to Pension*. According to the Bureau of Labor Statistics, the average U.S. worker in a defined benefit pension plan contributes 7.1 percent of their salary to pension. The average member of WMATA's unionized workforce contributes 3.1 percent of salary. (Most contribute three percent, but Transit Police, who operate under their own contract, contribute 7.3 percent.) Raising employee contribution levels to the national average would reduce WMATA's need for operating subsidies by $25 million per year. Pension contribution amounts are set contractually between management and unions, and so making this change would require a change to current WMATA contracts either through negotiation or arbitration.

- *Diminished Fare Evasion.* Very little reliable information exists about the extent of fare evasion at WMATA. Nevertheless, a rough estimate of its fiscal impact was made. This scenario assumes that fare evasion deprives WMATA of five percent of potential revenues from bus and rail fares, and that stricter enforcement and other measures could cut this loss by 50 percent. An estimate of the incremental cost of undertaking such enforcement measures was not made. Under this scenario WMATA could reduce its required O&M subsidies by $18 million per year.

- *Increasing Advertising Revenues.* In 2015, WMATA's advertising revenues were proportionally the lowest among the large transit agencies studied. Advertising revenues were highest at the Chicago Transit Authority (CTA) at 1.84 percent of total O&M costs, while WMATA's advertising revenue was equal to only 1.32 percent of O&M costs. Were WMATA to increase advertising revenues to CTA's level, roughly $10 million per year in additional funds could be generated.

- *Decreased Absenteeism.* When a worker fails to show up for their shift, someone else must be found to perform the work. This often leads to replacements working more than eight hours in a day or more than 40 hours in a week, which triggers overtime pay. In 2016, approximately 940,000 labor hours were missed due to three categories of absenteeism – sick leave, unpaid leave and absent without leave. The scenario depicted in Figure 14 shows the cost savings to WMATA due to lower overtime costs if absenteeism due to sick leave were reduced by 20 percent from 2016 levels and the other two categories were reduced by 15 percent. Savings are estimated to be $7 million per year.

Implementing these measures could be expected to take several years, and achieving full results on any of them, let alone all simultaneously, would be difficult. Nonetheless, it seems reasonable to expect that a reduction in expected operating subsidies of at least $40 million per year could be achieved after several years. If operating subsidies from the region's jurisdictions can be reduced by this amount, this would allow for a corresponding increase in capita payments to WMATA that could be used to address the agency's large capital backlog.

Additional Capital Funding

To assess the adequacy of WMATA's current sources of capital funding, a model of WMATA's state-of-good-repair needs and capital funding sources was developed out to 2040. This model projects that current pledged capital revenues from federal, state and local sources will average approximately $830 million per year between FY2018 to FY2026, assuming Federal PRIIA funding continues at the current level. This baseline of current capital funding is shown in dark blue in Figure 15 (next page).

Limiting WMATA's capital program to this level would have dire consequences. Capital investment would fall from the $1.16 billion achieved in FY2017 to a level too low to even cover the new annual needs that will arise each year in the future, let alone tackle the large backlog of need accumulated from past years. If WMATA's capital spending is constrained at the level of current funding commitments, the system's condition will get worse, not better.

The next task was to estimate the level of additional capital funding required to avoid this outcome. The scenario shown in Figure 15 is designed to achieve three goals: 1) fund WMATA's ongoing state-of-good-repair needs in future years as they arise; 2) fully eliminate WMATA's backlog of deteriorated assets as quickly as possible; and 3) pay any debt serivce generated by new borrowing. In performing this analysis the following assumptions were used:

- Only state-of-good-repair costs were considered; any system enhancements would require other funds. (WMATA's 2016 Capital Needs Inventory shows $10 billion in potential capital projects that are over and above the agency's state-of-good-repair needs.)
- The pace at which work can be accomplished was estimated for five different types of investment: vehicles, guideway, stations, facilities, and systems. For example, it was assumed that spending on vehicle purchases could ramp up quickly once new funding arrives, while work on guideway and stations would be more constrained due to the need to continue carrying passengers.
- New funding was assumed to start on January 1, 2019.
- Federal PRIIA funds were assumed to continue at $150 million per year.
- Federal transit formula grants were assumed to grow at 1.5 percent per year.
- Construction costs and tax revenues were both assumed to grow at two percent per year.

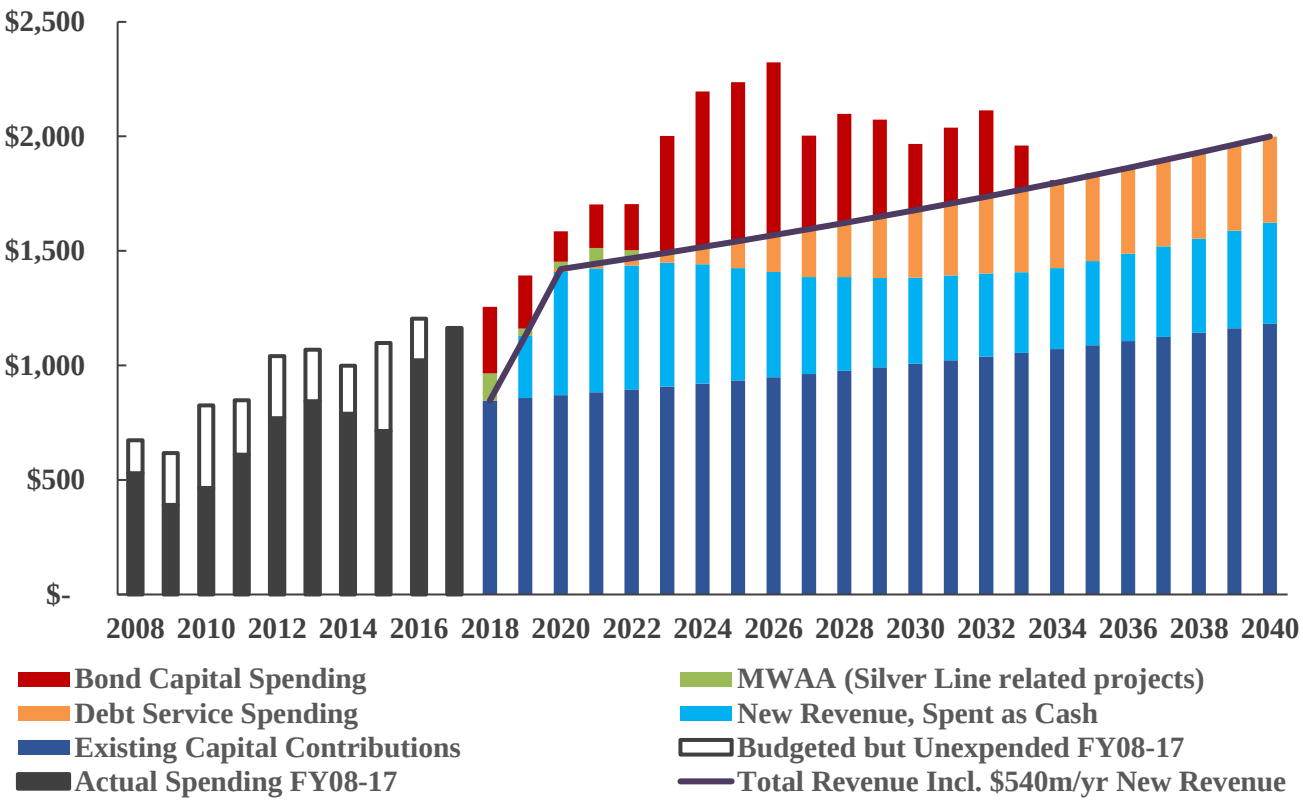

Figure 15. Model of WMATA capital spending with additional revenues, millions of dollars. Source: WSP.

Based on these parameters, it was determined that $540 million per year in new capital funding (dark line in Figure 15) would be needed. Some of the new funds would be spent as cash on a pay-as-you-go basis (light blue) while some would be used to support new borrowing. Bond proceeds expended each year are shown in red, and debt service on this borrowing is shown in orange. Spending would be highest in the FY2024 to FY2026 period as a new round of vehicle replacements takes place; after this it would decline slightly as backlog projects for guideway and other areas of need where spending is most constrained are completed. The state-of-good-repair backlog would be fully retired in FY2033, and thereafter WMATA would have sufficient funds to prevent a new backlog from developing and pay required debt service.

Strategies that could reduce WMATA's operating subsidies by $40 million per year were described in the previous section, and shifting these payments from WMATA's operating budget to its capital budget would allow the agency to achieve a state of good repair with a new funding source that generates $500 million per year starting in 2019.

To eliminate the state-of-good-repair backlog on this schedule, WMATA would need to borrow an estimated $5.9 billion over and above its current indebtedness. Issuing 30-year bonds would incur debt service costs that peak at approximately $375 million per year, and so most or all of a new revenue source of $500 million per year would need to consist of dedicated funding that can be pledged to secure bonds in a manner acceptable to bond rating agencies and bond purchasers.