M E M O R A N D U M

SUBJECT: FY2016 Budget Questions Compendium

DATE: December 31, 2014

FROM: CFO – Dennis Anosike FOR

TO: Acting GM/CEO – Rob Troup ART

Pursuant to questions from Board members in response to the General Manager's FY2016 Proposed Operating and Capital Budget, this package provides additional background and details on the budget. The questions and responses relate to five broad categories: general, personnel, non-personnel, capital improvement program and service including Metrorail and Metrobus.

In addition, prior to the presentation of the proposed FY2016 budget, staff provided information and responses to requests from Board members regarding:

- *Ridership and Fare History:* An August memo provided a review of FY2014 ridership and a look ahead to challenges facing Metrorail in FY2016. An October memo, following the FY16 Budget Outlook presentation, provided further detail about regional employment forecasts, and a November memo summarized previous Board decisions regarding fare policy and structure. In addition, detailed information about the ridership impact of the reduced federal transit subsidy was posted on PlanItMetro.com, Metro's planning blog.

- *Comparative Metrics:* A memo reviewing Metro's effectiveness and efficiency performance relative to peer transit agencies in the United States was provided in mid-December. Effectiveness measures include average speed, passenger trips per revenue mile, and revenue mile between failures, while efficiency measures include operating cost per passenger trip and Farebox recovery ratio.

Copies of all of these previous documents are attached for reference.

General

1.1 What is the process for public outreach, Title VI analysis and 13 (C) Implications? (Downey)

The public outreach process begins with a preliminary scan of proposed budget concepts, and includes customer research, public notice and a public hearing, extensive public outreach at rail stations and bus stops, meetings with Community based organizations, and materials distribution in multiple languages, as well as multilingual advertising in communities advising of opportunities for public input. Finally, a 13(C) review of bus route recalibrations and a Title VI analysis will be prepared prior to Finance Committee consideration and Board adoption in May 2015.

Washington Metropolitan Area Transit Authority

600 Fifth Street, NW
Washington, DC 20001
202/962-1234

By Metrorail:
Judiciary Square—Red Line
Gallery Place-Chinatown—Red, Green and Yellow Lines
By Metrobus:
Routes D1, D3, D6, P6, 70, 71, 80, X2

A District of Columbia, Maryland and Virginia Transit Partnership

Public Participation Plan (PPP) Timeline	
PPP Task	**Timeline**
Title VI Preliminary Scan of Proposed Budget Items Input for Board work session	December 16/ Report December 31
#1 Customer Research First level input for Board work session	Late December/ Report December 31
Materials for Board Work Session Staff package with analyses	December 31
Finance Committee- new Budget Discussion Item Begin Developing Docket	January 8
***Proposed* Finance Committee** Discuss Docket	January 22
Board Meeting Discuss Docket	January 22
Finance Committee Finalize Docket	February 12
Board Meeting Vote on Docket	February 26
Public Notice SECT/Counsel's office notice and advertise final Docket	Early March
#2 Customer Research Public survey regarding Board docket/proposals	Field Mid-March– April 6
Communications Package Includes media advisories, bus cards, posters, ads, public presentations, etc./7 translations	Mid-March–April 6
Outreach Package Meetings with Community Based Organizations and targeted pop-ups at stations/stops based on audiences affected	Mid-March–April 6
Public Hearing	April 1
Public record closes/Pencils Down on changes	April 6 *(approx)*
Title VI Analysis Finalize and produce report	April 30
Final Board Materials Finance Committee Package	May 4
Finance Committee Budget approval	May 14
Board Meeting Budget adoption	May 28

1.2 Delineate which new initiatives are included in the GM's budget (Costa)

A total of $30.0 million and 328 new positions were requested by departments for various initiatives to advance Metro's service and customer service goals in FY2016. These initiatives were included in the budget preview presented in November. Following review and prioritization, the FY2016 Proposed Budget includes $6.9 million and 113 new positions for new initiatives. In addition, $2 million will be provided to support outsourced maintenance of new Metro facilities. The initiatives advance the Momentum strategic plan and the key actions established in the GM/CEO'S CY2015-2017 Business Plan.

Some worthwhile initiatives that were excluded include expansion of bus and rail station cleanliness and an additional response team to accelerate monitoring and preventive maintenance of rail buckling and cracking that result in service disruption (see below, dollar values in thousands).

DEPT	DESCRIPTION	TOTAL		APPROVED	
		Value	PCN	Value	PCN
BUS	BUS – Fatigue Management	$8,500	150	$4,250	75
TIES	TRST – Fatigue	$1,800	14	1,779	18
BUS	ELES – Fatigue (Operations Center)	$415	4	415	4
BUS	BMNT – Salient Characteristics	$916	6	0	0
HR	Background Screening/Modernization	$1,895	0	895	0
CPO	CPO – Collaborative Risk Management	$251	1	251	1
TIES	ELES – Eliminate Maintenance Service	-$664	15	-664	15
CHOS	CPO Performance Benchmarking	$60	0	0	0
CHOS	PLAN Addition of Key Position	$74	0.5	0	0
BUS	BTRA – Metrobus PCN and SOGO Imp.	$4,208	39	0	0
BUS	BMNT - PCN & SOGO Operations	$2,600	15	0	0
BUS	BMNT – Bus Clearing	$679	0	0	0
TIES	PLNT Station Cleanliness	$657	12	0	0
DGMO	SCES – Wall to Wall Inventory	$500	0	0	0
TIES	TRST- Emergency Response Team	$1,098	10	0	0
TIES	TRST – Rail Destressing	$1,171	10	0	0
TIES	ELES Baseline FY16 New Facilities	$353	2	0	0
TIES	PLNT – FY16 New Facilities	$5,108	46	0	0
TIES	PLNT Roof Asset Management	$219	2	0	0
TIES	PLNT- Fleetwatch	$112	0	0	0
TIES	PLNT Remstar Unit Maintenance	$75	0	0	0
TIES	TRST FY16 New Facilities	$98	1	0	0
	TOTAL	$30,125	327.5	$6,926	113

Since submission of the FY2016 Proposed Budget, Metrobus has further revised its staffing needs and now estimates that only 25 positions ($1.7 million) would be required to meet its Fatigue Risk Management goal; which means a reduction of $2.6 million.

1.3 Provide more details regarding strategic initiatives: Collaborative Risk Management, HR Organization Modernization, Revenue Collection and Security Efficiency Pilot, Elimination of Paper Farecards, Escalator Maintenance Insourcing and Competitive Parts Procurements, including the needed resources to accomplish, as well as net savings or costs incurred in the areas below without estimates (Giancola):

1.3.1 Collaborative Risk Management ($0.3 million)

Following Board adoption of Momentum, the GM/CEO directed an agency wide effort to develop a corporate risk management framework to facilitate a consistent approach for managing enterprise risks that could impact Metro's mission and performance. The recent Financial Management Oversight (FMO) review provides a nexus for this critical work, with several corrective actions designed to enhance the risk culture and practices throughout the organization. Working with a consultant, Metro completed Phase 1 evaluation focused on identifying critical risk areas, with recommendations for implementing an enterprise risk framework as reported to the Board in a confidential memo dated October 3, 2014. Metro adopted the term Collaborative Risk Management (CRM) to communicate the need for a collaborative approach. Related activities include risk assessment and mitigation evaluation, tools/methodologies for delivering risk reporting, and improving Metro's risk culture through employee engagement and surveys. The FY2016 Proposed Budget adds a Senior Performance Analyst and provides continued professional and technical services support as needed for full implementation.

Collaborative Risk Management	
Description	**Cost**
Sr. Performance Analyst (1 FTE)	$ 150,000
Prof/Tech Svcs (on-going support)	$ 150,000
Total	**$ 300,000**

1.3.2 Human Resources organization modernization to support employee engagement ($1.8 million)

Consistent with the Board's strategic goal of investing in our people, the Board identified human capital renewal as a priority area of focus for the General Manager and his team. To that end, Metro is advancing a number of priority Human Resources actions and programs to meet and sustain Metro's manpower and employee developmental requirements. To meet Metro's human capital needs, Metro engaged consultants to build on on-going organizational assessments to maximize Metro and employee potential.

The HR assessment has already resulted in HR organization and functional realignment that has established Centers of Expertise, strategic business partners and shared services centralized information reporting, as well as a new multi-year phased transformation to reposition HR to recruit, develop, and retain the best and brightest. The FY2016 Proposed Budget includes $1.8 million for employee recruitment services, as well as technical support to review and revise HR policies and procedures to ensure that they support Metro's mission and human capital goals and are legally compliant, easy to understand, and internally consistent. With a better service model in place, HR will continue to develop and implement programs critical to the organization to ensure continuity, operational sustainability and stabilization of human capital assets.

Succession Planning
Succession planning is designed to ensure the orderly replacement of key positions within Metro. It ensures financial stability by investing in employee development and retention to ensure bench strength is readily available to fill new roles as Metro evolves, and/or loses key employees due to promotion, retirement or resignation.

Metro's Executive Leadership Team approved a succession planning pilot focusing on eight to 12 positions at the General Superintendent/Director level emphasizing professional development, coaching, mentoring, shadowing, and education.

Competency Architecture
A two-year program, the initiative commenced in early 2014 with full deployment targeted for late 2016. Core technical/professional, and executive competencies will be established to form the basis for job descriptions, recruitment and key measures for performance management.

Performance Management
Metro's performance management program was redesigned and deployed in CY2013 to establish formal performance measures, mid-term feedback and an annual performance assessment. The program serves to measure workforce performance as the precursor for a "pay for performance" culture and the foundation for succession planning.

Employee Engagement Improvement
In 2012, Metro conducted an Employee Engagement Survey to measure key aspects of the workplace environment including safety, employee engagement and enablement, customer service, performance management and leadership. The results of the survey established top areas for improvement with specific recommendations. A follow up survey was conducted in October 2014 and results are expected next month.

Strategic Workforce Planning
Metro is introducing strategic workforce planning as a formal business process to analyze human capital utilization, workforce forecasting capacity, and identifying resources linked to business needs. As an underpinning principle that drives succession planning, strategic workforce planning realizes Metro's projected loss of knowledge through attrition and the associated risks.

In CY2013, HR piloted a workforce planning initiative and assessed current organizational capabilities against future business requirements and recommended actions to meet anticipated workforce requirements. These and other efforts will constitute the FY2016 work plan to reposition HR to better serve Metro.

1.3.3 Revenue collection and security efficiency pilot

This base budget change included in the FY2016 Proposed budget will replace Metropolitan Transit Police Department (MTPD) personnel that currently drive Metro's revenue collection truck or guard revenue collection personnel and facility with contracted security services. Additional outsourced service will include partial revenue collection and processing to complement Metro's current workforce.

The replacement of MTPD officers formerly assigned to these internal functions with armed security services is anticipated to save $1.0 million through the elimination of 17 vacant positions by MTPD. The MTPD officers assigned to these activities will be redeployed to other system-wide safety and security activities.

The supplemental revenue collection and processing services are anticipated to cost $1.1 million and will not impact existing staffing levels. Such supplemental revenue collection and processing services will also be utilized to develop a framework for a more efficient future state for revenue collection and processing through competitive comparison.

1.3.4 Elimination of paper farecards

In FY2014, the Board was advised that the elimination of paper farecards would result in a $6 million annual operating savings to Metro when fully implemented. The first phase of the initiative will be accomplished by December 2015; with full implementation scheduled for 2016.

So far, actual annual cost savings is $635,000. This includes $467,000 from reduced paper fare media supplies ($292,154) and the elimination of 3 Encoding Machine Operator positions ($175,316) in Finance. The remaining savings of $168,000 is from reduced Automatic Fare Collection (AFC) maintenance cost. Staff is working to validate the revised cost savings estimate.

1.3.5 Escalator maintenance insourcing - savings $0.6 million/Yr.

Summary

Management concluded that Metro's ELES team can achieve comparable results and maintain key performance indicators with approximately $600,000 less expense by insourcing the work.

Using three measures – availability for revenue service, mean time to repair (MTTR) and mean distance between failures (MDBF), Metro can deliver results very close (1-2%) to [redacted] performance, when certain variables are normalized, which is confirmed by a recent OIG Report. The variables include the wide ranging types of equipment that are supported, as well as the accessibility of parts for legacy units, which often must be fabricated. ELES staff is confident that there will be no decrease in availability/ Mean Time to Repair (MTTR) if the current [redacted] contract is performed by in-house technical personnel. Details of the analysis are as follows:

Background/Timeline

- 1976 - 1994 elevator and escalator maintenance by outside contractors. Following an increase in the number of accidents and equipment failures, WMATA hired a consultant to assess the maintenance program in 1991.

- 1994 - 2002 WMATA creates ELES office and maintains all elevators and escalators until a Blue Ribbon Panel recommended eliminating in-house maintenance, with WMATA outsourcing maintenance of three quarters of the system's elevators and escalators through 2007.
- 2007 – 2012 all of the elevators and escalators maintained by in-house forces. In 2011, an independent evaluation recommended improved in-house maintenance procedures which led to the augmentation of internal forces with contractor support. Since 2012, elevators and escalators from [redacted] have used contract maintenance while ELES maintains the rest of the system's elevators and escalators.

Comparison of In-house and Contract Maintenance
In 2011, a strategy was developed to increase ELES staffing to achieve 85% compliance on preventive maintenance system wide. An analysis showed that 56 positions would be needed to meet the KPI for the existing system, exclusive of future service, such as the Silver Line Phase I stations. In order to augment the ELES workforce expeditiously, and to establish a competitive comparison, a segment of the Metrorail system was contracted for elevator and escalator maintenance and service. Contract [redacted] was awarded [redacted], 2011 for a period of one (1) base year and two (2) option years.

Cost Comparison
Contract [redacted] was awarded to [redacted], Inc. in the amount of [redacted] million. The cost for ELES to maintain equipment can be derived by subtracting the annual contract maintenance value from the annual ELES budget. The remainder is divided by the total number of elevators or escalators maintained by ELES. In FY2013, annual operating expenditures for ELES was [redacted] million, derived by subtracting the contract [redacted] value of [redacted] million. The average monthly cost for ELES to maintain elevators and escalators is achieved by applying the same ratio as [redacted] (escalators are 1.75 times the cost to maintain elevators).

In FY2014, the cost for [redacted] remained the same based on the price schedule submitted in 2012. The annual budget for ELES increased to $45.1 million. The number of escalators maintained by ELES stayed the same but the number of elevators increased to 250. The FY2015 budget was decreased to $44.7 million with the number of escalators excluding Silver Line remaining at 588. The number of elevators excluding Silver Line increased to 285.

Performance Comparison
Three (3) metrics are provided to compare ELES performance against [redacted]. The metrics are availability, Mean Time to Repair (MTTR) and Mean Time between Failure (MTBF).

Metric 1 – Availability

For the availability metric for escalators there is an average monthly difference of 6.93% between [redacted] and ELES. The primary reason for the difference is the number of rehabilitations and replacements that were performed. Capital work is included in the availability calculation. For the term of the maintenance contract there have been four (4) rehabilitations performed in the [redacted] maintained stations. While for the same period 116 rehabilitations and replacements were performed in the ELES maintained stations. If rehabilitations and replacements are removed from the availability calculation the average monthly difference is approximated at 2.5% in favor of [redacted]

Second, the [redacted] maintenance area is composed of one make and model of escalator; all escalators were rehabilitated between 2001 and 2013. All equipment is either interior or covered. Comparatively, the ELES maintenance portfolio is made up of a dozen makes and models of escalators and more than thirty (30) makes and models of elevators. Some of the makes and models are original to 1976 while others may be obsolete. ELES maintained escalators have various exposures ranging from interior to completely uncovered.

The difference in elevator availability is between one and three percent (1% – 3%). This difference may be attributed to the number of rehabilitations performed in the ELES maintained area.

ELES Elevator / Excludes [redacted] and CIP												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012							97.01	97.21	96.94	97.2	95.46	97.29
2013	97.19	96.4	96.13	95.4	95.58	97.92	98.87	99.04	98.33			

[redacted] Elevator / Excludes ELES												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012							97.19	99.8	99.72	99.89	99.61	99.62
2013	99.72	99.02	99.69	99.03	98.14	99.09	98.91	98.26	99.85			

Difference ELES Versus [redacted] / Elevator Availability												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2012							-0.18	-2.59	-2.78	-2.69	-4.15	-2.33
2013	-2.53	-2.62	-3.56	-3.63	-2.56	-1.17	-0.04	0.78	-1.52			

Metric 2 - MTTR

The difference in MTTR for escalators between [redacted] and ELES is an average of five (5) hours. This difference is attributed to the various makes and models of equipment maintained by ELES. The non-standard equipment results in harder to procure parts leading to longer outages. Greater amounts of varied equipment

lead to longer times to fix equipment. The difference in MTTR for elevators between [redacted] and ELES is an average of three (3) hours.

Metric 3 - MTBF
The difference in MTBF between [redacted] and ELES is an average of 118 hours and 308 hours for escalators and elevators, respectively. This difference is attributed to the disparity in the amount of equipment maintained, [redacted] 85, ELES 785 (Silver Line assets excluded). The ratio of equipment maintained by [redacted] and ELES is 1:9. Yet, the disparity in MTBF for [redacted] is ¾ of the number of hours between failures for ELES.

Conclusion

If ELES is granted fifteen (15) technicians, the contracted area from [redacted] can be maintained without any decline in metrics and at an annual savings of $664,072 over the current contractual obligation with [redacted].

When comparing [redacted] with ELES, it is important to understand that Metro calculates availability incorporating all outages including both unscheduled due to failure and scheduled due to rehabilitation/replacement. The [redacted] contract was placed in a geographical region that had significantly fewer rehabilitation and replacement activities. When you normalize the availability number by removing the scheduled rehabilitations/replacements the availability metrics between the two entities are within 2.5%. The 2.5% delta is the result of the significant differences between the equipment being maintained by the two entities. The equipment maintained by [redacted] is from one manufacturer, newer and protected from the weather (located inside the station or covered with a canopy). However, the equipment maintained by ELES produces a greater challenge due to age, manufacturer and product variability, exposure to weather elements and the number of units out of service due to rehabilitations.

[redacted] Contract Value	$ [redacted]
Insourcing Costs:	
FY2016 Salary (15 Positions)	$
Fringe	$
M&S	$
Total Costs	$
Total Savings	$

1.3.6 Competitive parts procurement

The recent Financial Management Oversight Review concluded that Metro needed to ensure competitive procurement by reducing the number of sole source procurements. As part of Metro's compliance initiative, this program will determine the salient characteristics of various repair and qualified rail and bus vehicle parts to enable more competitive contracting for such parts. This effort currently involves 21 consultants (15 in TIES and 6 in Bus Maintenance) at an estimated annual cost of $2.5 million. This initiative is projected to be completed within 3-5 years, which is why consultants are being utilized instead of full time employees.

Metro will be able to source more rail and bus parts through competitive contracting rather than through sole source in the future; resulting in lower expenses for material and supplies.

PERSONNEL

2.1 Detailed review of overtime for past few years. How much has been and will be reduced through addition of fatigue positions, what drives the remainder? (Downey)

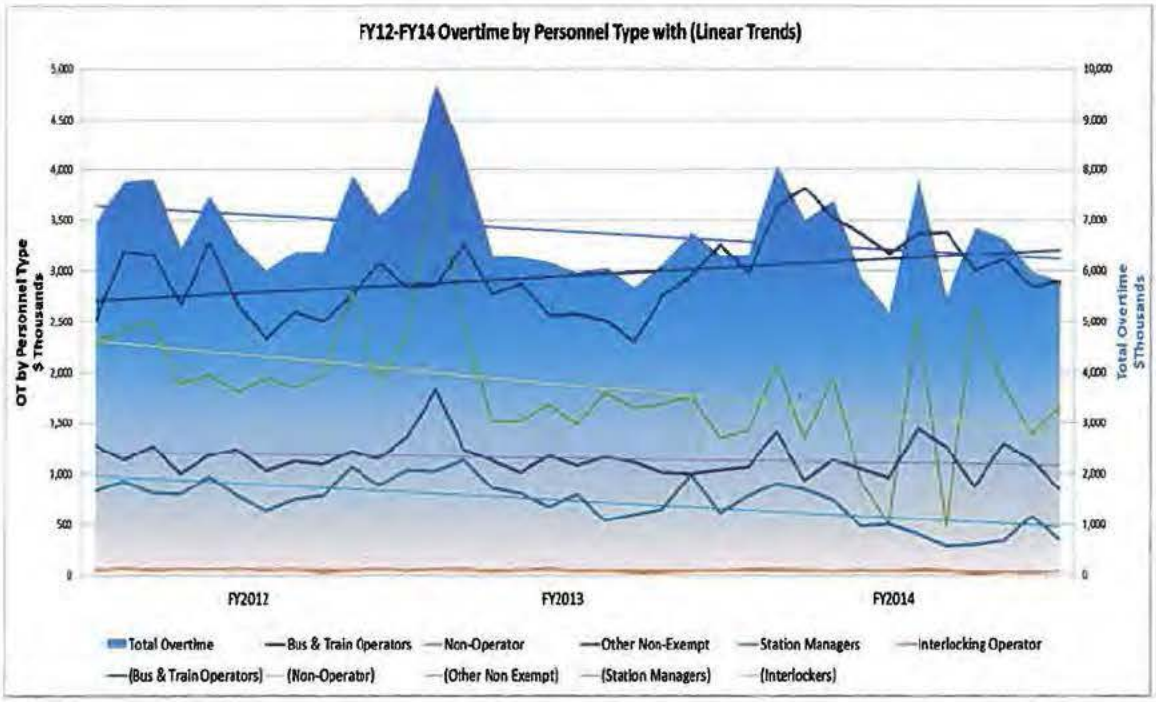
Summary

Total operating overtime expense has trended slightly downward for the period FY2012-2014, and overtime spending for bus operators has been reduced in FY2015 as a result of filling vacancies and improving adherence to the Hours of Service policy. Total overtime spending is driven by both *scheduled* and *unscheduled* overtime. Given desired bus and rail service levels as well as work rules and benefits, a certain amount of scheduled overtime is more cost-effective than utilizing additional employees. Fatigue prevention hiring will reduce some scheduled overtime and WMATA continues to work to reduce unscheduled overtime by reducing absenteeism. However, some amount of unscheduled overtime (due to absenteeism, weather, incidents, and other causes) will continue. Overtime expenses are budgeted to grow by only 1 percent despite negotiated wage increases averaging 4 percent.

Overtime Trends

Total operating overtime spending has trended slightly downward for the period FY2012-2014, as shown in the table below. This trend is reflected across

personnel types, with the exception of bus and train operator overtime (which has increased slightly over the period, but is trending down from FY2013 to FY2015). Operator overtime is the largest contributor to overtime spending, accounting for approximately half of the total; however, non-operator (maintenance) personnel are responsible for most of the *variability* in overtime expense.



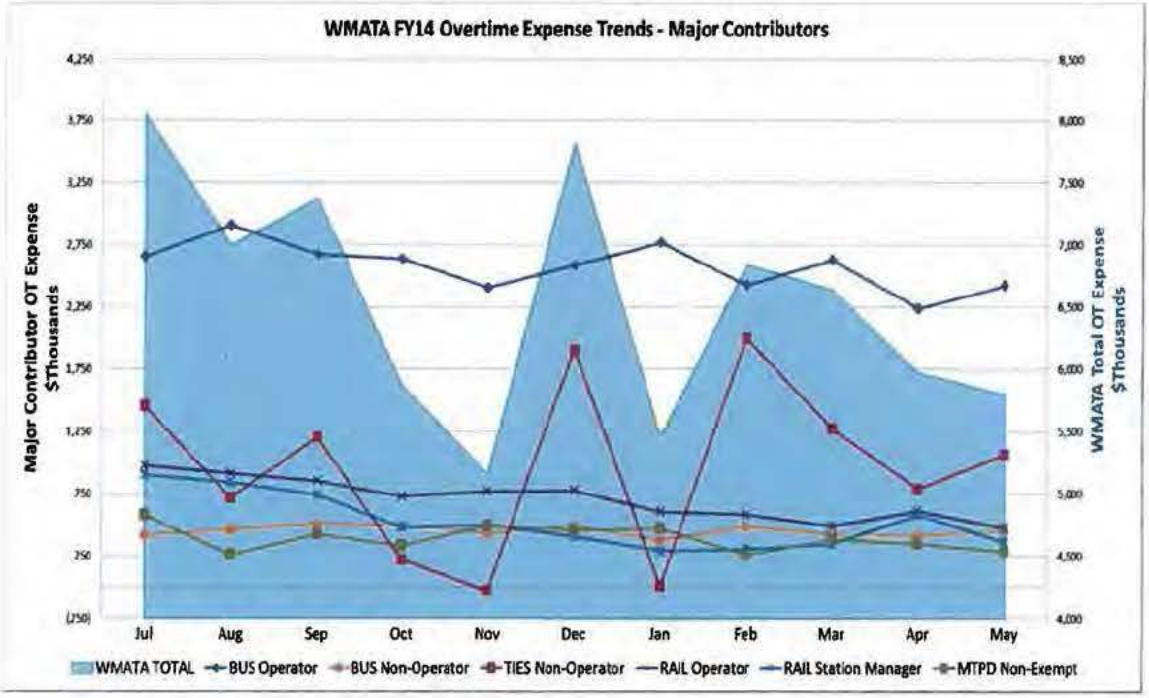
FY2012-2014 Overtime

Variability in Overtime

During FY2014, Metro's month-to-month overtime variability ranged from a high of over $8 million dollars in July to a low of just over $5 million in November, with the seasonal high for overtime spending in July and August and tapering off to a flatter spending profile for the rest of the year.

The largest contributor to operating overtime expense is vehicle operator overtime, with bus operators comprising nearly 40 percent of overtime spending and rail operators comprising more than 10 percent. Other major contributors include Transit Infrastructure and Engineering Services (TIES) maintenance personnel, station managers, bus maintenance personnel, and police. When combined with supervisory personnel in bus, rail, and TIES, these major contributors are responsible for 96 percent of all WMATA operating overtime.

Analysis of operating overtime by month and personnel type shows that operator overtime is relatively consistent and trending downward. Overtime expenses in this analysis include adjustment for recent collective bargaining agreements (CBA). TIES non-operator overtime ranges from zero to as much as $2.0 million per month. The variability of overtime observed in TIES is strongly correlated with the overall pattern of overtime in the Authority.



FY2014 Overtime by Month and Personnel Type

The relative consistency of operator overtime is not accidental, as management in both bus and rail plan for significant amounts of *scheduled* overtime. In many cases, given desired service levels as well as work rules and benefits, it is more cost-effective to schedule an operator for overtime than to utilize an additional employee (e.g., to complete a nine-hour shift than to send out a relief operator for one hour). There is also an amount of overtime necessary each month for absence and vacancy coverage. Metro will continue to review staffing levels to determine appropriate adjustments (including extra-board utilization) required to further optimize scheduled overtime and to reduce unscheduled overtime. This will help provide an accurate depiction of sustainable overtime levels as part of the future budgets.

By contrast, the variability of non-operator overtime utilization within TIES demonstrates that there are many disparate contributing factors. In this area, overtime can be due not only to normal leave and vacancy coverage, but also to

critical equipment and plant maintenance; staffing of special events; extensive repair and maintenance on the 2000-, 3000- and 5000-series railcars to ensure operational readiness for Silver Line service; severe weather events; and frequent "all hands" efforts such as lighting replacement, spot rail treatment, rail cross tie replacement, and other preventive maintenance activities. Evaluating overtime utilization in this area will require the development of a long-term strategic approach. Staff is currently assessing these overtime trends to determine next steps.

Overtime Mitigation Efforts

Some of Metro's overtime spending will be mitigated in the future through filling of existing vacancies, particularly for bus operators. In addition, the implementation of fatigue risk management with 47 additional employees will reduce overtime utilization with increased "straight time" hours in order to maintain service levels. As such, the 1% increase in overtime contained in the FY2016 Proposed Budget reflects an implied decrease in overall overtime utilization based on historical annual overtime growth.

Metro is also taking other steps to effectively manage overtime utilization, including:

- Establishment of bi-weekly meetings to analyze overtime trends, investigate causes behind overtime assignments, and review all personnel overtime in excess of 60 hours per week;
- Increased supervision and oversight of overtime assignments, including improved tracking mechanisms;
- Better coordination between bus and rail for planning of resource requirements;
- Assessment of extra board requirements and utilization for both bus and rail to determine appropriate staffing to reduce overtime usage. These extra board requirements include the fatigue management policy component and have been compared against similar agencies to determine current industry practices; and
- Better utilization of station manager assignments and allowing for regular run picks for stations requiring extra personnel. This has eliminated the need for overtime coverage for "normal" enhanced coverage at busier stations.

While the authority has made significant progress in "right-sizing" overtime compared to FY2012-FY2014 when overtime was substantially under-budgeted given operational realities, adding more employees for fatigue risk management and management initiatives to reduce scheduled overtime will keep overtime

budget growth to 1 percent despite a 4 percent negotiated wage increases; that is largely offset by employee pension contributions.

2.2 Reduction of budgeted amount for health & welfare contribution (Goldman)

2.2.1 Health & Welfare Costs

The FY2016 Proposed Budget includes $226 million for health and welfare contribution. This amount is composed of health care costs (major medical, prescription drugs, etc.) for employees and retirees, other post-employment benefits (OPEB) long-term liability trust contributions, workers compensation, life insurance, and long term disability payments. Overall, the amount is $19 million, or 9.4%, more than FY2015 and includes a $12 million increase to direct health care costs and a $7 million increase to the OPEB trust (from a $4 million FY2015 contribution to $11 million in FY2016).

With respect to other post-employment benefits (OPEB), the FY2016 Proposed Budget includes $11million to maintain the $5 million funding trajectory that the Board adopted in FY2014 beginning in FY2015, and increasing by $5M each year. According to Metro's OPEB actuary, postponing funding to the trust in the early years will impact the funded ratio of the Trust and extend the timeline for achieving satisfactory funding of the OPEB Trust depending on the length of delay and subsequent catch-up contribution levels.

In addition, it is anticipated that accounting rules for OPEB plans will change in the near future and that the Annual Required Contribution will be even greater under those rules than under current GASB 45. However, it is reasonable to expect that the advantages of prefunding will remain essentially the same, and that the differences between the various funding scenarios will remain relatively constant. Generally, speaking:

1. When a contribution is delayed, but then immediately made up in the next period, there is no significant effect on either the total contributions made, or the value of trust assets at the end of a 20-year projection period.

2. When a contribution is delayed, and is not made up, the result is a lower value of assets, requiring greater total (net) contributions. For example, in the 10-Year scenario, a 1-year delay in a contribution results in $17 million in increased contributions over the projection period, but results in a reduction of $13 million in assets at the end of the 20-year projection period.

3. When contributions are delayed and are not "made up" immediately, but eventually made up through extending the periods of contribution growth,

the ultimate contribution levels are still achieved, but they are pushed further into the future. The further into the future those contributions are pushed, the less time the fund has to accumulate earnings. Ultimately, this requires larger cash contributions to achieve similar funding level results.

4. If the increasing funding pattern is followed for the first several years so that the additional contribution grows to a significant annual amount, a modest delay in any given year in the latter years, whether made up or not, will not have significant negative consequences. Delays early in the period must be made up quickly, or the resulting effect will be lasting negative impacts to the funded status of the plan.

2.2.2 Pension Costs

Metro's projected pension liability has increased by $1.4 million from the FY2015 Approved Budget to the FY2016 Proposed Budget. The increase is attributed to (a) an upward revision in the pension contribution for 689 due to increased payroll, new entrants in the plan and salary progression changes, and (b) contribution increases in the defined benefit plan for non-represented employees due to the plans' recovery from 2008 losses despite the recent strong market performance. These increases are being partially offset by contribution decreases in the L922 pension plan reflective of the negotiated employee contributions. These costs are adjusted annually based on actuarial projections

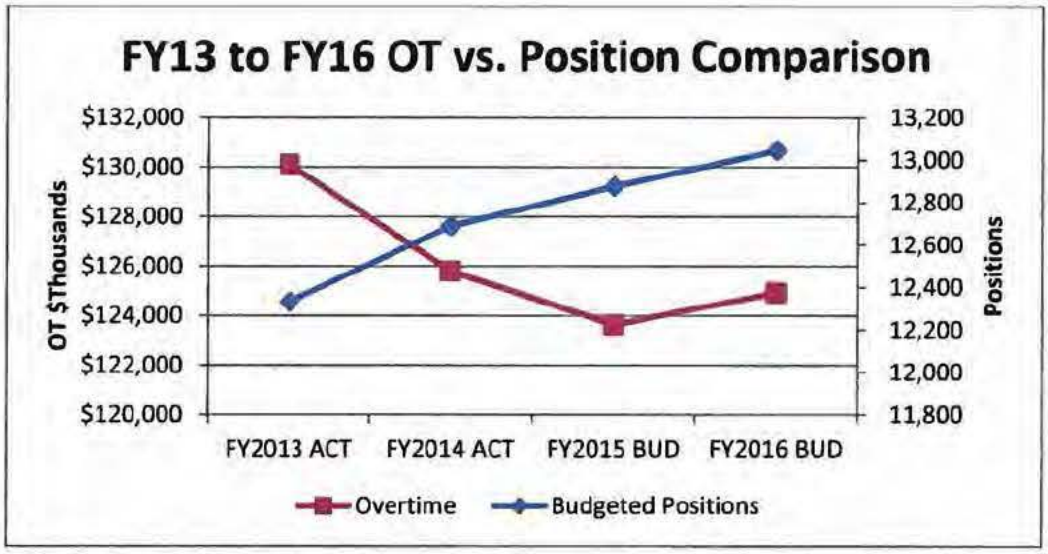
FY15 vs. FY16 WMATA Pension Contributions by Account (in $Thousands)

Description	FY15	FY16	Change from FY2015 to FY2016
PENSION SALARY	20,375	22,202	1,827
PENSION LOCAL 2	5,360	4,646	(714)
PENSION L689	128,427	129,456	1,030
PENSION L246 MTPD	9,000	9,602	602
PENSION L922	6,615	5,254	(1,362)
DEFERRED COMPENSATION	8,341	8,350	9
Pension Total	**178,468**	**179,859**	**1,392**

2.3 Review employee growth over the last 4 years - operating and capital - in conjunction with overtime. (Hynes)

	FY2013 Actual	FY2014 Actual	FY2015 Budget	FY2016 Proposed	FY2013 vs. FY2016	
					Change	% Change
Operating	11,014	11,530	11,517	11,604	590	5.4%
Capital and Reimb.	1,318	1,159	1,359	1,441	123	9.3%
Budgeted Positions	**12,332**	**12,689**	**12,876**	**13,045**	**713**	**5.8%**
Operating	$79,894	$77,944	$74,927	$77,825	-$2,069	-2.6%
Capital and Reimb.	$50,216	$47,861	$48,715	$47,105	-$3,112	-6.2%
Overtime Expense	**$130,110**	**$125,805**	**$123,642**	**$124,929**	**-$5,181**	**-4.0%**

($ in 000s)



Since FY2013 Metro's headcount has grown almost 6 percent with subsidized personnel growing slightly more than 5 percent and non-operating personnel growing 9.3 percent. Operating headcount growth in the period is mainly attributable to the addition of the Silver Line, safety and fatigue risk management initiatives. Non-Operating headcount growth is attributable to infrastructure investments related to the Silver Line/Dulles extension. In the same period, total overtime is proposed to decrease by 4 percent. Actual overtime falls into two categories – planned and unplanned. Planned overtime is generated by the service requirement in excess of Full Time Equivalents (FTE) and unplanned overtime falls into several categories with

the most significant drivers being vacancies, absenteeism, and extra work such as special events and maintenance campaigns. More than 90 percent of overtime expenditures occur in TIES, Bus and Rail.

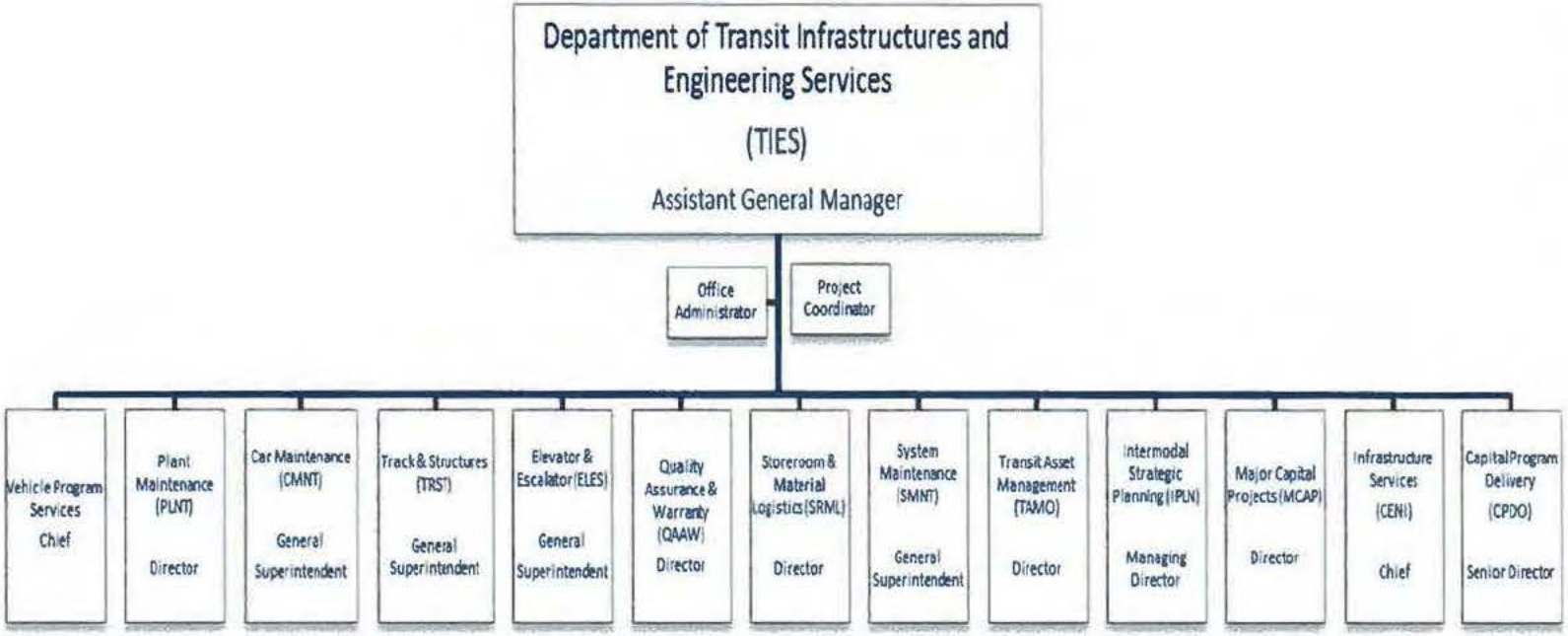
As Metro has added headcount and reduced its vacancy rate, a reduction in actual overtime has occurred. For example, the Bus Operator complement is currently fully staffed compared to November 2013 when Bus Operations had a vacancy rate in excess of 10 percent. Comparing year-to-date Bus Operator Overtime through November in FY2015 and FY2014 shows a $3.0 million or 22 percent reduction in overtime. This is primarily due to the reduction of vacancies as well as Bus and Rail management's efforts to reduce absenteeism.

2.4 Provide updated organizational chart with any new departments/offices called out and rationale for their existence highlighted. (Hynes)

In September, 2014, three major reorganizations were announced within TIES. These reorganizations include:

1. Office of Capital Program Delivery (CPDO), responsible for streamlining internal processes within key capital program groups and facilitating communication between internal and external partners; and advancing enhanced engineering, construction, and maintenance related processes and procedures critical to achieving the overall capital program's mission and goals.
2. Office of infrastructure Renewal Programs (IRPG) was divided into two departments – IRPG, and the newly created Office of System Renewal Programs (SRPG).
3. Office of Track Allocation & Support Services (TASS), consolidating escort support functions and mobile command operations in support of Track & Structures (TRST) projects.

Revisions to the TIES organization were required to align resources more directly to the specific organization to allow for greater control and efficiency. The revised organizational structure aligns the project offices with direct supervision over qualified escort and inspection personnel rather than having to coordinate through the operational field offices. In addition, the project office has been better defined to support discipline specific types of projects such as traction power substation rehabilitations, allowing for more fluent construction processes and practices in order to maximize the production of required track outages thereby reducing impact to the passenger. The updated TIES organization chart is provided on the following page.


Department of Transit Infrastructures and Engineering Services
(TIES)
Assistant General Manager
Office Administrator
Project Coordinator
Vehicle Program Services
Chief
Plant Maintenance (PLNT)
Director
Car Maintenance (CMNT)
General Superintendent
Track & Structures (TRST)
General Superintendent
Elevator & Escalator (ELES)
General Superintendent
Quality Assurance & Warranty (QAAW)
Director
Storeroom & Material Logistics (SRML)
Director
System Maintenance (SMNT)
General Superintendent
Transit Asset Management (TAMO)
Director
Intermodal Strategic Planning (IPLN)
Managing Director
Major Capital Projects (MCAP)
Director
Infrastructure Services (CENI)
Chief
Capital Program Delivery (CPDO)
Senior Director

Also as part of Metro's plan for addressing the Financial Management Oversight review findings and recommendations, a new Internal Compliance Office (ICO) will monitor financial management controls to assure broad organizational compliance with business processes and procedure. In addition to internal guidance and training, ICO will provide value-added assessments of financial reporting and operational risks and partner with departments to review and evaluate process efficiencies and effectiveness.

Finally, the FY2016 proposed budget provides one staff and resources for Collaborative Risk Management in the Office of Performance to help elevate and drive enterprise risk management at Metro.

NON-PERSONNEL

3.1 Energy cost forecasts—how much is affected by market conditions, implication of past hedge contracts, etc. (Downey)

Metro experienced a 5.4 percent increase in propulsion and a 2.8 percent increase in electricity costs due to increased consumption from FY2013 to FY2014. In FY2015, propulsion use also increased due to the additional 11.6 miles from Silver Line. The FY2016 consumption increase is in part due to an extra workday of rail service in the schedule; however the recently negotiated local tariff is estimated to provide a $1.5 million reduction in FY2016 propulsion cost.

Metro's CNG/gas volume and costs have remained relatively stable since FY2013. In FY2015, Metro experienced a reduction in fixed rate pricing from $0.937 to $0.645 while volumes remained steady. In FY2016, Metro projects a 2.7 percent increase in volume due to several new facilities that were not included in the FY2015 budget (Greenbelt Commissioning Facility, Pennsy Drive and MTPD Franconia/Springfield). However, the restoration of the CNG credit by Congress will produce a $3.0 million savings.

Metro's diesel consumption has experienced a downward trend. While there was a 3.3 percent increase in volume from FY2013 to FY2014, staff projects a slight decrease in volumes during FY2015 and continuing into FY2016 as a result of the proposed realignment of non-regional service from Metro to the jurisdictions. In addition, Metro has hedged about 80 percent of its projected FY2016 diesel consumption at approximately $2.00 per gallon. Assuming diesel price remains at current level throughout FY2016, this could produce a budget savings of $5 million compared to the FY2016 Proposed Budget.

	FY2013 Budget			FY2014 Budget		
	Rate	Volume	Calculated Dollars	Rate	Volume	Calculated Dollars
Propulsion	0.092	561,160,400	51,738,989	0.093	593,264,698	55,306,508
Electricity	0.094	329,891,800	31,108,797	0.094	339,550,887	32,038,324
Diesel	3.050	10,296,826	31,405,320	3.209	10,644,711	34,158,879
CNG/Gas	0.963	10,437,838	10,056,417	0.937	10,731,311	10,056,572

	FY2015 Budget			FY2016 Budget		
	Rate	Volume	Calculated Dollars	Rate	Volume	Calculated Dollars
Propulsion	0.092	618,087,915	56,740,471	0.090	638,000,339	57,279,670
Electricity	0.092	343,178,704	31,491,107	0.091	353,114,127	32,096,662
Diesel	3.020	10,069,269	30,409,192	3.120	9,225,722	28,784,253
CNG/Gas	0.645	10,390,600	6,697,363	0.682	10,669,503	5,251,900

3.2 Other materials and services – disaggregate estimate, see if there are any potential savings. (Downey)

Over 80 percent of the Services budget is attributable to Paratransit services, contract maintenance and professional services. These include technology maintenance agreements, engineering operations maintenance, legal consultants and others. The significant year over year change in total services is attributable to paratransit due to the projected increase in ridership.

Services	FY2015 Approved Budget	FY2016 Proposed Budget	Change
Management Fee	$166	$166	$0
Professional & Technical	$29,803	$29,795	($8)
Temporary Help	$2,697	$2,706	$9
Contract Maintenance	$48,436	$49,274	$838
Custodial Services	$133	$83	($50)
Paratransit	$87,673	$92,957	$5,284
Other	$40,746	$39,721	($1,025)
Total	**$209,653**	**$214,702**	**$5,049**

Other Materials include mainly elevator, escalator, track and way materials, special purpose materials and brake parts. These make up over 60 percent of

materials. Also included are non-revenue vehicle parts to support the authority fleet for major rail and safety related operations.

Materials & Supplies	FY2015 Approved Budget	FY2016 Proposed Budget	Change
Fuel and Lubricants	$18,685	$22,035	$3,350
Tires	$6,735	$6,915	$180
Rev & Non- Revenue vehicle parts	$21,400	$16,228	($5,172)
ELES, Track, Brake, Specialty Parts	$50,782	$57,813	$7,031
Other	$8,100	$8,244	$144
Total	**$105,702**	**$111,235**	**$5,533**

3.3 Review professional services and consulting contracts to see which can be reduced for FY2016 or put off to future years. (Goldman)

The proposed FY2016 Professional and Technical budget is $29.8 million or 13.9% of the total services budget. Services include safety, operational and financial subject matter expert consultation on key activities. Major contracts include:

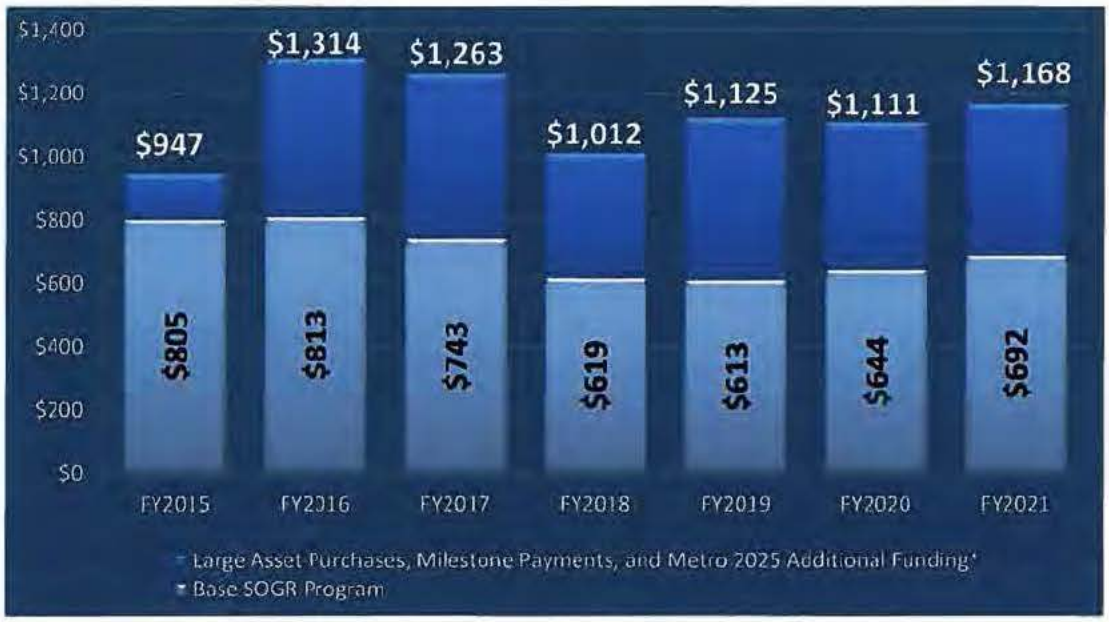
Professional & Technical Services	FY2016 Proposed Budget	Major Contract description
Financial Services	$7,965	SmartTrip ® Sale and Reload Machines Magnetic ticket label PCI compliance computer replacement
Safety	$5,135	Environmental sampling and lab analysis Non hazardous regulated waste disposal Hazardous waste disposal
Transit Infrastructure & Engineering	$5,128	3rd rail rehab composite system Direct fixation fasteners Overhead door maintenance
Information Technology	$4,377	Scheduling software maintenance Telephone software maintenance Asset Management System support
Human Resource	$3,347	Temporary employment services Drug Testing Executive search service
Other	$3,843	Including Legal, Customer Service & MTPD
Total	**$29,795**	

FY2016-2021 CAPITAL IMPROVEMENT PROGRAM

4.1 Based on actual FY2013 and FY2014 performance, what is a realistic amount that Metro can spend each year considering current resource levels? Factoring out the 7000 series railcar procurements in 2016 and 2017, what is that number? How accurate is the $947 million FY2015 forecast? (Giancola)

The FY2015 forecast has been reduced by over $150 million from the Board approved budget (including rollover from FY2014). Achieving this expenditure, while aggressive, is reasonable because payments for replacement railcars is due in the second half of FY2015 which will significantly increase spending relative to Metro's performance in prior years.

In prior years, the capital program delivered $845 million (FY2013) and $790 million (FY2014) in primarily State of Good Repair (SOGR) investments. During these years, there were minimal investments in Metro 2025 initiatives and there were no significant payments for railcars. When the railcar payments in FY2016 and FY2017, as well as the planned Metro 2025 investments are factored out, many of which do not require track access, the underlying SOGR program is between $600-820M annually.



4.2 Considering the leadership change in the State of Maryland governorship, when could we expect some indication of capital program funding levels from the new administration? (Giancola)

Metro's Government Relations Office (GOVR) is working to meet with Governor-elect Hogan and his leadership team to discuss the Authority's capital needs in early CY2015. Included in the discussions will be the capital funding agreement and the timing of the 7000 series contract options. Transition staff has been engaged on these issues and GOVR is expecting some indication of the State of Maryland's financial commitment after the meeting.

4.3 What is the impact if State of Maryland (MD) Project Development was funded from MD Existing Balances? (Goldman)

Staff is currently reviewing remaining prior-year Maryland Project Development Funds to determine what funds, if any, can be released and made available for FY2016. Metro is working on a lengthy list of Maryland station planning, joint development, and other studies that are currently underway or proposed to support the advancement of transit-oriented development around the 26 stations in Montgomery and Prince George's counties. Some of these current efforts may need to be deferred if the prior-year funds are reprogrammed to FY2016.

4.4 A breakdown from staff on the $420 million capital budget for FY2016 that is NOT State of Good Repair projects? The $420 million figure comes from the Washington Post story and is described by staff as expansion. (Goldman)

In discussing the $1.3 billion proposed FY2016 capital program with the Post and in other venues, staff have attempted to categorize the investments on two different, but overlapping dimensions. The first dimension is 'base' versus 'expansion' – that is, investments needed to continue to operate existing service versus investments needed to expand future capacity. The second dimension relates to Metro's capacity to execute the proposed budget – that is, complex projects with many variables and dependencies (e.g. right-of-way access, permitting, etc.) versus projects that are already underway with scheduled deliveries and large payments to third party vendors.

Base vs. Expansion
The FY2016 budget includes a $261 million payment for delivery of new 7000-series railcars to replace the existing 1000-series cars, which does not expand capacity. However, the budget also includes a $53 million milestone payment to exercise the options for future delivery of additional 7000-series cars as part of the Metro 2025 eight-car initiative (expansion investment).

The FY2016 budget also includes an expected $25 million New Electronic Payments Program (NEPP) milestone payment. However, despite the investment in state-of-the-art technology, NEPP is not an expansion project, since it will replace the existing fare collection system.

The total 'expansion' investment in the FY2016 proposed capital budget is the set of Metro 2025 projects. These projects total $157 million in FY2016 and include the $53 million railcar milestone payment noted above, as well as power and cable upgrades for eight-car trains ($35 million), New Carrollton yard capacity improvements ($18 million), maintenance facility relocations ($15 million), bus PCN enhancements ($13 million), and other smaller projects. Of the $157 million total for FY2016, $80 million is already in the existing CIP, and $77 million in additional jurisdictional funding is still required.

Capacity to Execute
Response 4.1 above breaks down the FY2016 budget along these dimensions. In addition to the railcar payments (both base and expansion) and the NEPP milestone payment, other large asset deliveries from outside vendors include the ongoing bus replacement project, which totals $84 million in FY2016. Altogether, approximately $500 million of the $1.3 billion proposed budget falls into this category.

SERVICE

5.1 Full discussion of bus route transfer process - what are the savings to Metro, costs to jurisdictions, potential capital budget implications, transfer of buses, etc. (Downey)

The FY2016 proposed budget includes a proposal to transfer the operation of a limited set of bus routes to the local jurisdictions. These routes were selected as the most likely candidates to be transferred relatively quickly given their proximity to the garage facilities of the various local providers. This FY2016 transfer of routes is intended to be the first step in a multi-year strategic process of 'recalibrating' the regional bus network that will give local

jurisdictions more control over local routes and allow Metro to focus on providing truly regional services.

Savings to Metro: The estimated cost reduction to Metro in FY2016 of transferring these routes is $8.0 million. The associated loss in fare revenue is estimated at $1.2 million, so the net change in required subsidy is $6.8 million. The Non-regional rate of $123 per platform hour is intended to reflect the direct costs of sustaining current Metrobus operations or adding new services. However, because of the "uneven" way that costs accrue or recede, the real savings to Metro of not operating service is closer to $91 per platform hour (time that bus and operator are away from the garage).

Cost to jurisdictions: Each jurisdiction has a unique operating cost structure. Three (DASH, CUE and Ride On) are operated directly by employees of the agency. Circulator, Connector, ART and The Bus are operated by contractors. Metro staff is researching these cost structures and will report when obtained. Total cost of service is derived from the combination of revenue time (scheduled time when the bus is carrying passengers) and non-revenue time (time bus spends traveling to and from the garage). As a result, each individual service has a unique cost equation; the effect of which is that services that begin and end near a garage (with little travel time) tend to be more cost effective than services that are a long way from the garage (with a high percentage of travel costs).

Capital budget implications: Metro replaces approximately 1/15th of its fleet each year to maintain a target average age of 7.5 years. Specific fleets are replaced according to industry, FTA and Metro standards and requirements. The bus procurement in FY2015 is targeted at replacing the aged fleet of 60-foot coaches currently garaged at Northern. These replacement buses are scheduled for delivery in FY2016. Bus replacements for five years (FY2016-FY2020) are programed primarily to replace the CNG-powered fleet housed at the Bladensburg (223) and Four Mile Run (214) garages. Because the CNG tanks on the buses will require an expensive recertification process to be retained in service, it is essential that the buses be replaced by the end of their 15th year in service. The program to meet this requirement will replace 111 buses in FY2016, 53 in FY2017, 100 in FY2018, 111 in FY2020, and the final 71 in FY2021.

Transfer of buses: Existing Metro buses can be made available for use by other operators in one of three ways:

Each year Metro has approximately 100 used surplus buses that are available for purchase at a fair market value. This was, most recently the case with DC Circulator.

The contributed financial interest of the FTA can be transferred to a different operator, with the approval/concurrence of FTA and the receiving agency's status as an FTA grant-eligible recipient; although some local operators do not accept federal funding. This approach was used most recently in transferring the GEORGE buses to Arlington Transit for continuing operation in the City of Falls Church. A Memorandum of Agreement was prepared and approved by both the Arlington County Board and Metro Board.

The third approach is to lease the vehicles to the third party (public agency or private operator). This approach has also been used in the past, but extends all of the FTA compliance requirements to the lease as a grant sub recipient. Such entanglements require an agreement between agencies, recipient certification of compliance, FTA approval and create a monitoring of compliance requirement for Metro as the original grantee.

5.2 Customer impact of headway reduction analysis, identification of other options for budget savings (Downey)

It is important to note that any headway changes will result in longer waiting periods on the platform, as well as more crowded trains. However, current service levels indicate persons per car (PPC) will be right at the acceptable edge of Board approved service standards. The following chart shows the decrease in headways (wait periods) as well as trains per hour (more crowded cars). The chart is comparative of current versus proposed headways.

Impact of Proposed Peak Headway Changes

				CURRENT 6 MINUTE HEADWAY			8 MINUTE HEADWAY		
Line	Current Traffic Check Max-Load Points	Direction	Peak 1 hour ridership (Sept. 2014)	Scheduled trains /peak hour /peak direction	Scheduled cars /peak hour /peak direction	PPC (100% scheduled throughput)	Scheduled trains /peak hour /peak direction	Scheduled cars /peak hour /peak direction	PPC (100% scheduled throughput)
AM									
Red	Gallery Place	WB	11,700	20	138	85	15	110	106
	Dupont Circle	SB	10,000	20	140	71	15	110	91
Orange	Court House	EB	6,600	11	80	83	8	60	110
	L'Enfant Plaza	WB	4,200	10	68	62	7	50	84
Silver	Rosslyn	EB	5,100	10	60	85	8	45	113
	L'Enfant Plaza	WB	3,900	10	60	65	8	45	87
Green	Waterfront	NB	6,200	11	82	76	8	60	103
	Shaw	SB	7,100	10	100	71	7	73	98
Yellow	Pentagon	NEB	6,800	15	90	76	11	66	103
Blue	Rosslyn	EB	3,100	5	36	86	5	36	86
	L'Enfant Plaza	WB	2,100	5	36	58	5	36	58
PM									
Red	Metro Center	EB	12,400	20	142	87	15	110	113
	Farragut North	NB	9,700	20	140	69	15	110	88
Orange	Foggy Bottom	WB	5,800	11	78	74	8	58	100
	Smithsonian	SB	3,800	10	70	54	8	58	66
Silver	Foggy Bottom	WB	5,000	10	60	83	8	45	111
	Smithsonian	SB	3,800	10	60	63	8	45	84
Green	L'Enfant Plaza	SB	5,900	11	78	76	8	60	98
	Mt. Vernon Squar	NB	6,700	10	100	67	7	73	92
Yellow	L'Enfant Plaza	SB	6,400	15	90	71	11	66	97
Blue	Foggy Bottom	WB	3,200	5	36	89	5	36	100
	Smithsonian	EB	1,500	5	36	42	5	36	39

Note: Ridership is based on data collected in September 2014.

Ridership levels and scheduled car throughput at Shaw and Mt. Vernon included those Yellow Rush Plus trains.

5.3 Provide fulsome discussion of the various service change options developed by the jurisdictional staff. (Hynes)

Please see the response to the questions in sections 6 and 7 from jurisdictional staff members below for estimates of cost savings and service impacts.

Rail Services

6.1 Use turn-backs more frequently

6.1.1 Widen the span of Red line turnbacks at Grosvenor during rush hours

The current span for the Red Line short trip (between Grosvenor and Silver Spring) is from 6:50 am to 9:30 am; and 3:15 pm to 7:00 pm for peak periods. The only opportunity to widen is from opening to 6:50 am when the headway is already at 8 minutes and transitioning to 6 minutes for the trip from Shady Grove to Glenmont. To widen the span will create a service gap between Shady Grove and Grosvenor where the peak ridership is creating longer wait times on platforms (approximately 12 minutes) Metro staff advise against this proposed change.

6.1.2 Turn-back Silver Line trains at Stadium Armory on weekends and evenings.

There is not a crossover at Stadium-Armory, and for operational and safety reasons, a decision has been made that there will not be turn-backs for Silver Line at D&G during regular service, even during off-peak periods. The interlocking at D&G uses #6 turnouts, which has a tighter radius than the #8 type turnouts used at other pocket tracks used for normal turnback operation in the system, such as Mount Vernon and Silver Spring. This creates problems for maintenance and wear/tear in addition to the turnback being on an elevated section.

6.1.3 Turn-back Yellow Line trains at Mt. Vernon during the mid-day (off-peak) and at night (beginning at 9 p.m. Sunday thru Thursday).

This service change is feasible, and Rail estimates the annual subsidy savings at $0.3 million. Train requirements during midday would drop by 2 trains/Operators, so such a change should save about 12 hours of service each day for the mid-day service Monday through Friday, and about 6 hours

of service each day on Sunday through Thursday. Total platform hours across the week as a result of this change would drop by about 90 hours. At an average of about 30 Platform hours per run, this change would allow the service to be staffed with three fewer runs/Operators, at an approximate cost savings of $100,000 per Operator. Customers who currently travel between Mount Vernon and Fort Totten in middays will see their service frequency change from that of being serviced by a Yellow or Green Line train about every 6 minutes to being serviced by only Green Line trains every 12 minutes, while Customers who travel between Mount Vernon and Fort Totten on Sunday to Thursday evenings will see their service frequency change from that of being serviced by a Yellow or Green Line train about every 10 minutes to being serviced by only Green Line trains every 20 minutes.

6.1.4 Turn-back every other midday Red line train at Grosvenor.

This service change is feasible, and Rail estimates the annual subsidy savings at $0.2 million. Train requirements during midday would drop by 2 trains/Operators, so such a change should save about 12 hours of service each day for the mid-day service Monday through Friday. Total platform hours across the week as a result of this change would drop by about 60 hours. At an average of about 30 Platform hours per run, this change would allow the service to be staffed with two fewer runs/Operators, at an approximate cost savings of $100,000 per Operator. Customers who currently travel between Shady Grove and Grosvenor in middays will see their service frequency change from that of being serviced by a Red Line train about every 6 minutes to being serviced by a Red Line train every 12 minutes.

6.1.5 Turn-back every other Saturday and Sunday Red line train at Grosvenor between 10 a.m. and 6 p.m.

This service change is feasible, and Rail estimates the annual subsidy savings at $0.1 million. Train requirements during Saturday and Sunday would drop by 2 during the daytime period as a result of such a change, saving about 16 hours of platform time on each day. The total savings in platform time across the week would be about 32 hours, resulting in the need for one fewer Train Operator, at a savings of about $100,000. Customers on the Red Line who currently travel beyond Grosvenor on Weekends would see their train service go from a frequency of every 6 minutes during the day on Saturday to every 12 minutes, and from a service frequency of every 7.5 minutes on Sunday to every 15 minutes.

6.2 Reduce frequency of service

6.2.1 Operate special rail schedules on Fridays and Mondays when major holidays fall on Tuesdays and Thursdays. (Examples Christmas-2014 and New Year's-2015 and always on the day after Thanksgiving.)

Metro cannot introduce such reductions in service unilaterally and would have to reach an agreement with the union through negotiation. Provided it is able to be negotiated with the Union, running a schedule like a Saturday Holiday in place of a Weekday (or an extended Saturday/Holiday in place of a Friday) would reduce service demands by about 530 hours in comparison to the regular Weekday or Friday for each time it was run. Since an Operator, at an approximate cost of $100,000, typically puts in about 1500 hours of platform in a given year, a rough estimate of Operator cost savings for running a modified schedule would be about $35,000 for each day it was able to be run. Some years, it could potentially be operated three times for a cost savings of about $100,000, but other years, it may only be usable on the day after Thanksgiving, resulting in just $35,000 in savings. Customer impact would be the operation of Mid-Day service levels in peak hours for customers travelling during those hours.

6.2.2 Reduce frequency of service during the a.m. shoulder (evaluate on a line by line basis).

Even though it may sometimes appear that the frequency is greater than needed during the "shoulders" of the peak, it is necessary to have ramp-up and ramp-down time in the schedule. Rail operations does not recommend such a reduction in shoulder service. Many of the perceived surplus trips are actually made essential due to the balancing of cars across yards, and due to the bi-radial nature of the system and length of the lines.

6.2.3 Eliminate late-night rail service on weekends (after midnight)

The elimination of weekend late-night rail service (from midnight to 3am on Friday and Saturday) is feasible. The estimated annual operating cost savings are $8 million. Expenses are reduced not only in operator wages, parts, and propulsion (as with the headway increase proposal), but also in station manager wages and other costs associated with keeping stations open. However, Metro would lose approximately 1.25 million late-night trips, and

these riders pay peak-period rates averaging over $3.00 per trip, so the projected lost revenue would be $4 million. Therefore, the net subsidy impact would be a reduction of $4 million. The elimination of late-night service would also have an impact on the capital program, by allowing overnight track and station rehabilitation efforts to begin earlier, but those impacts have not been quantified. Historically, businesses whose employees and customers depend on late night service have vigorously opposed such a change.

6.2.4 Reduce weekend late-night rail headways (12:30 a.m. to closing) to 30 minutes (15 minutes or better on shared sections)

A reduction in late-night frequency is already included in the broader headway increase proposal.

6.3 Reduce number of 8-car trains seasonally and on weekends where appropriate

6.3.1 During low-ridership months (generally late November through February)

During the holiday season, Metro already schedules all six-car trains on weekdays.

6.3.2 Weekend a.m. service, middays and late night as appropriate for ridership levels by line

While eight-car trains may run occasionally, in general there are no eight-car trains scheduled on weekends

6.3.3 Close low use secondary station entrances on weekends (may be the only entrance with an elevator):

a. L'Enfant Plaza East (12 entries)*
b. Stadium-Armory South (424 entries)*
c. Anacostia North (162 entries)*

The subsidy savings associated with closing three mezzanines on weekends is approximately $0.2 million. However, the Stadium-Armory South entrance is the only entrance for that station with an elevator, and so it could not be closed. In addition, the 7th and D Street exit at L'Enfant Plaza is already closed on weekends.

6.4 Other

6.4.1 Match Arlington Cemetery station hours more closely with cemetery hours.

The Arlington Cemetery Metro station already closes early, to align with the hours of the Cemetery itself, but the station does not currently open late. In the winter season, the Cemetery is open 8am to 5pm, and Metro stops operations there at 7pm. In the summer season, the Cemetery is open 8am to 7pm, and Metro stops operations there at 10pm. If Metro were instead to open the station at 7am rather than 5am on weekdays, the estimated savings would be less than $0.1 million. Staffing hours would be reduced by about 10 hours each week if the mezzanine were opened at about 7am on Weekdays, as two hours would be saved each weekday. An earlier closure that averages 1.5 hours earlier across an entire week across a year would reduce staffing by an average of an additional 12-14 hours per week. The total savings in staffing would therefore be about 22-24 hours per week. This would not likely result in the station being able to be staffed with one fewer Station Manager, but would theoretically result in cost reductions paid among the present staffing levels.

6.4.2 Increase headways on Metrorail by 2 minutes in the peak and 3 minutes off-peak (5 minutes on Sunday) (Goldman)

These changes form the basis of the headway increase proposal that was discussed at the December Finance Committee meeting but were not included in the FY2016 Proposed Budget. That proposal would reduce rail operating expenses by approximately $24 million (through savings on operator wages, propulsion, and parts), but would also cause a reduction in ridership as travelers responded to longer wait times and more crowded railcars. The estimated revenue loss associated with this proposal is $11 million, so the net subsidy savings are $13 million.

Bus Services

7.1 Trim but not eliminate service on lowest performing regional bus routes.

Please refer to the table below for identification of the number of trips that could be considered for reduction based on a threshold of having fewer than 10 riders per trip.

RIDERSHIP BY ROUTE AND TRIP - REGIONAL + NON REGIONAL LOW PRODUCTIVITY ROUTES

		TOTAL AVERAGE DAILY TRIPS			Identified Low Ridership Trips			Share of Total Trips			TOTAL TARGET REVENUE HOURS		
ROUTE NAME	Budget Allocation	(WKDAY)	Aug14 (SUN)	Aug14 (SAT)	Aug14 (WKDAY)	Aug14 (SUN)	Aug14 (SAT)	Aug14 (WKDAY)	Aug14 (SUN)	Aug14 (SAT)	Aug14 (WKDAY)	Aug14 (SUN)	Aug14 (SAT)
116:18E	Non Regional	10	0	0	1	0	0	10.0%	0.0%	0.0%	0.7	0.0	0.0
116:18F	Non Regional	8	0	0	6	0	0	75.0%	0.0%	0.0%	3.5	0.0	0.0
148:MWY	Non Regional	253	88	106	204	88	106	80.6%	100.0%	100.0%	81.5	43.4	51.9
26:C28	Non Regional	31	0	0	9	0	0	29.0%	0.0%	0.0%	5.8	0.0	0.0
34:H6	Non Regional	145	79	94	37	48	35	25.5%	60.8%	37.2%	16.2	18.0	13.7
49:B8	Non Regional	40	0	0	17	0	0	42.5%	0.0%	0.0%	5.0	0.0	0.0
49:B9	Non Regional	14	0	0	3	0	0	21.4%	0.0%	0.0%	1.6	0.0	0.0
531:Z11	Non Regional	35	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
531:Z13	Non Regional	12	0	0	12	0	0	100.0%	0.0%	0.0%	7.5	0.0	0.0
541:18P	Non Regional	15	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
541:18R	Non Regional	11	0	0	11	0	0	100.0%	0.0%	0.0%	9.7	0.0	0.0
541:18S	Non Regional	16	0	0	14	0	0	87.5%	0.0%	0.0%	8.9	0.0	0.0
6:J7	Non Regional	11	0	0	11	0	0	100.0%	0.0%	0.0%	7.1	0.0	0.0
6:J9	Non Regional	22	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
61:17G	Non Regional	13	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
61:17H	Non Regional	14	0	0	2	0	0	14.3%	0.0%	0.0%	1.5	0.0	0.0
61:17K	Non Regional	11	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
61:17L	Non Regional	11	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
634:B29	Non Regional	14	0	0	3	0	0	21.4%	0.0%	0.0%	1.6	0.0	0.0
634:B31	Non Regional	6	0	0	5	0	0	83.3%	0.0%	0.0%	2.3	0.0	0.0
645:W19	Non Regional	27	0	0	7	0	0	25.9%	0.0%	0.0%	6.7	0.0	0.0
647:B30	Non Regional	50	42	42	18	15	18	36.0%	35.7%	42.9%	16.3	12.8	16.2
65:B27	Non Regional	26	0	0	7	0	0	26.9%	0.0%	0.0%	3.1	0.0	0.0
66:17A	Non Regional	15	0	0	9	0	0	60.0%	0.0%	0.0%	9.2	0.0	0.0
66:17B	Non Regional	5	0	0	2	0	0	40.0%	0.0%	0.0%	1.9	0.0	0.0
66:17F	Non Regional	10	0	0	9	0	0	90.0%	0.0%	0.0%	5.3	0.0	0.0
66:17M	Non Regional	11	0	0	2	0	0	18.2%	0.0%	0.0%	1.1	0.0	0.0
68:21A	Non Regional	9	0	0	1	0	0	11.1%	0.0%	0.0%	0.5	0.0	0.0
68:21D	Non Regional	3	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
692:26A	Non Regional	28	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
7:NH1	Non Regional	67	60	60	10	17	10	14.9%	28.3%	16.7%	4.6	7.7	4.1
7:NH3	Non Regional	6	7	9	4	4	4	66.7%	57.1%	44.4%	1.9	1.8	1.9
71:E6	Non Regional	68	0	0	58	0	0	85.3%	0.0%	0.0%	18.9	0.0	0.0
801:R3	Non Regional	25	0	0	6	0	0	24.0%	0.0%	0.0%	3.6	0.0	0.0
84:M4	Non Regional	115	0	0	66	0	0	57.4%	0.0%	0.0%	20.5	0.0	0.0
35	Non Regional	1,157	276	311	534	172	173	46.2%	62.3%	55.6%	246.6	83.7	87.9

RIDERSHIP BY ROUTE AND TRIP - REGIONAL + NON REGIONAL LOW PRODUCTIVITY ROUTES

		TOTAL AVERAGE DAILY TRIPS			Identified Low Ridership Trips			Share of Total Trips			TOTAL TARGET REVENUE HOURS		
ROUTE NAME	Budget Allocation	(WKDAY)	Aug14 (SUN)	Aug14 (SAT)	Aug14 (WKDAY)	Aug14 (SUN)	Aug14 (SAT)	Aug14 (WKDAY)	Aug14 (SUN)	Aug14 (SAT)	Aug14 (WKDAY)	Aug14 (SUN)	Aug14 (SAT)
100:37	Regional	25	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
111:A9	Regional	26	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
119:74	Regional	144	110	106	34	77	59	23.6%	70.0%	55.7%	12.8	26.2	20.5
121:3T	Regional	66	0	33	29	0	33	43.9%	0.0%	100.0%	25.9	0.0	32.2
126:2B	Regional	49	0	34	2	0	5	4.1%	0.0%	14.7%	1.7	0.0	4.7
127:2T	Regional	51	26	34	20	21	18	39.2%	80.8%	52.9%	16.3	16.1	13.8
129:5A	Regional	60	36	36	2	4	1	3.3%	11.1%	2.8%	2.2	4.3	1.1
138:3Y	Regional	14	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
139:1C	Regional	54	30	35	6	0	1	11.1%	0.0%	2.9%	6.0	0.0	0.7
141:94	Regional	142	74	74	32	33	20	22.5%	44.6%	27.0%	9.4	9.0	5.5
157:11Y	Regional	14	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
22:D1	Regional	18	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
23:28X	Regional	43	0	0	1	0	0	2.3%	0.0%	0.0%	1.1	0.0	0.0
24:15M	Regional	30	0	0	14	0	0	46.7%	0.0%	0.0%	12.3	0.0	0.0
27:15K	Regional	23	0	0	3	0	0	13.0%	0.0%	0.0%	1.8	0.0	0.0
27:15L	Regional	6	0	0	1	0	0	16.7%	0.0%	0.0%	0.7	0.0	0.0
37:D5	Regional	15	0	0	2	0	0	13.3%	0.0%	0.0%	2.1	0.0	0.0
39:13Y	Regional	0	7	7	0	6	2	0.0%	85.7%	28.6%	0.0	5.1	1.5
40:W15	Regional	14	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
48:D3	Regional	18	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
521:16L	Regional	5	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
57:V5	Regional	21	0	0	2	0	0	9.5%	0.0%	0.0%	1.0	0.0	0.0
580:W13	Regional	24	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
580:W14	Regional	13	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
587:W9	Regional	18	0	0	4	0	0	22.2%	0.0%	0.0%	1.5	0.0	0.0
63:C12	Regional	23	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
63:C14	Regional	34	0	21	6	0	1	17.6%	0.0%	4.8%	2.0	0.0	0.5
8:29C	Regional	11	0	0	2	0	0	18.2%	0.0%	0.0%	1.1	0.0	0.0
8:29E	Regional	6	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
8:29G	Regional	27	0	0	8	0	0	29.6%	0.0%	0.0%	6.8	0.0	0.0
8:29H	Regional	17	0	0	3	0	0	17.6%	0.0%	0.0%	3.2	0.0	0.0
8:29X	Regional	9	0	0	3	0	0	33.3%	0.0%	0.0%	2.6	0.0	0.0
88:P17	Regional	28	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
88:P18	Regional	12	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
88:P19	Regional	20	0	0	1	0	0	5.0%	0.0%	0.0%	1.2	0.0	0.0
92:25A	Regional	34	27	26	5	4	3	14.7%	14.8%	11.5%	2.6	2.3	3.1
92:25C	Regional	20	0	0	2	0	0	10.0%	0.0%	0.0%	1.3	0.0	0.0
92:25D	Regional	8	0	0	8	0	0	100.0%	0.0%	0.0%	3.7	0.0	0.0
92:25E	Regional	13	0	0	0	0	0	0.0%	0.0%	0.0%	0.0	0.0	0.0
94:4B	Regional	49	28	33	5	3	3	10.2%	10.7%	9.1%	3.3	1.7	1.4
40	Regional	1,204	338	439	195	148	146	16.2%	43.8%	33.3%	123.8	64.9	85.0

There are 75 route variations on 48 lines of service with 2,361 trips operated on weekdays, 750 on Saturdays and 614 on Sundays included in the category of "not meeting criteria" presented in the Annual Productivity Report, which was distributed on December 12, 2014. Approximately 37% of these trips have 10 or fewer boarding passengers. If all these low-ridership trips were eliminated the estimated cost reduction ($10 million), ridership loss (2.4 million) and net subsidy savings ($7.4 million) could accrue as indicated below:

Potential Cost Reduction Associated with Reduced Trips				
	Weekday	Saturday	Sunday	TOTAL
Regional	$2,781,395	$ 332,541	$ 443,250	$3,557,187
Non Reg	$5,539,874	$ 428,932	$ 458,088	$6,426,894
TOTAL	$8,321,269	$ 761,473	$ 901,339	$9,984,081

Potential Ridership Reduction Associated with Reduced Trips				
	Weekday	Saturday	Sunday	TOTAL
Regional	341,250	259,000	255,500	855,750
Non Reg	934,500	301,000	302,750	1,538,250
TOTAL	1,275,750	560,000	558,250	2,394,000

Potential Revenue Reduction Associated with Reduced Trips				
	Weekday	Saturday	Sunday	TOTAL
Regional	$ 371,963	$ 282,310	$ 278,495	$ 932,768
Non Reg	$1,018,605	$ 328,090	$ 329,998	$1,676,693
TOTAL	$1,390,568	$ 610,400	$ 608,493	$2,609,460

Potential Subsidy Reduction Associated with Reduced Trips				
	Weekday	Saturday	Sunday	TOTAL
Regional	$2,409,433	$ 50,231	$ 164,755	$2,624,420
Non Reg	$4,521,269	$ 100,842	$ 128,091	$4,750,201
TOTAL	$6,930,702	$ 151,073	$ 292,846	$7,374,621

To develop a formal service change recommendation, the following items would still need to be considered:

- Viability of remaining trips as a marketable service in terms of span, frequency, days of operation and direction of travel.
- Operating relationship to remaining trips. For example, the 18J is the off-peak direction return trip to support the peak direction 18H &18G trips. This improves the performance of the line and service to customers at almost no additional cost, although not at the desired level of production.

7.2 Operate special bus schedules on Fridays and Mondays when major holidays fall on Tuesdays and Thursdays. (For example Christmas-2014 and New Year's-2015 and always on the day after Thanksgiving.)

- Christmas and New Years will fall on Friday during FY2016; leaving no opportunity for a similar schedule opportunity as in FY2015.

- Metrobus already operates a Saturday Supplement (Service 4) schedule on Veterans Day (the only Tuesday federal holiday) and on Columbus, Martin Luther King and Presidents Days. Ridership on November 11, 2014 was 305,000. On Monday the 10th, the ridership was 440,000 which requires the capacity of a full Weekday Schedule.
- The day after Thanksgiving has traditionally been a lower ridership day. November 29, 2014 operated a full Weekday Schedule which generated ridership of only 260,000 passengers (Saturday ridership average 237,000 in November 2014).
- The primary savings of a Service 4 (Saturday Supplement) schedule is about 600 Platform hours and 7,000 platform miles per day, which amounts to about $60,000 in savings per day. This service plan requires less than 1,000 employees rather than the 1,820 required of a normal day. Selection of this work as part of a "Work Picking" or bid as "extra work" would be subject to negotiation with the unions and would require use of vacation for those employees not working.
- The savings of a reduced schedule in comparison to a full weekday result from:
    - Reduced number of operators reporting for work
    - Consumables not used (i.e. fuel, tires and repairs deferred)
    - Accidents and vandalism not incurred
    - Pay premiums and penalties not incurred
    - Trippers and discretionary work not executed
    - Part time work not dispatched
    - School runs not reporting
    - Open work shifts not filled
    - Unscheduled over-time not needed
    - Two divisions remaining closed with reductions in related heating, conditioning and cleaning.

7.3 Reduce service on the 5A to match lower post-Silver line opening ridership

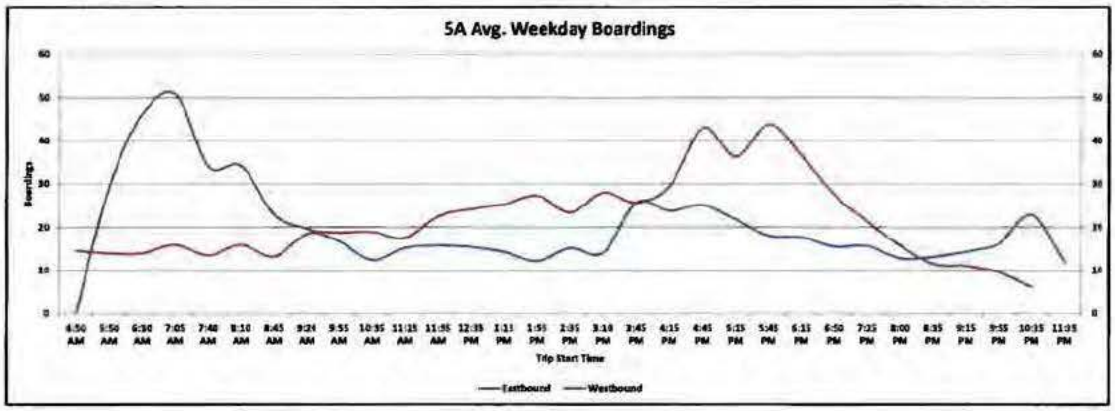
The fare for a one-way trip on this line is $7.00. Service operates 7-days per week between 4:45 AM and 12:19 AM weekdays. Saturday and Sunday services begin at 5:30 AM with a 12:10 AM ending time.

The tables below provide recent information concerning pre- and post- Silver Line ridership patterns. Over all, ridership on the 5A has declined since the implementation of a $1 fare increase and extension of Silver Line to Wiehle-Reston East Station where Fairfax Connector and Washington Flyer have both implemented new services connecting to Dulles Airport.

5A DC-Dulles Line							
Month	**Wkdy Total**	**Wkdy Avg**	**Sat Total**	**Sat Avg**	**Sun Total**	**Sun Avg**	**Monthly Total**
July	29,353	1,334	4,474	895	3,092	773	**36,919**
August	22,023	1,049	3,567	713	2,965	593	**28,555**
% Change	-25%	-21%	-20%	-20%	-4%	-23%	-23%

The 5A riders are about evenly split between commuters to center city and airport-related travelers, creating a productive use of the buses in both directions. Popular stops for boarding and alighting include Dulles (+900 riders per day) Herndon Monroe Park and Ride (350), Rosslyn (600+) and L'Enfant Plaza (700).

Severe crowding is regularly reported on the 6:39 AM eastbound trip with a recent spot check reporting 54 passengers leaving Herndon-Monroe Park and Ride. The afternoon peak coincides with airport arrivals, especially from the west coast. There is a surge of riders in the late evening representing staff and late arriving passengers. The following table clearly demonstrates the ridership trends through a "normal" weekday.



The $7.00 fare per trip has resulted in a 60% farebox recovery ratio with a subsidy per rider that is comparable to other local services in Virginia that are considered productive, such as the 2A Washington Blvd and 38B Ballston-Farragut Lines.

A midday reduction from 19 scheduled trips to 12 scheduled trips on Weekdays (Saturday and Sunday services are already hourly) could be implemented to reduce frequency from once every 45 minutes to once per hour. Although buses may occasionally experience crowding, on the average there should be sufficient capacity for current riders but, with reduced

convenience. Due to the high cost recovery, with an assumption that 50% of current riders could be retained during the midday period on the remaining trips, net subsidy savings is estimated at $52,000 per year.

5A DC-Dulles Line Service Reduction	
	Weekday
Cost Reduced	$ 174,572
Passengers Reduced	17,500
Revenue Reduced	$ 122,500
Subsidy Reduced	$ 52,072

7.4 Reduce Metrobus Fleet Expansion (7 buses planned for MD) (Goldman)

The 20 Buses previously included in the Capital Improvement Program to support Priority Corridor Network/State of Good Operations (PCN/SOGO) expansion have already been removed as part of the December budget proposal since there is no funding to support SOGO expansion in the FY2016 operating budget. Metro's proposed plan does assume future expansion of the bus fleet. However Metro will review this plan annually and will scale this investment appropriately, including reducing funding when there is not PCN/SOGO funding in the operating budget to support the expansion.

7.5 Limit Span of Airport Service on 5A Dulles Shuttle to match 13Y Reagan Shuttle (Goldman)

The 5A has a special subsidy allocation formula adopted by the Board based on residence of ridership as determined by a recurring survey. As a regional route, Maryland contributes to the 5A service to Dulles, while DC and Virginia do not contribute to the non-regional B30 service from Greenbelt to BWI. The net contribution of Maryland is approximately $188,000 annually as noted below:

5A DC-Dulles Line Special Allocation		
Annual Net Subsidy	100%	$990,000
DC	41%	$405,900
Montgomery	0%	$ -
Prince George's	19%	$188,100
Alexandria	1%	$ 9,900
Arlington	8%	$ 79,200
Fairfax City	0%	$ -
Fairfax County	31%	$306,900
Falls Church	0%	$ -

Reducing the 5A to only a non-rail operating schedule (like the 13Y) would make the line essentially infeasible as a stand-alone service (1-AM trip on weekdays and 2- AM trips on weekends) and abolishment would be recommended. The Service Evaluation Study (2011) and an independent Riders Advisory Council assessment did not recommend this tactic as serving the rider market.

Elimination of this line was included in the public hearing docket B13-02 in the fall of 2013, which resulted in extensive dialogue regarding the role and need for the service. The complexity of knowing a rail-dependent schedule would dissuade discretionary riders and, restricting to these operating hours would not serve the major market of commuters who enable this service to carry approximately double the riders than the B30 which does not have a strong commuter market.

Attachments

M E M O R A N D U M

SUBJECT: FY2014 Ridership Review DATE: August 15, 2014

FROM: OMBS – Thomas Webster TJW

THRU: CFO – Dennis Anosike

TO: GM/CEO - Richard Sarles

FY2014 was a mixed year for Metro ridership. Metrobus and MetroAccess showed ridership gains, while Metrorail experienced a ridership decrease due in part to one-time impacts of the October government shutdown and weather-related closures as well as the reduction in the federal transit subsidy. So far in FY2015, Metrorail ridership for July was flat but has been initially encouraging for August, and weekend ridership has shown improvement in recent months. More encouragingly, the Silver Line opened successfully on July 26, and ridership continues to be strong for Metrobus (July ridership was up 2 percent over last year). Staff should have a better sense of the trajectory of FY2015 in September once the region returns to work and school after the summer. This memo provides a review of FY2014 ridership for each mode and the associated budgetary impacts.

Metrorail

Total Metrorail ridership in FY2014 was 203.4 million trips, a decline of 2.6 percent from 208.8 million trips in FY2013. The two-week government shutdown in October 2013 reduced weekday rail ridership by 15 to 20 percent (and parking utilization by 25 to 30 percent) and resulted in a loss of approximately 1.2 million trips. The region was also hit with unusually severe winter weather in 2013-2014, with five federal government closures and eight additional days where the Office of Personnel Management (OPM) allowed federal employees to utilize unscheduled leave or telework.[1] The five closure days in FY2014 were responsible for a loss of another 2.4 million trips. Taken together, the shutdown and weather closures reduced rail ridership in FY2014 by almost two percent.

Washington
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However, when making year-to-year comparisons, it is important to note that FY2013 also was impacted by one-time events, including the two-day system closure in October 2012 due to Hurricane Sandy. After adjusting both years for one-time impacts, the FY2014 ridership decline was still 1.8 percent, indicating an underlying weakness in demand. Part of this weakness is due to the reduction in the federal transit benefit to $130/month as of January 1, 2014. The rail ridership decline was not distributed evenly across the system, as can be seen in the following:

- *Weekday/weekend*: For the full year, unadjusted average weekday and

[1] A review of the "Snow & Dismissal Procedure" status archive shows an increased willingness in recent years for OPM to declare 'unscheduled leave or telework' days when there is even a moderate chance of bad weather. This is likely the result of bad experiences with mid-day releases of employees as well as improved productivity available through telework.

weekend ridership declined by 2.9 percent and 2.5 percent, respectively. However, May is generally more representative of underlying trends and is free from one-time impacts. Average May weekday ridership declined from 725,000 to 715,000 (-1.4 percent) from 2013 to 2014, while average weekend ridership *increased* from 280,000 to 291,000, or 3.7 percent. Weekend ridership trends have been more positive during the spring and summer months of 2014.

- *Stations*: Station-level ridership changes from FY2013 to FY2014 varied widely, from a low of -12 percent at Federal Center SW to a high of +5 percent at U Street. The top and bottom five stations are shown in the table below. Most of the stations with the greatest gains were those in areas experiencing robust development, while those with the largest losses were primarily federal employment destinations impacted by the October and winter weather shutdowns. A list of the FY2014 ridership change for all 86 non-Silver Line stations is provided as an attachment.

Top Five Stations		Bottom Five Stations	
U Street	4.8%	East Falls Church	-7.4%
Dunn Loring	4.1%	Smithsonian	-8.0%
Rhode Island Ave	3.8%	Federal Triangle	-8.4%
Shaw-Howard U	3.1%	L'Enfant Plaza	-8.6%
Braddock Road	2.6%	Federal Center SW	-11.7%

- *Line segments*: The ridership changes by line segment in FY2014 did not vary as widely as those by individual station, but clear trends were identifiable. Compared to the system-wide decline of 2.6 percent, ridership on the northern Green/Yellow Line (beyond Mt Vernon Square) was flat, and ridership on the eastern branch of the Red Line (beyond Union Station) declined only 0.7 percent. By contrast, ridership on the southern Green Line (beyond L'Enfant Plaza) declined 4.4 percent, and ridership on the southern Blue/Yellow Line (beyond Pentagon) declined 3.6 percent. As with stations, these patterns are consistent with positive impacts from development (particularly on the northern Green/Yellow Line) and adverse impacts from reduced federal employee travel.

Metrobus

After experiencing a slight decline the previous year, Metrobus ridership rebounded in FY2014. Total trips increased 1.8 percent from 132.3 million in FY2013 to 134.6 million in FY2014. Bus ridership was largely unaffected by the October shutdown (given the lower proportion of furloughed federal employees riding bus) but was impacted by the severe weather. The entire Metrobus system closed on both February 13 and March 3, 2014, due to dangerous road conditions, resulting in a loss of almost one million trips. However, the bus system was also closed for two weekdays in FY2013 as a result of Hurricane Sandy, so year-to-year comparisons are comparable without adjustment.

Bus ridership was buoyed in part by the DC Kids Ride Free initiative that was introduced for the 2013-2014 school year, and so far, this program has proven to be positive both for Metro and for DC students (and parents). Kids Ride Free aside, overall bus ridership is also increasing. Riders view Metrobus as a good value, given the new fleet, low fare, and improved reliability and on-time performance achieved through the Better Bus Initiative service changes. Further, the market for Metrobus is growing in many parts of the region, particularly in corridors such as 16th Street, where satisfying the robust demand has become a high profile issue requiring cooperation between Metro and DC. Ridership growth can be seen across the following dimensions:

- *Jurisdiction*: Each jurisdiction saw net growth in total ridership in FY2014, although the growth was not distributed equally within each jurisdiction. The table below shows the FY2014 net growth for DC, Maryland, and Virginia and the high and low performing sectors within each jurisdiction. A map showing the geographic sectors is attached.

Jurisdiction	Growth	High Sector		Low Sector	
		Location (#)	*Growth*	*Location*	*Growth*
District of Columbia	2.8%	Eastern (4)	4.5%	North-eastern (3)	1.1%
Maryland	1.1%	Eastern Montgomery / Western Prince George's (13)	2.9%	Southern Prince George's (10)	-2.3%
Virginia	0.6%	Central NOVA (8)	3.6%	Eastern NOVA (9)	-2.4%

- *Weekday/weekend*: Metrobus weekend ridership grew strongly in FY2014, continuing a trend that began in FY2010 after the financial crisis and recession. Total weekend ridership was up 4.6 percent over FY2013, while weekday ridership was up 1.2 percent. In the "typical" month of May, the disparity was more pronounced – average weekend ridership in May 2014 was up almost 10 percent over 2013, while average weekday ridership increased only slightly (0.2 percent).
- *Regional/non-regional*: Metrobus has seen ridership grow more strongly in recent years on its regional routes, particularly in the PCN corridors that carry the most passengers and that have benefitted from investments in service improvements. This trend continued in FY2014 as ridership on regional routes grew by 2.3 percent, while ridership on non-regional routes declined slightly (-0.3 percent).

MetroAccess

As noted during the FY2015 fare policy deliberations, the recent trend of reductions in MetroAccess ridership (achieved in part through travel training,

tighter eligibility screening, and other demand management techniques successfully implemented by Metro) has stopped, and registrations and ridership have begun to grow again. MetroAccess ridership in FY2014 was 2.13 million, a 4.6 percent increase over the 2.03 million trips in FY2013. Like Metrobus, MetroAccess was largely unaffected by the government shutdown but did experience service closures as a result of the severe weather. MetroAccess ridership growth occurred region-wide but was somewhat lower in Virginia (up 1.2 percent for FY2014 versus FY2013) compared to DC and Maryland (up 5.4 percent and 5.0 percent, respectively).

Budget Impacts and Next Steps

The FY2014 budget assumed six months of revenue service for the new Silver Line. However, the Silver Line opening was delayed until July 2014, and this delay combined with the Metrorail ridership decline resulted in a fare revenue shortfall. The resulting FY2014 operating deficit will be partially offset by the $10 million reserve that was set aside from the FY2013 surplus. Any additional deficit beyond that amount will be offset by targeted FY2015 operating expense reductions in order to avoid additional jurisdictional subsidy requests.

Over the next several weeks, Metro staff will begin ridership forecasting for the FY2016 budget development process. While overall population and employment forecasts for the region remain generally positive, staff will be evaluating other factors that, taken together, may continue to offset rail ridership growth. These impacts may occur though reduced overall trip-making (e.g., reduced commuting due to telework[2]) or through mode shifts of trips away from rail and towards bus, driving, and biking (including bikesharing[3]).

Attachments

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[2] The most recent Federal Employee Viewpoint Survey showed another increase in reported usage of telework by federal employees. In the 2013 survey, 12.5 percent of respondents said they teleworked at least once a week, up from 10.3 percent in 2012 and 8.1 percent in 2011.

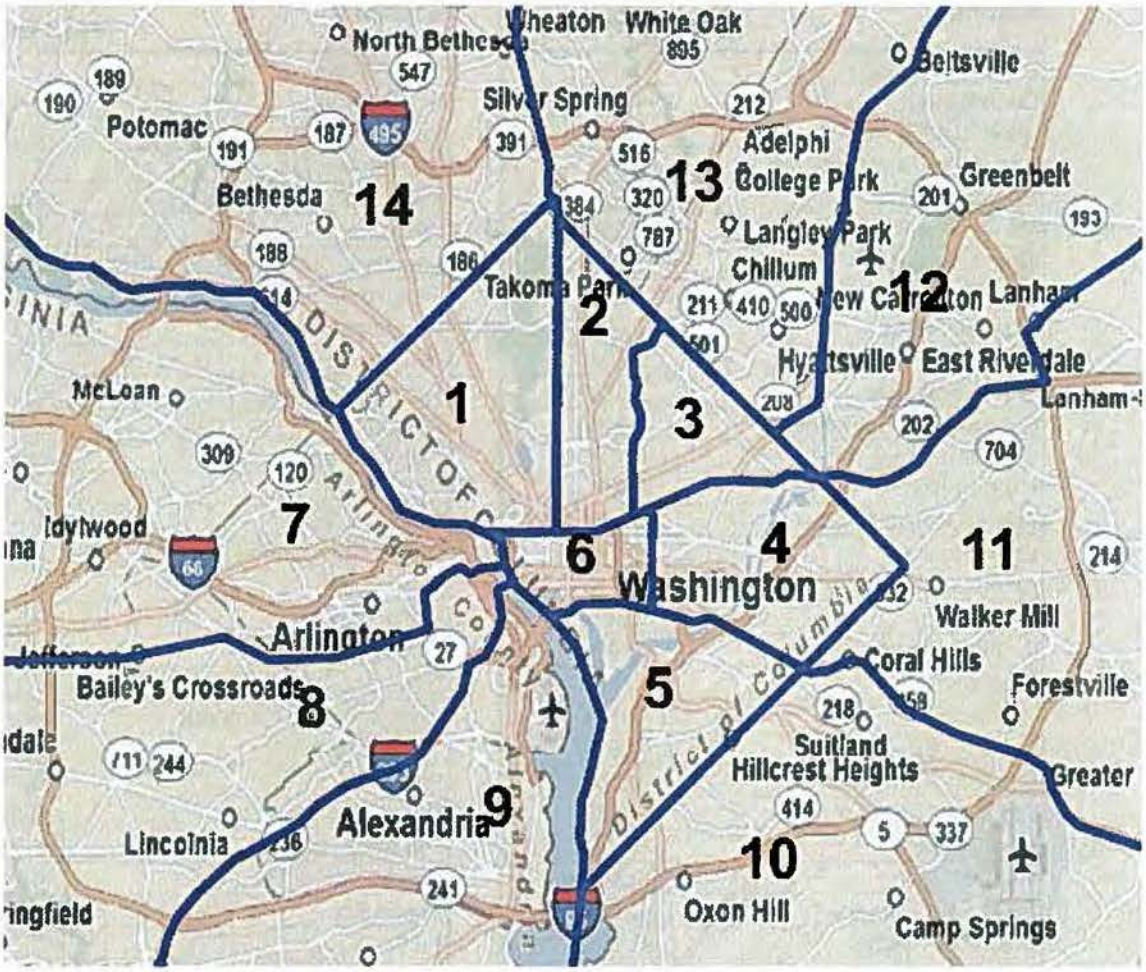
[3] A recent study in the *Journal of Transport Geography* surveyed bikeshare users in the DC region and offered mixed results on the impact of bikesharing on transit use. For users in the urban periphery, the study found that bikesharing acts as a *complement* to transit, encouraging additional trips using a combination of transit and bicycle. In the urban core, however, bikeshare serves as a *substitute* for transit, replacing shorter trips that were previously made by transit.

Attachment A: Ridership Change by Station

Station	Ridership Change (FY13 to FY14)
U Street-Cardozo	4.8%
Dunn Loring	4.1%
Rhode Island Avenue	3.8%
Shaw-Howard University	3.1%
Braddock Road	2.6%
Mt. Vernon Square-UDC	2.5%
New York Ave	1.7%
Dupont Circle	1.4%
Farragut West	1.4%
Bethesda	1.3%
West Hyattsville	1.1%
Georgia Avenue-Petworth	0.9%
Virginia Square-GMU	0.2%
Morgan Blvd.	0.1%
Prince George's Plaza	0.1%
Court House	-0.2%
Glenmont	-0.2%
Fort Totten	-0.3%
Capitol Heights	-0.4%
Grosvenor	-0.4%
Wheaton	-0.5%
College Park-U of MD	-0.6%
Stadium-Armory	-0.6%
Woodley Park-Zoo	-0.8%
King Street	-0.8%
Medical Center	-1.0%
West Falls Church	-1.3%
Columbia Heights	-1.3%
Rosslyn	-1.3%
Benning Road	-1.3%
Reagan Washington National Airport	-1.4%
Forest Glen	-1.4%
Ballston	-1.6%
Anacostia	-1.6%
Arlington Cemetery	-1.6%
Shady Grove	-1.7%
Rockville	-1.7%
Friendship Heights	-1.8%
Cheverly	-1.9%
McPherson Square	-2.0%
Gallery Place-Chinatown	-2.1%
Union Station	-2.1%
Brookland	-2.2%

Station	Ridership Change (FY13 to FY14)
Naylor Road	-2.3%
Silver Spring	-2.4%
Van Ness-UDC	-2.5%
Branch Avenue	-2.5%
Addison Road	-2.6%
White Flint	-2.6%
Van Dorn Street	-2.6%
Eastern Market	-2.6%
Minnesota Avenue	-2.7%
Twinbrook	-2.8%
Potomac Avenue	-2.9%
Vienna	-3.0%
Metro Center	-3.3%
Takoma	-3.4%
Farragut North	-3.4%
Largo Town Center	-3.7%
Deanwood	-3.7%
Clarendon	-3.8%
Pentagon City	-3.8%
Cleveland Park	-4.1%
Archives-Navy Memorial	-4.1%
Tenleytown-AU	-4.4%
Pentagon	-4.4%
New Carrollton	-4.6%
Judiciary Square	-4.7%
Congress Heights	-4.8%
Huntington	-4.9%
Suitland	-5.1%
Southern Avenue	-5.1%
Eisenhower Avenue	-5.2%
Franconia-Springfield	-5.5%
Foggy Bottom	-5.7%
Landover	-5.8%
Capitol South	-6.1%
Crystal City	-6.2%
Navy Yard	-6.7%
Waterfront	-6.8%
Greenbelt	-6.9%
East Falls Church	-7.4%
Smithsonian	-8.0%
Federal Triangle	-8.4%
L'Enfant Plaza	-8.6%
Federal Center SW	-11.7%

Attachment B: Map of Bus Service Geographic Sectors



M E M O R A N D U M

SUBJECT: Regional Employment Forecasts DATE: October 17, 2014

FROM: CFO – Dennis Anosike

TO: GM/CEO – Richard Sarles

At the October 9, 2014 meeting of the Finance and Administration Committee, Board members requested additional detail on the employment projections included in the Metrorail ridership presentation.

WMATA utilizes economic forecasts from Moody's Analytics to assess regional trends in population and employment and to project future bus and rail ridership. The table below summarizes Moody's regional employment forecast for 2025 (as compared to 2013) by major employment category. The most recent Moody's quarterly forecast (in Excel spreadsheet format) is included with this memorandum.

Washington Region Employment 2013-2025 (in thousands)

Employment Category	2013	2025	% Change
Construction	144.5	164.0	13%
Professional and Business Services	706.9	816.8	16%
Education and Health Services	393.6	449.3	14%
Leisure and Hospitality	291.5	343.8	18%
Other Services	189.3	192.6	2%
Wholesale/Retail Trade			
Wholesale	62.7	66.7	6%
Retail	266.0	285.6	7%
Trans, Comm, and Utilities	60.9	58.2	-4%
Financial Activities	151.2	165.1	9%
Information	76.3	58.4	-23%
Government			
Federal	373.4	366.3	-2%
State and Local	314.7	358.2	14%
Natural Resources and Mining	1.5	1.6	6%
Total Non-Manufacturing Employment	3,032.5	3,326.6	10%

As discussed during the Committee meeting, Moody's is projecting continuing decline in federal employment in the region. However, employment in other key job categories, including professional and business services, leisure and hospitality, and state/local government, is projected to grow steadily.

Attachment

Washington Metropolitan Area Transit Authority

M E M O R A N D U M

SUBJECT: Fare Policy Options

DATE: November 26, 2014

FROM: CFO – Dennis Anosike

TO: GM/CEO - Richard Sarles

At his recent orientation session, Board Member Costa requested background information on prior Board decisions regarding Metro fare policy. Additionally, at the Finance and Administration Committee meeting on November 6, Board Member Hynes commented on the need to potentially reevaluate Metrorail fares in light of recent ridership declines. This memo is provided as an initial response to those requests. Fare increases are not currently being considered as part of the FY2016 budget process, which is in line with the Board's stated policy (Resolution 2007-47) to implement fare changes on a biannual basis. However, the Board's deliberations for previous fiscal years (FY2015 and FY2013) are instructive, and those prior analyses may be useful in considering changes for FY2017.

As part of the FY2015 budget adoption process, the Board considered a range of potential changes to transit fares and parking fees in order to balance the need for increased operating support equitably between riders and the local jurisdictions. Ultimately, the Board adopted a Metrobus fare increase of approximately nine percent, a Metrorail fare increase of three percent, and a $0.10 increase in the base parking fee. MetroAccess fares were also increased accordingly (based on the current formula of twice the fastest comparable fixed-route fare), but the maximum fare was lowered from $7.00 to $6.50 following significant outreach and discussion with members of the MetroAccess community. Other smaller changes, such as increases to the transfer discount, were considered but not adopted, and a pilot program for a discounted convention pass was introduced.

Washington
Metropolitan Area
Transit Authority

From the outset of the FY2015 budget process, the potential fare changes were categorized as "incremental" or "modest" and did not contemplate any substantial changes to Metrorail's distance-based and time-of-day-based fares, the pricing of passes, or the overall relationship between Metrobus and Metrorail fares. However, during the FY2013 budget process, more substantial changes to Metro fares were considered. The Board materials from those discussions in October 2011 are attached for reference.

During the FY2013 budget process, the Board considered some major potential changes such as flat fares and zone fares on Metrorail, premium fares on certain Metrobus routes, and integrated monthly bus and rail passes. Additional complexities often accompany such major proposed changes, such as the desire to maintain revenue neutrality, the impact on ridership and passenger loading at

key stations, and the equity of the current operating subsidy allocation formula. At that time, the Board ultimately decided to maintain the existing overall fare structure, though a decision was made to eliminate the unpopular peak-of-the-peak fare surcharge, which was having little effect on peak loads on Metrorail.

As part of the FY2017 budget process, it is recommended that staff and the Board begin an in-depth consideration of Metrorail fares, including the cost of rail relative to the cost of driving, the relationship between distance and fare paid, and the level of bus fares relative to rail. Given the general inelasticity of transit demand with respect to price, an across-the-board fare reduction might boost ridership, but likely not enough to overcome the need for a resulting net increase in subsidy contributions.

Attachment

Finance & Administration Committee

Information Item III-A

October 13, 2011

Metrorail and Metrobus Fare Structure Model

Washington Metropolitan Area Transit Authority

Board Action/Information Summary

○Action ◉Information	MEAD Number:	Resolution: ○Yes ◉No

TITLE:

Budget Policy Development - Rail and Bus Fares

PURPOSE:

Inform Board of development and availability of a tool for evaluating Metro fare structures and fare products, and discuss impacts of potential changes to fare structures and products on revenue, ridership and other criteria.

DESCRIPTION:

During Metro customer focus groups held in October of 2010, customers expressed concern that Metrorail fares are complex, not easy to determine and difficult to explain to others. In November of 2010, Metro adopted "fare policy principles" with the goal of codifying and updating the goals for future fare policy development. Metro is currently in the beginning stages of developing a New Electronic Payments Program (NEPP), with the goal of enabling Metro to accept "open payments" wherever farecards and SmarTrip® cards are currently used to access transit services in the region.

As part of the NEPP development process, it was deemed necessary to evaluate what possible fare structures would need to be supported by the new open payment system. To assist in this process, Metro began the process of developing a model that would assess the impacts of new fare levels, fare structures and fare products on not only ridership and revenue, but also criteria that embody the Board-approved fare policy principles.

This information item describes the fare model under development, highlighting how input from customers, the Metro Board and "internal stakeholders" (Metro staff and JCC members) is incorporated into the model results and evaluation process. The current fare options under evaluation are described, including fare simplification, encouragement of off-peak/reverse commutes and encouraging more efficient use of the system. For each fare concept presented, an preliminary assessment of the impacts on ridership and revenue are listed, including how well the concept aligns with the Board-approved fare policy principles. A schedule for the remainder of the model development process is provided.

This project supports Metro's goals of delivering quality service, using every resource wisely and enhancing Metro's image. Quality service can be enhanced by rolling out new fare structures and fare products that increase customer satisfaction and therefore increase

ridersihp. The goal of using every resource wisely is supported by this project in that new fare structures could better balance the supply and demand of transit in the region by sending customers price signals to inform them of the most efficient use of the existing system. Finally, the project supports the goal of enhancing Metro's image, as greater customer satisfaction raises the image of Metro in the public eye. Additionally, by supporting NEPP, this project will help Metro implement innovative payment systems that will illustrate that Metro continues to be a leader in adopting customer-friendly payment technologies, a reputation that began with magnetic stripe farecards and bolstered by SmarTrip® .

This project is linked to the existing New Electroinc Payments Program.

FUNDING IMPACT:

This presentation is for information purposes only and has no funding impact.

Project Manager: Michael Eichler

Project Department/Office: PLJD/PLAN

RECOMMENDATION:

Feedback and direction on the development of and preliminary findings from the ridership and revenue fare model.

Washington Metropolitan Area Transit Authority

Fare Policy Development

Metrorail and Metrobus Fare Structures

Finance and Administration Committee

October 13, 2011

Purpose

- Review existing fare structure
- Describe new model developed to inform future fare policy conversation
  - Estimate ridership and revenue impacts
  - Assess implications of policy concepts
- Describe possible future fare structure concepts under evaluation

Timing: Supports Current Initiatives

- Address customer feedback from October 2010 focus groups
  - A more simple time- and distance-based system
- Prepare for New Electronic Payment Program (NEPP) currently underway
  - Open payment systems expensive to develop for complex fare structures
- Maximize adherence of fare structure to Board's fare policy principles adopted November 2010
- Develop the upcoming FY13 budget

Current Rail Fare Structure

Peak "regular"	Off-Peak "discounted"
Paper! +$0.25	Paper! +$0.25
POP! +$0.20	
$5 Max Fare	
More than 6: +$0.265 /mile	More than 10 +$0.60
Next 3 Miles: +$.299 / mile	Next 3 Miles: +$0.55
First 3 Miles: $1.95	First 7 Miles: $1.60

Elderly and Disabled: ÷ 2

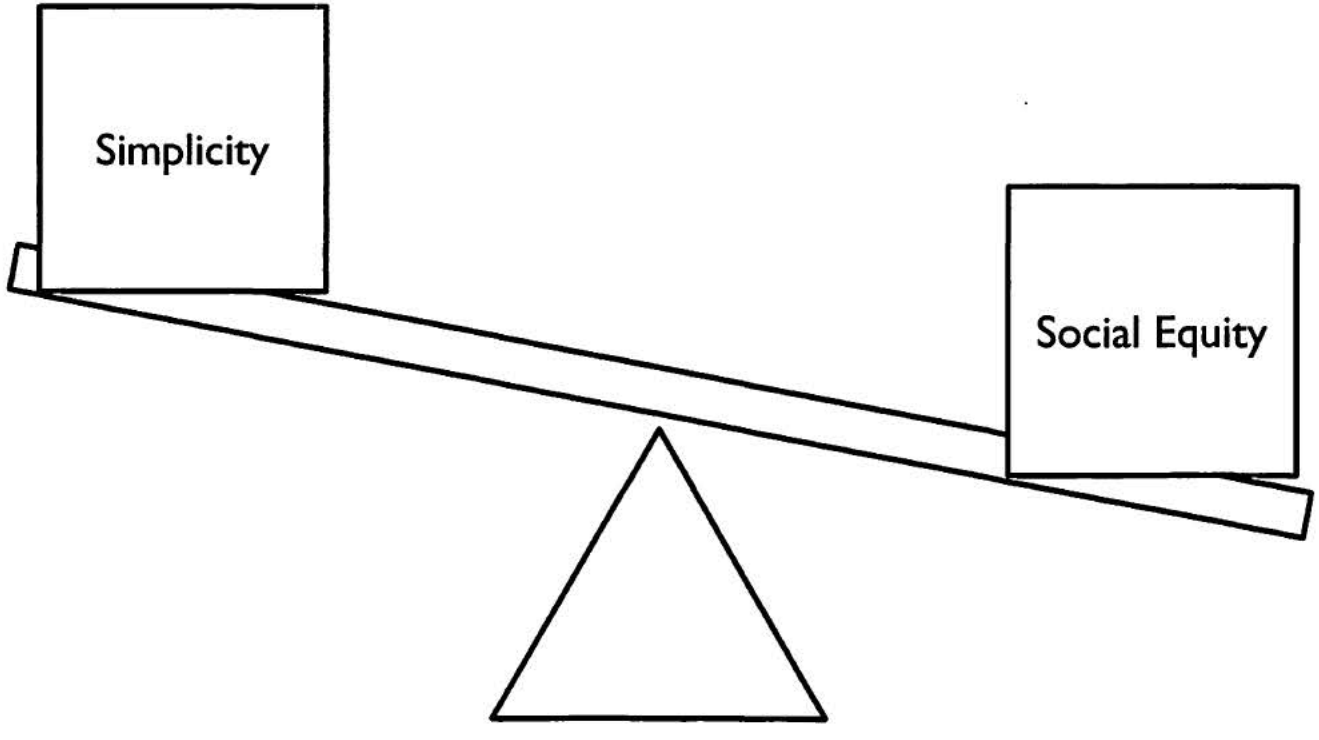
Number of Fare Options:

Distance	86x86
Time of Day	x3
Paper/ST	x2
Full Fare/E&D	x2

44,376 Fare Combinations

Current Rail Fare Structure

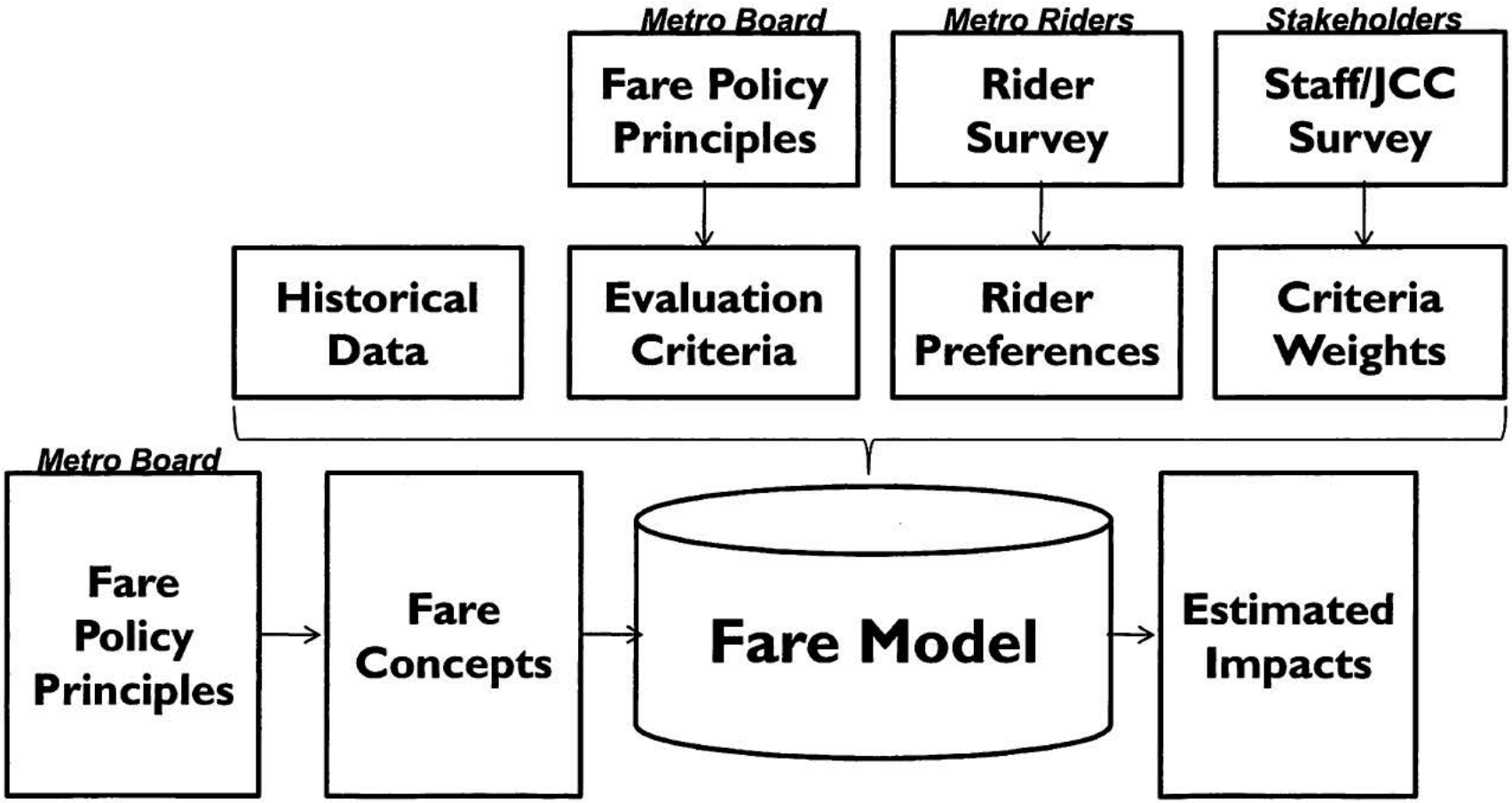
- A complex fare structure provides the opportunity for high social equity
- Metro Board has historically favored equity over simplicity



Fare Policy Principles

1. Ensure and enhance customer satisfaction
2. Establish a mechanism to allow customers to determine their fares easily
3. Optimize the use of existing capacity
4. Establish equitable fares and ensure compliance with federal regulations
5. Facilitate movement between modes and operators throughout the region
6. Encourage the use of cost-effective media
7. Generate adequate revenue while maximizing ridership

Fare Model & Evaluation Process



Fare Structure Concept: **Higher Fare on Premium Bus**

Details

- Higher fare for Priority Corridor Network "Metro Express" limited stop routes
- No changes to rail

Implications

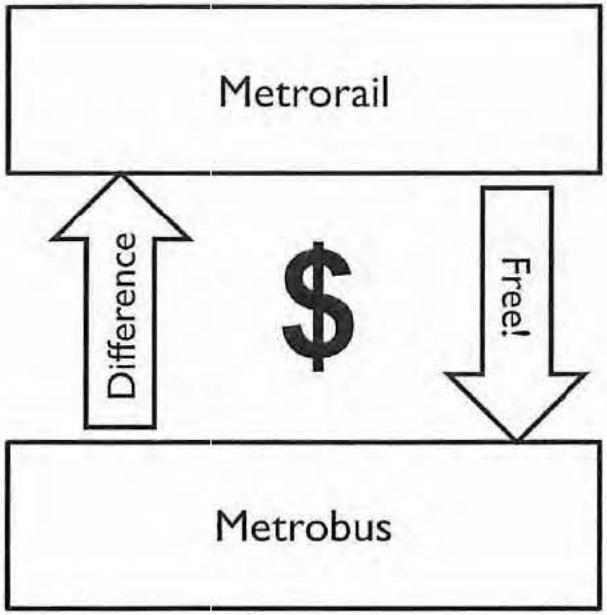
- Riders willing to pay more for faster trips
- Would reduce crowding on popular new services while raising revenue
- Increases complexity instead of reducing it

Concept under evaluation, not a proposal

Fare Structure Concept: **Integrated Transfer System**

Details

- Rail to bus transfer is free
- Bus to rail transfer upgrade
  - Upon exit of rail system, pay rail fare minus bus fare



Implications

- Improves customer convenience
- Promotes intermodal travel
- Would require fare increase to be revenue neutral

Concept under evaluation, not a proposal

Fare Structure Concept: **Integrated Monthly Passes**

Details

- Unlimited-ride pass program (rail and bus)
- Pass cost = 40x cost of an individual rider's "usual" linked trip

Buy a monthly pass for your regular commute trip, get ***"free nights and weekends!"***

Implications

- Improves customer convenience
- Encourages off-peak travel
- High level of interest
- Possible revenue loss but increased guaranteed revenue

Concept under evaluation, not a proposal

Fare Structure Concept: **Eliminate POP Rail Surcharge**

Details

- Remove Peak of the Peak (POP) surcharge on rail
- No changes to bus

Implications

- POP highly unpopular among riders
- Simpler for riders
- Lower development cost for NEPP
- Reduction in revenue

Concept under evaluation, not a proposal

Fare Structure Concept: **Zone-Based Rail Fares**

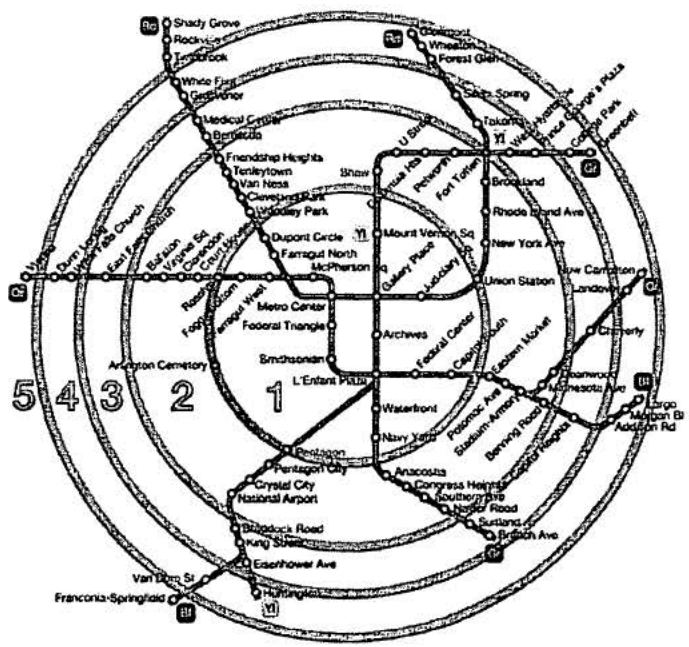
Details

- 5 concentric zones
- Peak/off-peak differential
- Based on blogger proposal
- No changes to bus

Implications

- May be simpler for riders
- Could raise equity concerns
- May result in lower development costs for NEPP

Potential Metro Zone Map



peak fares:*
$ 2.00 for the first zone
$ 0.75 for each additional zone

off-peak fares:*
$ 1.50 for first 2 zones
$ 1.75 for 3 zones
$ 2.15 for 4 zones
$ 2.50 for 5 zones

use of a paper farecard will result in a $ 0.25 surcharge

Map by Matt Johnson for Greater Greater Washington.

Concept under evaluation, not a proposal

Fare Structure Concept: **Flat Rail Fares**

Details

- Rail Fare = $2.70
- Calculated for revenue neutrality
- No time of day differential
- Maintain Paper Surcharge and ADA Fares
- No changes to bus

~~**44,376**~~

4 Different Fares!

Implications

- Unpopular yet simplest for riders
- Raises rider and jurisdictional equity considerations
- Lowest development cost for NEPP

Concept under evaluation, not a proposal

Other Concepts Being Evaluated

- Stored value bonus & minimum on-board loads
- New passes
  - 1-day, 7-day, monthly
  - Bus, rail, combo
- Rail reverse-commute discounts
- High/flat fare for paper farecards
- Round rail fares to $0.25
- Fixed rail charge per station
- Additional zone configurations
- Flat fare with off-peak differential

Next Steps

- Develop Equity Modules
  - Title VI
  - Subsidy Allocation
- Refine and test fare structure scenarios
  - Fare levels
  - Passes and other payment options
  - Underlying Metrorail and Metrobus fare structures
- Staff recommendation: January 2012

Appendix

- Current Fare Structure assessed for alignment with Fare Policy Principles

Fare Policy vs. Current Fare Structure

Fare Policy Principles	Applicable Fare Structure	Alignment
1. Ensure and enhance customer satisfaction	• Discounted transfers between modes • Customer savings from using SmarTrip®	+ Customers appreciate SmarTrip® - POP disliked by riders - Distance-based fares deemed complicated Customers prefer simple fare structure
2. Establish a mechanism to allow customers to determine their fares easily	• Fare tables posted at rail stations • On-line trip planner • Passes available for rail and bus • Flat-fee bus boarding charge	+ Customers appreciate passes + One-day rail pass use increased over previous year - Riders find station fare charts difficult to understand - Customers want to be able to explain fare structure to non-frequent riders
3. Optimize the use of existing capacity	• Regular fares vs discounted fares • Peak-of-the-peak (POP)	+ Discounted fare encourages off-peak and weekend ridership - POP surcharge not resulting in expected time-of-day shifts
4. Establish equitable fares and ensure compliance with federal regulations	• Rail fares are based on distance traveled • Seniors and persons with disabilities (ADA) discounts • Student SmartPass & DC student farecard • MetroAccess fares equal twice the equivalent fixed route	+ New fare structure successfully underwent Title VI analysis + Increase in ADA ridership over previous year

Fare Policy vs. Current Fare Structure

Fare Policy Principles	Applicable Fare Structure	Alignment
5. Facilitate movement between modes and operators throughout the region	• Regional use of SmarTrip® Card • Bus-to-bus transfer with free 2 hour window • Rail-to-bus and bus-to-rail transfer discount • Bus pass revenue sharing	Unable to assess due to Nextfare3 data storage format, subsequent analyses will evaluate how fare changes impact transfer behavior
6. Encourage the use of cost-effective media	• Paper fare media surcharge (rail) • Cash surcharge on bus • New bus passes on SmarTrip® card • All transfers require SmarTrip® card	+ Surcharges resulted in significant increase of SmarTrip® use
7. Generate adequate revenue while maximizing ridership	• Distance-based regular fare (rail) • Discounted fares during mid-day, evening, and weekends (rail) • Regular fare charge from midnight to close (rail) • New provision allows for special fares for special events	+ Fare increase resulted in negligible change in rail ridership + Average rail trip length unchanged despite increases in distance-based fare + Large fare increases for special rail and bus service (after-midnight rail, airport bus) raised revenue without significant decrease in ridership

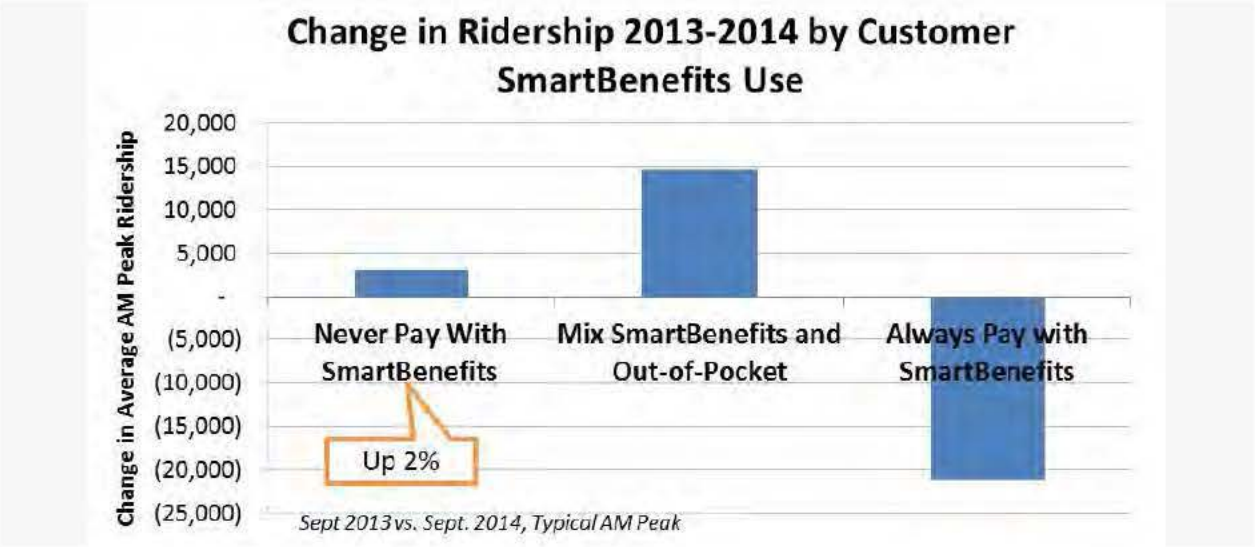
The Drop in Transit Benefit Has Effectively Been a 20% Cost Increase for Metrorail Riders

November 6th, 2014 Justin

The drop in the federal transit benefit is making Metrorail riders feel the pinch in their wallets, and it's hurting ridership.

What's happened to ridership since the benefit changed? You may have seen in the news that Metrorail riders have been heavily impacted by changes in federal tax law that discourages transit usage. The maximum amount of SmartBenefits dropped from $240 to $130 per month in January, and since then:

- Since the change, our traditional commuter market - full-fare customers who travel from suburban stations to the core at peak times – has fallen by about 1.5%.
- Trips shorter than 4 miles – more likely to still be fully subsidized – are unchanged.
- Customers able to get through the month on SmartBenefits alone are down 25%, while customers who must supplement with their own cash have *doubled,* and the net result has been a 10% loss in trips from this key commute market.
- 75% of this ridership loss has been from trips over 7 miles: at an average fare of $4.10/trip equating to $165/month and up, these longer commutes now require substantial out-of-pocket contributions.
- The average impacted SmartBenefits customer must now pay $0.84 extra per trip – this is the equivalent of a 20% fare hike.
    - For riders directly subsidized by the federal government, this was increase of nearly $2.40 per day, or over $54/month.
    - For riders setting aside pre-tax dollars, this felt like a 10% fare increase.
- Trips paid for with SmartBenefits have dropped 1%.



The decrease in the federal transit benefit has hurt Metrorail ridership in the last year. Ridership is up from customers who are unaffected by the policy change, but more people must supplement with out-of-pocket contributions to make it through the month, and in the process Metrorail is losing trips.

How do you know it's not something else? Ridership could be down for a variety of reasons, and we continue to mine the data for other patterns – from the economy to demographics to fares. We can't pin all of the ridership loss on the federal transit benefit, but the losses have been concentrated on SmartBenefits users. In addition:

- Ridership from commuters not enrolled in SmartBenefits has actually *grown* by 2% in the last year.
- We are still investigating, but customers do not appear to be reducing travel much due to telework. Metrorail has been losing both customers and trips (not just trips), and trip frequency among commuters is mostly stable.
- In fact, we are gaining riders at stations with recent transit-oriented development, and ridership is up 3% at stations along the Green Line in D.C., the Red Line in Northeast D.C., and Courthouse/Clarendon in Arlington.
  We continue to study the trends, and for a second glance see our more detailed summary of ridership trends (PDF, 710K).

Related Posts:

- Metrorail Brought One-Third of Fans to Nationals Park in 2014
- Veterans Day 2014 Metrorail Ridership
- "Virtual" Tunnel Yields Real Benefits
- Mass Transit Needs Mass
- Where Are Silver Line Riders Going?

Comments (9) Leave a comment

1. Stephen

November 6th, 2014 at 16:18 | #1

Thanks for highlighting this. It's great to see some ex post facto calculating of how the transit-benefit change might be affecting ridership.

Like or Dislike: 0 0

2. MLD

November 7th, 2014 at 09:54 | #2

The detailed summary PDF is great. It would be great to see more analysis like this in the future. Or to have monthly excel reports of entries/exits so people could do their own analysis!

Like or Dislike: 1 0

3. MLD

November 7th, 2014 at 09:56 | #3

It also looks like stations along the Red line in NW have seen declines – would be interesting to see if bus ridership has grown in those areas.

Like or Dislike: 0 0

4. Michael

November 7th, 2014 at 10:08 | #4

@MLD
Thanks for the feedback, Stephen and MLD.

MLD, we'll try to include more regular ridership analysis here on the blog, and include data downloads as well.

Like or Dislike: 0 0

5. Vinnie

November 7th, 2014 at 12:38 | #5

An argument to consider –

What you've shown rather convincingly is that the decline in ridership is due to suburban-to-core commuters during peak commute time and direction, and that this is concentrated within longer-distance commuters who use SmartBenefits (those who receive transit subsidy from work).

However, this is not necessarily due to the decline of the benefit — it may just be that SmartBenefit users are more likely to choose other ways of commuting than other riders. Their chocie of another mode could just as easily due to increasing fares (so they decide driving or the bus is a cheaper alternative), or due to a decrease in service reliability (so they decide driving or the bus is a better alternative).

There's one piece of evidence pointing to the likelihood of these possibilities — the AM peak entry drops appear to be concentrated on the DC stations of the western Red Line branch and all the Green Line stations east of the river.

Honestly, I'm trying to be constructive. There's an easy way to strengthen your argument — when did the May-to-May decline occur? If the year-over-year declines started January or later, you have a pretty solid case.

If instead they started after a fare increase, or after a particularly bad week on either the Red or Green line, perhaps its time for Metro to consider the consequences of fare policies and service quality.

Like or Dislike: 2 0

6. Michael

November 10th, 2014 at 11:29 | #6

@Vinnie
Hi, Vinnie:

We did look at year-over-year changes and there was a big drop in January of 2014 vs the previous year. We are in the process of developing a survey that should help provide confirmation of the primary conclusions of this analysis and we'll keep everyone posted with what we find.

Like or Dislike: 1 0

7. Justin

November 10th, 2014 at 12:47 | #7

@Vinnie
Great points, thanks for the feedback Vinnie. On your first point, I agree – but what would your theory be on why SmartBenefits users are more likely to choose other modes compared to non-SmartBenefits users? Across many dimensions – for the exact same trip, fare, and service experienced, the non-benefit users remain stable, while the benefit users are supplementing and traveling less.

And yes, the changes began pretty distinctly in January – we just kept things month-over-month to control for seasonal effects.

Thanks again, and stay tuned!

Like or Dislike: 1 0

8. Vinnie

November 10th, 2014 at 17:05 | #8

Thanks for the responses! Makes sense to pinpoint at the SmartBenefits cap if the big dropoff happened in January.

@Justin — your case was made pretty well that it was traditional, peak hour weekday commuters that had the dropoff, but the Smartbenefits were also an outlying group, and your theory was that it had to do with the benefit cap.

I'd suggest that perhaps the SmartBenefits group is just more price-sensitive in general. My thought was that fares increasing in general may be pushing those with access to other options off of MetroRail. Looking at the geographic distribution of the decline, this could be the case — stations with nearby (or adjacent) MARC/VRE service, or parallel MetroBus service to downtown, appeared to be more likely to experience morning boarding declines than other stations at a similar distance, at least from a cursory glance.

Like or Dislike: 0 0

9. Savetheblueline

November 10th, 2014 at 18:29 | #9

Interesting research. Has WMATA considered adjusting fare schedules to increase the cost of short trips (many of which are fully subsidized) and lowering the cost of long trips (which see not) to take advantage of the kink in the demand curve?

Like or Dislike: 1 0

Recent Trends in Metrorail System Ridership

November 2014

Executive Summary

As Metro reported to the Board of Directors in October 2014, Metrorail ridership has been declining steadily over the last four years, likely due to a variety of factors. This memo seeks to explain where, when, and why rail ridership has been changing, using in-depth analysis of data from the Metrorail automatic fare collection (AFC) system.

- The biggest losses in ridership are from regular commute markets: full-fare, weekday, peak trips.
    - Student trips are also down due to changes in student fare policy.
    - Weekend, weekday-evening, and senior travel are all up.
- Of these regular commute markets, the biggest losses have stemmed from suburban stations, those in Fairfax, Montgomery and Prince George's Counties, to downtown stations near federal agency offices. Ridership from inner jurisdictions (DC, Arlington, and Alexandria) is flat (AM Peak).
- Trips paid for using SmartBenefits have decreased 6,400 per average weekday, likely as a result of the decrease in the federal transit benefit cap. Regular stored value ridership is up 3,900 trips per average weekday, a combination of background ridership growth and customers supplementing benefit travel with out-of-pocket fares.
- When assessing change in ridership by card-use behavior, it is concluded that Metrorail has lost approximately 6,000 full-fare daily customers due to the decrease in transit benefit.
- Excluding SmartBenefits users, ridership is actually *up* about 2%.

Metro is Losing Full-Fare Commute Trips

All of the ridership loss between 2013 and 2014 (May to May) is on weekdays. Weekday ridership has decreased by around 9,000 trips per average weekday, a loss of 1.3%. On the other hand, weekend ridership is up by around 20,000 trips per weekend day, between 7 and 10%. This could be the result of a shift in trackwork scheduling from station closure and bus bridges to single tracking. Such a shift decreases the impacts on riders and improves the quality of fare collection data.

This loss of 9,000 trips per day is the net effect of various classes of riders behaving differently. Senior/Disabled ridership is actually up by nearly 3,000 trips, an increase of 9%. However, Full Fare ridership is down around 8,000 trips (a drop of 1.2%), while student trips decreased by nearly 4,000 (a drop of 37%).

The increase in senior/disabled trips could be motivated by several factors, including higher peak and off-peak fares encouraging seniors to switch to Senior SmarTrip cards. Also, Metro's Accessibility

Services has been implementing MetroAccess demand management, including providing travel training and free Metrorail trips for customers.

The decrease in student trips is likely due to two policy considerations. First, the "students ride free" program for Metrobus may have undercut sales of Metrorail student passes. Secondly, the move from paper- to SmarTrip-based student passes may have reduced some amount of fraudulent student pass purchase and usage.

In summary, weekday full fare ridership accounts for the bulk of the ridership loss between 2013 and 2014, approximately 8,000 full fare trips per weekday.

Most Ridership Loss is from Outer Jurisdictions to the Core at Peak Times

Focusing on the biggest area of loss – full-fare, weekday ridership – most losses are focused on the traditional peak times. There is a slight uptick in ridership in the Evening and Late Night periods, meaning that the ridership loss in the AM Peak, Mid-Day and PM Peak periods is actually greater than 8,000. In fact, across those three periods, Metrorail lost 8,700 trips between 2013 and 2014. This loss breaks out across the day as follows: AM Peak, -2,800; Mid-Day, -2,050; Evening, -3,850. This translates to decreases of 1.3%, 1.6% and 1.6% respectively.

Looking at the AM Peak ridership loss by jurisdiction of entry station suggests that the biggest losses are from riders originating in outer counties – Fairfax, Montgomery, and Prince George's. Ridership is nearly flat from stations in DC (down 75 or 0.1%), but down more significantly from Maryland and Virginia, with decreases of 1,500 from Maryland stations (down 2%) and 1,200 from Virginia stations (down 1.6%) between 2013 and 2014. Breaking this down even further by county, inner Virginia stations in Alexandria and Arlington are flat like the District (1.6% increase and 0.2% decrease, respectively) and the more distant counties see the bulk of the ridership losses, with Montgomery County down 600 (1.6%), Prince George's County down 900 (2.4%), and Fairfax County down 1,200 (4.3%). In total ridership from the three outer counties accounts for all 2,800 loss in ridership between 2013 and 2014, with the inner jurisdictions balancing each other out.

This suggests that customers residing further from the core, and therefore with longer trips and higher fares, account for the ridership losses.

Looking at PM Peak entries suggests that the biggest losses are in commuters to the core. As noted above, Metrorail lost 3,850 trips in the weekday PM Peak between 2013 and 2014. The bulk of these PM Entries (people leaving work) were lost in the District (down 4,000 trips or 2.3%), with Maryland and Virginia being relatively flat. Maryland stations actually gained nearly 500 trips in the weekday PM Peak (1.7% increase) and Virginia stations lost just over 200 trips per weekday PM Peak (0.5% decrease). This result is expected, as the DC is the regional job core and we suspect that the bulk of AM- and PM-Peak travel is composed of commute trips.

In summary, most ridership loss has stemmed from commuters who travel from the outer jurisdictions, to the core, at peak times.

Changes in Ridership by Station

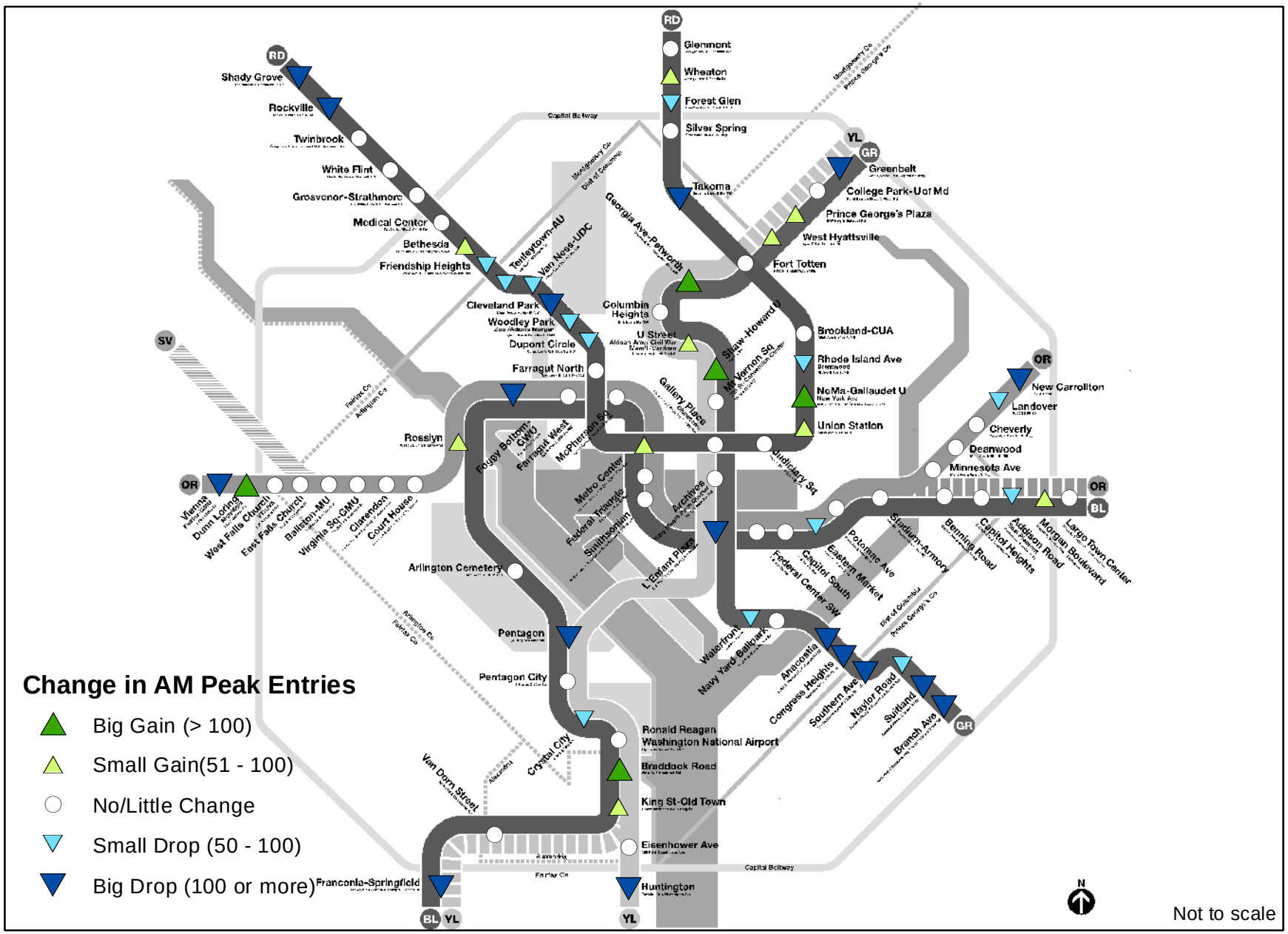
When looking at ridership change by station, it becomes even more evident that the most distant travelers are those most impacted.

In the first map below, the largest drops in AM Peak entries are those at the ends of the lines with large drive-access commute sheds. Some stations have increased, especially along the Green/Yellow line corridor in northwest DC, the Green Line in southeast DC, and the Red Line corridor in northeast DC. These increases are likely due to increased densification of the urban core via transit-oriented development along these corridors, including notable projects near Columbia Heights, NoMa, Waterfront and Congress Heights stations. The recent trends of Millennials wanting to live without cars and in city centers may contribute to these changes.

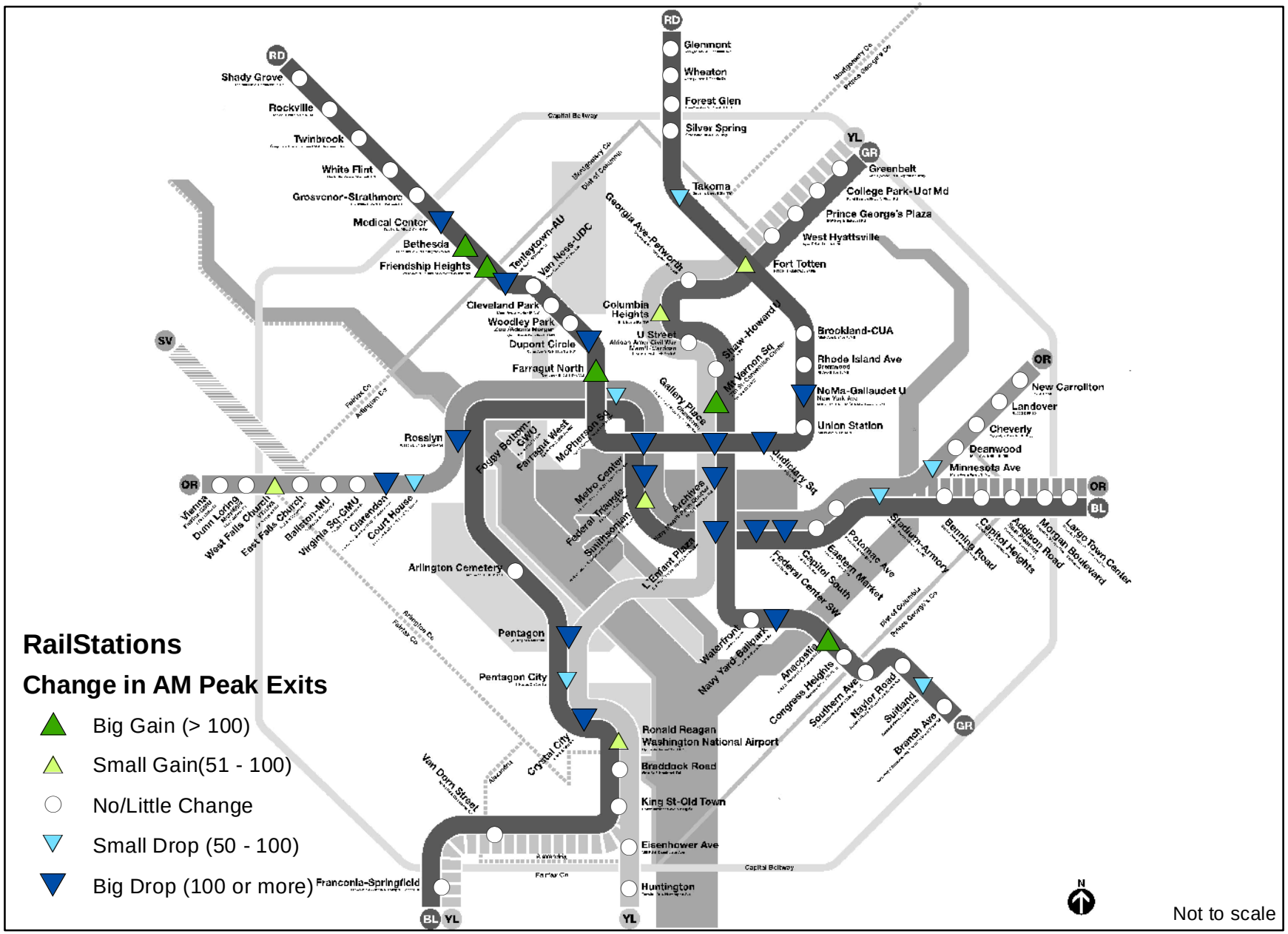
The second map below shows large drops in AM Peak station exits concentrated at stations surrounded by federal agencies throughout the regional core, including Federal Center SW, Federal Triangle, Foggy Bottom, Judiciary Square, L'Enfant Plaza, McPherson Sq, and Smithsonian. Increases are noted at two core stations that are less associated with the federal work locations (Farragut North and Mt Vernon Sq).

In summary, the maps illustrate the biggest changes in ridership are those from end-of-line stations and to core federal work locations.

Change in AM Peak Entries, 2013 to 2014



Change in AM Peak Exits, 2013 to 2014



The Decline in the Transit Benefit is Hurting Ridership

The federal transit benefit has been the subject of many policy changes and flip-flops over the past few years, including:

- Transit benefits must be stored in a separate purse on a SmarTrip card – distinct from parking or personal stored value
- Unused transit benefits can now be returned to the employer at the end of the month, while some employers allow benefits to roll over
- Many employers are now requiring employees to specify exact benefits amounts needed to cover work travel
- The maximum allowable monthly benefit has been raised, lowered, raised and then lowered again over the past four years

Metro fully implemented these policy changes for the beginning of calendar year 2012.

Many Metrorail customers can and do spend more than the current limit of $130/month, so it makes sense that these policy changes would result in changes in ridership. For example, a customer riding from Shady Grove to downtown every day ($5.90 one-way) spends $236 per month ($5.90 x 4 weeks x 10 trips per week). When this customer can only use transit benefit dollars for the first $130/month, their financial burden increases significantly, and they may very well change their riding habits. It was possible under the 2013 benefits cap for a max-fare customer to be fully subsidized, whereas in 2014 only customers with a one-way fare of $3.25 or lower would be fully subsidized.

Fortunately, Metrorail's fare collection system records from which purse a fare is paid, which allows us to identify the impacts of the changes of these benefits policies on ridership.

Going back to AM Peak Weekday Entries, recall that Metro experienced a drop of 2,800 riders. When separating these out by SmartBenefits versus regular stored value, SmartBenefits actually account for a 6,400 decrease and stored value customers saw an INCREASE of nearly 3,900 trips, with pass users accounting for an additional decrease of 300 trips. In percentage terms, SmartBenefits trips were down by 7%, pass use down by 8.6% but regular stored value ridership is up 3.0%. This evidence illustrates that indeed the reduction in the federal transit benefit cap negatively impacts ridership.

Controlling for Benefits Change, Ridership Growth is Up

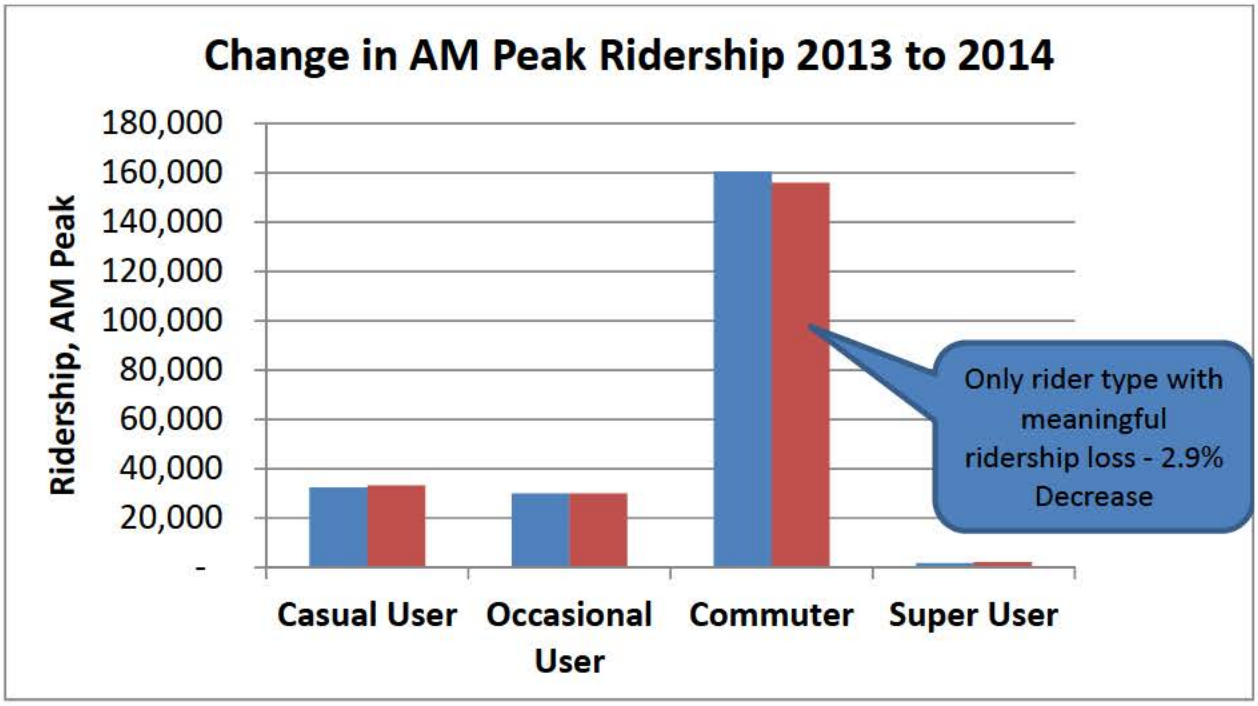
The fare system data can also be assessed by individual SmarTrip cards. Using an innovative technique, individual cards were classified based on their SmartBenefits usage per month: *Always*, *Sometimes* or *Never*. Looking at the change in ridership by this benefits classification shows how the change in benefits impacts individuals over the course of a month.

Comparing 2013 to 2014, we see a decrease of 27,000 cards *Always* using SmartBenefits and an increase of 21,000 cards using SmartBenefits *Sometimes*. The interpretation of this is of the 27,000 customers who had *Always* used SmartBenefits during a month, only 21,000 of them are now supplementing the

benefit and are only using SmartBenefits *Sometimes*. This results in a loss of 6,000 customers from Metrorail due to changes in the transit benefit cap. This result is of a similar order of magnitude as the 6,400 decrease in SmartBenefits trips during the AM Peak mentioned above. For those customers who never use SmartBenefits, weekday peak ridership is up with a background growth rate between 2% and 2.4%.

Metro is Primarily Losing Frequent Riders

Another way to assess the ridership change is by trip frequency. Metro fare media were classified by the number of times they were used during a week, with cards used between 20 and 44 times per week fitting the "Commuter" profile. Cards used less frequently were assigned the Casual User (1 to 4 trips) or Occasional User (5 to 19 trips) profiles and those above 44 trips classified as Super Users. When comparing ridership by trip frequency class, it was noted that the "Commuter" group was the only that showed a decrease (2.9%) whereas casual users grew by 2%, Super Users were jumped 26% and Occasional Users were flat.



This confirms that a small number of regular riders account for the majority of the ridership loss over the past year.

Conclusion

Metrorail ridership has decreased between 2013 and 2014. This decrease isolated to weekday full fare riders and students. The drop in student travel is due to changes in student fare policy, including a policy that students ride Metrobus for free. The decrease in weekday full fare ridership is largely

attributed to rising fares and the decrease of the federal transit benefit from $245 to $130. In 2013, riders receiving the full benefit were fully subsidized regardless of trip length, whereas the new benefit max will fully subsidize only customers with a one-way fare of $3.25. It is shown that only our most frequent "commuter" market is impacted, and that a background growth trend of around 2% can be seen for non-benefits travelers.

M E M O R A N D U M

SUBJECT: Peer Comparison

DATE: December 19, 2014

FROM: CFO – Dennis Anosike

TO: GM/CEO – Richard Sarles

As part of his recent orientation session, Board Member Costa requested a comparative performance analysis of Metro relative to peer transit agencies in the United States. This memo uses National Transit Database (NTD)[1] information to evaluate Metro's performance on various expense, revenue, and service dimensions relative to its peers. The selection of comparison transit agencies was based on the size of the urban area served, the urban characteristics of the service area, and the overall size of the transit system.

The comparison group includes the following agencies:

MBTA	Massachusetts Bay Transportation Authority
NYCT	New York City Transit
SEPTA	Southeastern Pennsylvania Transportation Authority
MARTA	Metropolitan Atlanta Rapid Transit Authority
CTA	Chicago Transit Authority
BART	San Francisco Bay Area Rapid Transit (heavy rail only)
LACMTA	Los Angeles County Metropolitan Transp. Authority (bus only)

In addition to providing general indicators for each system (population served, service area size, fleet size, etc.), the comparison focuses on measures of both *effectiveness* and *efficiency*. Effectiveness measures, such as average speed or passenger trips per revenue mile, are an indication of the quality of the service and how heavily the service is utilized by riders. Efficiency measures, such as operating expense per passenger trip or vehicle utilization, are an indication of how well the transit service is being delivered by the agency from a financial perspective.

The peer comparison tables for heavy rail are provided first, and the tables for bus follow. A brief assessment of Metro's relative strengths and weaknesses compared to its peers concludes the comparison.

Washington
Metropolitan Area
Transit Authority

[1] Data from NTD is self-reported by the participating agencies following guidelines and procedures established by the Federal Transit Administration. Data from reporting year 2012 is the most recent data currently available.

Heavy Rail – General Characteristics

	MBTA Boston	NYCT New York	SEPTA Philadelphia	MARTA Atlanta	CTA Chicago	BART SF/Oakland	**WMATA**
Service Area Population	4,181,019	8,008,278	3,320,234	1,574,600	3,431,053	833,762	3,719,567
Service Area Size (square miles)	3,244	321	851	498	314	93	950
Passenger Trips	166,961,143	2,569,543,549	102,796,169	72,711,487	231,154,339	118,674,764	285,306,675
Passenger Miles	581,700,354	10,327,239,920	456,868,171	463,168,559	1,541,186,268	1,545,717,976	1,584,631,040
Vehicle Miles	24,397,744	352,307,161	17,216,180	18,405,169	65,806,125	65,238,184	73,059,950
Revenue Miles	23,808,394	341,625,293	16,962,968	17,661,018	65,222,890	63,439,052	70,867,572
Vehicle Hours	1,519,114	19,802,221	883,959	708,712	3,932,835	2,123,207	3,040,246
Revenue Hours	1,460,305	18,798,236	870,896	674,278	3,575,439	1,813,621	2,883,528
Route Miles	76	488	75	96	208	209	212
Total Operating Expense	$309,471,439	$3,744,080,311	$184,296,621	$177,812,219	$515,014,905	$488,882,256	$843,658,227
Total Employee FTEs	2,072	24,089	1,308	1,761	3,218	2,453	5,228
Vehicles Operated in Max Service	336	5,272	285	182	1,070	534	868

Heavy Rail – Effectiveness

	MBTA Boston	NYCT New York	SEPTA Philadelphia	MARTA Atlanta	CTA Chicago	BART SF/Oakland	**Peer Group Median**	**WMATA**
SERVICE CONSUMPTION								
Passenger Trips Per Capita	39.9	320.9	31.0	46.2	67.4	142.3	56.8	76.7
Passenger Trips Per Revenue Mile	7.0	7.5	6.1	4.1	3.5	1.9	5.1	4.0
Passenger Trips Per Revenue Hour	114.3	136.7	118.0	107.8	64.7	65.4	111.1	98.9
QUALITY OF SERVICE								
Average Speed (Revenue service)	16.3	18.2	19.5	26.2	18.2	35.0	18.9	24.6
Average Headway (in minutes)	5.0	2.8	4.2	9.4	5.1	5.8	5.1	4.0
Average Age of Fleet (in years)	24	19	20	23	24	15	21	22
Revenue Miles Between Failures*	41,696	35,125	6,938	19,239	3,542	263,233	27,182	44,459

** Figure for BART is as reported to NTD, based on disproportionately low number of reported failures compared to peers.*

Heavy Rail – Efficiency

	MBTA Boston	NYCT New York	SEPTA Philadelphia	MARTA Atlanta	CTA Chicago	BART SF/Oakland	**Peer Group Median**	**WMATA**
COST EFFICIENCY								
Operating Expense Per Passenger Trip	$1.85	$1.46	$1.79	$2.45	$2.23	$4.12	$2.04	$2.96
Operating Expense Per Revenue Mile	$13.00	$10.96	$10.86	$10.07	$7.90	$7.71	$10.47	$11.90
Operating Expense Per Revenue Hour	$211.92	$199.17	$211.62	$263.71	$144.04	$269.56	$211.77	$292.58
OPERATING RATIOS								
Farebox Recovery (%)	52%	73%	53%	40%	51%	75%	53%	67%
VEHICLE UTILIZATION								
Vehicle Miles Per Peak Vehicle	12,102	7,324	11,619	17,495	10,433	16,805	11,861	13,257
Vehicle Hours Per Peak Vehicle	754	411	597	701	630	547	613	552
Revenue Miles Per Vehicle Mile	0.98	0.97	0.99	0.96	0.99	0.97	0.97	0.97
FARE								
Average Fare	$0.97	$1.07	$0.95	$0.97	$1.14	$3.09	$1.02	$2.00

Bus – General Characteristics

	MBTA Boston	NYCT New York	SEPTA Philadelphia	MARTA Atlanta	CTA Chicago	LACMTA Los Angeles	**WMATA**
Service Area Population	4,181,019	8,008,278	3,320,234	1,574,600	3,431,053	8,626,817	3,719,567
Service Area Size (square miles)	3,244	321	851	498	314	1,513	950
Passenger Trips	115,340,048	805,381,461	189,040,211	61,596,727	314,423,578	338,606,083	130,889,914
Passenger Miles	299,014,151	1,808,151,728	561,647,331	228,212,492	725,064,380	1,421,617,724	408,162,738
Vehicle Miles	26,194,913	114,474,635	45,096,163	25,878,645	58,293,755	83,274,611	49,907,970
Revenue Miles	23,507,197	95,129,075	40,577,223	22,803,997	52,427,711	69,220,076	39,226,293
Vehicle Hours	2,567,048	14,730,475	4,404,281	2,022,067	6,098,329	6,883,260	4,327,692
Revenue Hours	2,350,758	12,393,368	4,009,611	1,876,643	5,658,426	6,253,687	3,714,074
Route Miles	1,493	1,804	2,520	1,435	1,356	3,097	2,573
Total Operating Expense	$369,323,989	$2,501,969,119	$596,307,945	$211,539,134	$768,077,305	$865,643,104	$549,474,659
Total Employee FTEs	2,625	15,453	4,297	2,104	5,090	6,569	4,055
Vehicles Operated in Max Service	767	3,772	1,176	443	1,578	1,743	1,281

Bus – Effectiveness

	MBTA Boston	NYCT New York	SEPTA Philadelphia	MARTA Atlanta	CTA Chicago	LACMTA Los Angeles	**Peer Group Median**	**WMATA**
SERVICE CONSUMPTION								
Passenger Trips Per Capita	27.6	100.6	56.9	39.1	91.6	39.3	48.1	35.2
Passenger Trips Per Revenue Mile	4.9	8.5	4.7	2.7	6.0	4.9	4.9	3.3
Passenger Trips Per Revenue Hour	49.1	65.0	47.1	32.8	55.6	54.1	51.6	35.2
QUALITY OF SERVICE								
Average Speed (revenue service)	10.0	7.7	10.1	12.2	9.3	11.1	10.1	10.6
Average Headway (in minutes)	11.7	3.9	12.7	16.6	5.7	9.6	10.7	11.9
Average Age of Fleet (in years)	8.4	7.2	7.7	7.6	6.3	9.1	7.7	6.6
Revenue Miles Between Failures	9,799	5,549	4,688	2,590	3,107	3,023	3,897	5,799

Bus – Efficiency

	MBTA Boston	NYCT New York	SEPTA Philadelphia	MARTA Atlanta	CTA Chicago	LACMTA Los Angeles	**Peer Group Median**	**WMATA**
COST EFFICIENCY								
Operating Expense Per Passenger Trip	$3.20	$3.11	$3.15	$3.43	$2.44	$2.56	$3.13	$4.20
Operating Expense Per Revenue Mile	$15.71	$26.30	$14.70	$9.28	$14.65	$12.51	$14.67	$14.01
Operating Expense Per Revenue Hour	$157.11	$201.88	$148.72	$112.72	$135.74	$138.42	$143.57	$147.94
OPERATING RATIOS								
Farebox Recovery (%)	22%	35%	30%	28%	38%	31%	30%	24%
VEHICLE UTILIZATION								
Vehicle Miles Per Peak Vehicle	34,152	30,349	38,347	58,417	36,942	47,777	37,644	38,960
Vehicle Hours Per Peak Vehicle	3,347	3,905	3,745	4,564	3,865	3,949	3,885	3,378
Revenue Miles Per Vehicle Mile	0.90	0.83	0.90	0.88	0.90	0.83	0.89	0.79
FARE								
Average Fare	$0.71	$1.08	$0.94	$0.95	$0.92	$0.78	$0.93	$1.02

Heavy Rail Assessment

WMATA has the second largest heavy rail system in the country behind New York (NYCT) as measured by both passenger trips taken and revenue miles of service, though the Chicago Transit Authority has a larger fleet size and provides slightly more revenue hours of service. On measures of effectiveness, the data show that WMATA provides a high quality rail service, offering high speeds (30 percent faster than the peer group median), frequent service (average headways of four minutes compared to five minutes for the peer group), and the second-best mean distance between failures. The utilization of Metro's rail service (as measured in trips per revenue mile or per revenue hour) is also in line with that of the other cities outside the northeastern United States.

On measures of efficiency, WMATA performs better than its peers in some areas and worse in others. WMATA charges higher fares than all its peers except San Francisco Bay Area Rapid Transit (BART) and as a result has a strong farebox recovery ratio (i.e., the percentage of operating expenses funded by fares rather than by taxpayer subsidy), trailing only BART and NYCT. WMATA also exceeds the peer group median for utilization of its railcar vehicles. However, WMATA's overall operating expenses are high relative to its peers, measured against both trips taken and against miles and hours of service provided. Two factors in particular – one intrinsic and one a policy choice – are having an impact on Metro's rail costs:

- Metrorail's design – with deep underground stations and 100 percent accessibility for disabled riders – requires a much greater reliance on vertical mobility than its peers. With over 800 elevators and escalators, Metro is the single largest vertical transportation provider in North America, and this adds tens of millions of dollars annually to Metro's operating expense.
- Following the Red Line crash in 2009, Metro has significantly expanded its efforts to improve safety and mitigate fatigue risk. These initiatives are critical for both customers and employees, but they add to the bottom line cost of service. However, Metro has recouped some of this investment in safety through lower costs for insurance, litigation, and claims. For example, the average customer liability claim cost has declined 40 percent since 2012, and the average cost of a workers' compensation claim has dropped 50 percent over the same period.

Bus Assessment

WMATA has the sixth largest bus system in the country as measured by passenger

trips taken. On measures of effectiveness, WMATA's bus service quality ranges from average to above average, with speeds and headways in line with the peer group, a slightly younger bus fleet, and a better average mean distance between failures. However, service consumption for Metrobus falls short of the peer group experience, with average trips per revenue mile and per revenue hour below most of the peers.

On measures of efficiency, Metrobus generally underperforms its peers. Operating costs are relatively high, but unlike heavy rail, WMATA's bus fares are in line with its peers, so farebox recovery does not provide any substantial mitigation. Two factors explain some of this variance:

- WMATA has a number of bus garages located in the urban periphery, which increases the non-revenue miles and hours that must be operated. This shows up in the 'revenue miles per vehicle mile' figure of 0.79 for WMATA, which is notably lower than the range of 0.83 to 0.90 for the peers.
- Due to commuting and travel patterns in the Washington region, WMATA also has a relatively high peak-to-base ratio (that is, the number of buses operating during the AM and PM peaks compared to the number operating during the midday), which is less efficient operationally.