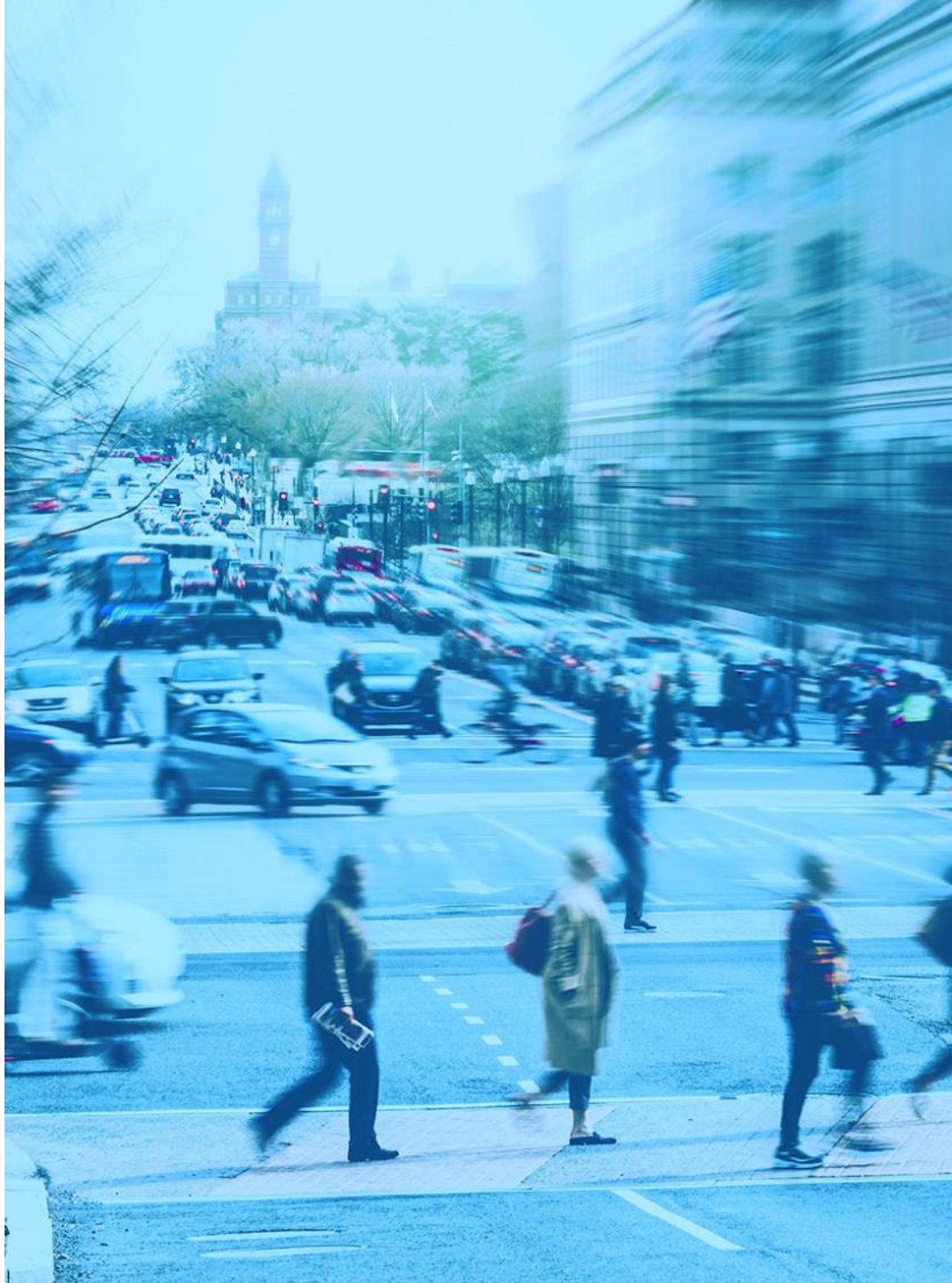
DMV MOVES

Moving our region forward, together.

Task Force Meeting #5

May 16, 2025



APPENDIX

1. Additional information on WMATA investment concept and funding needs
2. Draft Action Plan details (as of 04/30/2025)
3. Information on potential DMVMoves funding mechanisms
4. WMATA Board of Directors presentation on world-class transit, 4/24/2025
   4a. Rail automation case studies

DMVMOVES Vision and Goals

"Transit is the backbone of an **integrated, world-class mobility network** that makes the National Capital Region a thriving global economy, a preferred home, and a leader in innovation, environmental sustainability, and social equity."

1. Make transit a preferred travel choice
2. Provide a seamless, connected, and convenient customer experience
3. Grow ridership through TOD and expanded connections to economic opportunities
4. Enhance quality of life, economic development, climate resilience, and equity
5. Ensure predictable and sustainable transit funding
6. Establish standard, best-in-class transit workforce policies and skills training

In 1967, the Washington Metropolitan Area Transit Authority (Metro) was created by an interstate Compact to **plan, develop, finance, build, and operate a comprehensive, unified mass transit system.**

WMATA capital funding sources and growth assumptions

$ in M	Growth Assumptions	FY2026	FY2027	FY2028 with new funding
Federal Formula Grants	Growth rate consistent with last ~20 years	470	481	491
Federal PRIIA Grant	Continues but does not grow	144	144	144
PRIIA Match	Continues but does not grow	149	149	149
Jurisdictional Contributions	Grow 3% per year	311	320	330
Dedicated Funding	Continues but does not grow	500	500	500
Other and Prior Year Funding	Non-recurring discretionary grant and carryover	146	254	220
New DMVMoves Funding	Grows at least 3% per year	-	-	600
Subtotal Capital Funding*		1,719	1,848	2,432
Debt Proceeds		654	780	439
Total Existing Capital Sources		**2,373**	**2,628**	**2,871**

Note: amounts are rounded for presentation purposes and may not independently sum

$500-600M of new, indexed, and bondable capital funding will sustain Metro's capital program

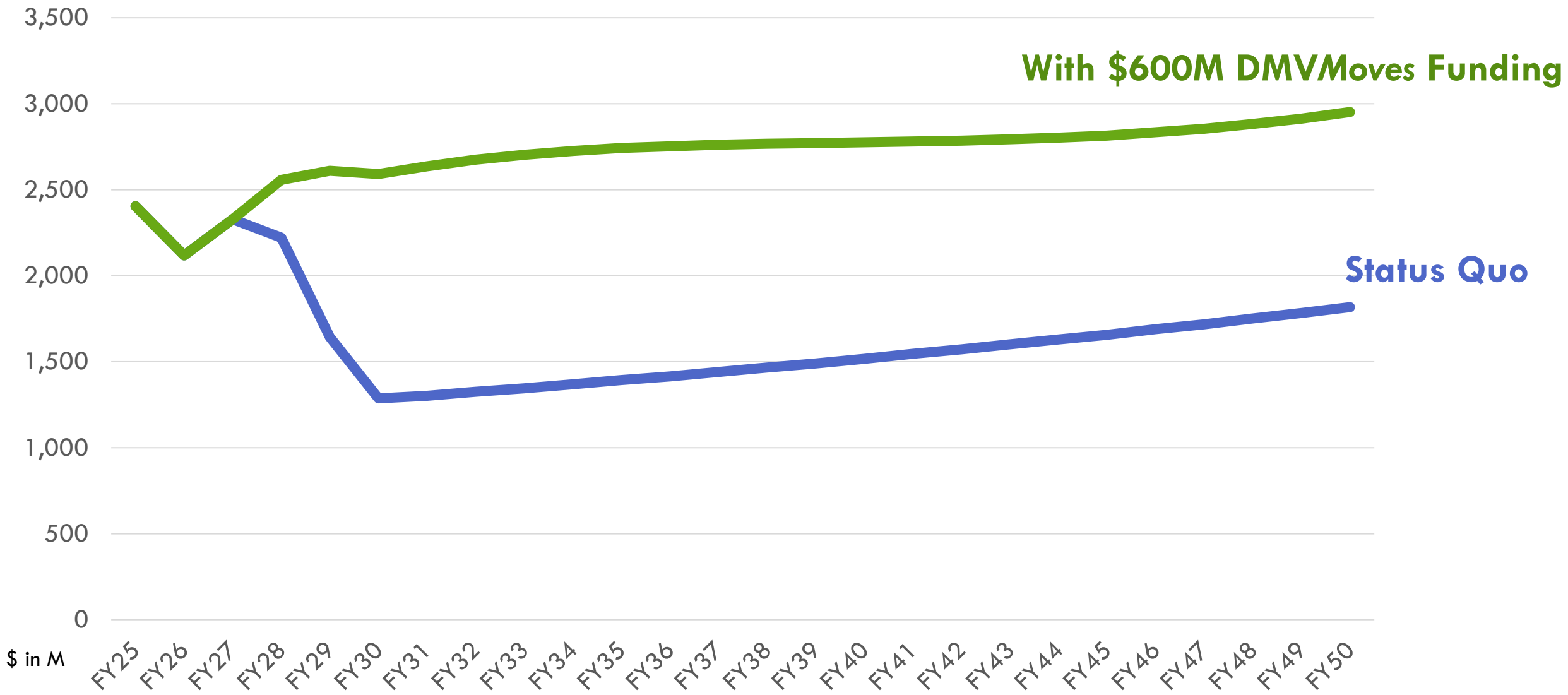
25-year financial scenario based on assumptions and projections of capital investments, funding, and debt issuance

						Annual Average				
$ in M	**FY26**	**FY27**	**FY28**	**FY29**	**FY30**	**FY31-35**	**FY36-40**	**FY41-45**	**FY46-50**	**FY28-50 Total**
Capital investment projections	2,118	2,328	2,558	2,610	2,592	2,696	2,766	2,796	2,888	**63,486**
Debt service	245	299	351	378	405	485	619	753	888	**14,860**
Total cost	**2,363**	**2,627**	**2,909**	**2,988**	**2,997**	**3,181**	**3,385**	**3,549**	**3,775**	**78,346**
Capital funding	1,709	1,848	2,470	2,549	2,558	2,742	2,946	3,110	3,336	**68,245**
Debt issuance	654	780	439	439	439	439	439	439	439	**10,101**
Total funding	**2,363**	**2,627**	**2,909**	**2,988**	**2,997**	**3,181**	**3,385**	**3,549**	**3,775**	**78,346**

Note: amounts are rounded for presentation purposes and may not independently sum

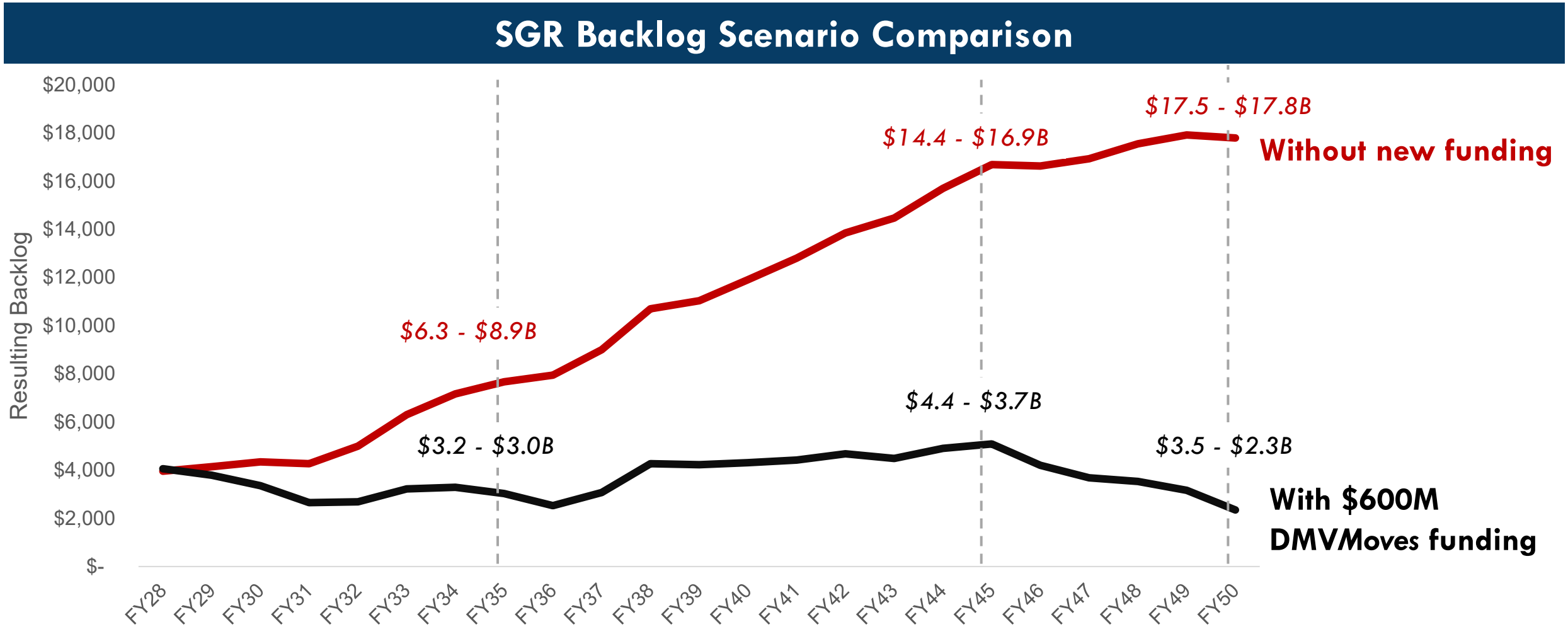
Assumptions: Assumes average issuance of debt ~$440M per year, 5% interest rates, 35-year maturity

New funding would sustain Metro's capital program



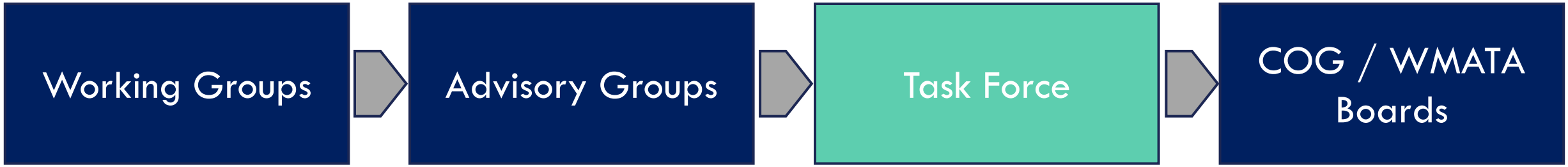
Metro State of Good Repair backlog

This graph illustrates how DMVMoves funding will help Metro reduce and manage its capital backlog.



DRAFT REGIONAL INTEGRATION ACTION PLAN: DETAILS

Moving from ideas to an Action Plan



Develops draft Regional Integration Action Plan:
- Action steps
- implementation timelines
- opportunities, challenges
- benefits, costs

Recommends draft Regional Integration Action Plan to Task Force

Approves final Regional Integration Action Plan as part of DMVMoves Plan

Adopts Regional Integration Action Plan as part of DMVMoves Plan

Discussion

Success will require continued commitments, collaboration, and accountability after DMVMoves

- **Who decides for commuter rail? Local bus systems?**
- **Who should track and coordinate implementation and ensure annual regional progress reports**

Task Force & Advisory Groups	State / Local Jurisdictions	Other regional actors	COG or other regional actor
Advocate for enabling actions and funding to state legislatures and local councils / boards	Pass acts and/or modify bills as necessary to ensure implementation of Regional Integration Action Plan	Implement Regional Integration Action Plan	• Facilitate continued collaboration • Monitor progress • Track agency commitments and milestones • Provide technical support • Report on outcomes

Regional Fare Policy: Universal Bus Transfer Credit

Action: Implement a universal bus and bus-rail transfer credit of up to $2.25 for all transferring customers, regardless of originating transit agency

***Deadlines**: Oct 2025 remaining agencies opt in. By next fiscal year, remaining agencies implement.*

Benefits

- Improves rider experience by eliminating surprise fares and making transfers seamless
- Potentially grows ridership by reducing transit costs
- Makes transit even more cost-competitive with driving
- People will use transit more often for more purposes; potentially more long trips
- Promotes regional connections and system-wide coordination

Estimated costs if other agencies provide transfer credit

The primary impact would apply to a small number of agencies that currently do not credit Metrorail-to-bus transfers.

Universal Transfer Credit
Year One Estimated Impacts for Participating Operators

Operator	Ridership Change	Customer Savings	Revenue Change
Ride On*	30,000	$350,000	($320,000)
The Bus	1,000	$12,000	($10,000)
OmniRide Express	100	$4,000	($2,000)
LC-Transit Commuter**	40	$2,000	($1,000)

*fare free possibly **Loudoun County Transit's participation in a universal transfer credit would cost other agencies approximately $5K per year

Regional Fare Policy: Low-Income Fare Program

Action: All local agencies should offer a low-income fare program with a 50% discount and recognize eligible riders enrolled in other agencies' programs.

***Deadlines**: Oct 2025: Remaining agencies join existing programs or decide to offer new, consistent program by 2026. By next fiscal year agencies implement and honor other agencies' programs.*

Benefits

- Grows ridership for SNAP recipients
- Encourages increased transit use for essential trips and supports regional connection
- Improves rider experience by making fares more predictable and accessible across the region
- Reduces financial barriers, promoting affordability for those who need it most
- Enhances the competitiveness of transit compared to driving or other modes

Estimated Costs, if other agencies adopted MetroLift:

Metro Lift:
Year One Estimated Impacts for Participating Operators

Operator	Ridership Change	Customer Savings	Revenue Change
Ride On	33,000	$40,000	($7,000)
Fairfax Connector	30,000	$83,000	($14,000)
ART	8,000	$21,000	($4,000)
OmniRide Express	6,000	$80,000	($14,000)
The Bus	4,000	$4,000	($1,000)
LC-Transit Commuter	1,500	$18,000	($3,000)

Regional Fare Policy: Student/Kids Ride Free Policy

Action: All agencies should offer their youth and student passes and discounts to all customers under 18 with a valid student or youth ID. Establish cross-honoring agreements based on existing fare programs.

Deadlines: *Oct 2025: Agencies agree to adopt consistent policy/eligibility requirements. By next fiscal year agencies implement and adopt cross-honor policy.*

Benefits

- Improves rider experience with consistent, easy-to-understand fare access for youth
- Promotes lifelong transit use by building early habits and familiarity
- Reduces financial burden on families and supports educational access
- Enhances regional coordination and simplifies fare policy for schools and families
- Encourages multi-modal travel for youth across jurisdictions (e.g., school, jobs, activities)

Estimated Costs

More data collection needed.

Regional Fare Policy: Regional Pass Products

Action: WMATA and local agencies establish revenue-sharing agreements to enable the sale and use of regional Unlimited Pass products valid across all participating systems

Deadline: *By 2026: Agencies agree to opt in by 2026. By next fiscal year: Execute agreements in next fiscal year*

Benefits

- Provides seamless, convenient travel across the region with a single pass
- Encourages ridership with a cost-effective option for frequent travelers
- Simplifies transit for visitors, making regional exploration easier and more affordable

Estimated Costs

Regional Pass Products
Year One Estimated Impacts for Participating Operators

Operator	Ridership Change	Revenue Change	Customer Savings
Ride On	125,628	$190,000	$400,000
Fairfax Connector	117,278	$400,000	$830,000
ART	30,310	$100,000	$220,000
OmniRide Express	23,290	$400,000	$810,000
The Bus	15,583	$20,000	$50,000
LC-Transit Commuter	5,161	$90,000	$180,000

Regional Service Guidelines

Action: COG jurisdictions commit to adopting regional service guidelines

Deadlines:

- June 2025: Draft guidelines
- July 2025: COG conducts gaps analysis
- Oct 2025: Finalize guidelines, secure agreements to use guidelines

Benefits

- Grows ridership by improving service
- Sets clear, consistent expectations for riders across the region
- Supports more seamless, coordinated service planning
- Balances consistency with flexibility to meet local needs
- Enhances customer understanding and confidence in the system and encourage increased ridership

Estimated Costs

MWCOG will conduct a gap analysis to identify local transit needs and how much it would cost to bring service up to meet the regional standards

Service guidelines define frequency and other attributes for buses across the region

Interlining on key corridors creates the region's high frequency network

Priority Routes high frequency routes that have dedicated right-of-way and substantial priority measures

Core Routes are the backbone of bus service, serving various purposes for riders

Coverage Routes often connect riders to more frequent service

Peak Routes provide peak period only trips during periods when commuters would use the services

Draft Minimum Frequencies

(Weekday peak)

- **Priority** 10 – 15 minutes
- **Core** 15 – 30 minutes
- **Coverage** 30 – 60 minutes
- **Peak** Based on demand

Uniform Performance Measures & Reporting

Action: Transit agencies use and report out on a common set of performance measures to improve transparency in transit decision-making across the region.

Deadlines:

- Sept 2025: Common performance measures finalized
- Oct 2025: Agencies adopt regional performance measures
- Next fiscal year: Consistent and uniform regional performance reporting on an annual basis
- Spring 2026: Assess opportunities for a regional database on one regional report

Benefits

- Enables clear, consistent performance reporting across agencies
- Improves transparency and public trust
- Supports data-driven, coordinated decision-making
- Enhances accountability and regional collaboration

Estimated Costs

Staff time to report on performance measures

Regional Fast & Frequent Bus Plan

Action: COG jurisdictions commit to funding service improvements and bus priority infrastructure in high-ridership, high-frequency corridors

Deadlines:

- Jun 2025: Confirm priority corridors
- Nov 2025: Agree on funding and program admin
- Jun 2026: Implementation commitments from priority corridor road owners

Selection Criteria for Corridors→

- Frequency & span
- Current ridership
- Bus speeds/congestion
- Corridor density

Estimated Costs and Benefits for a representative 6-mile corridor:

Benefits and Costs	1. Bus Priority - Limited	2. Bus Priority - Enhanced	3. BRT Medium - BASIC	3a. BRT Medium - FULL	4. BRT High - Basic	4a. BRT High - FULL
Capital costs* ('24$)	$27M – $29M	$33M – $35M	$30M – $32M	$200M – $250M	$37M – $40M	$260M - $410M
Operating Cost Year 1	$9.4M	$9.7M	$10.6M	$10.2M	$9.7M	$9.6M
Operating cost change w/ **same service**	--	- $0.4M	- $1.6M	- $2.6M	- $1.6M	- $2.6M
Operating cost change w/ **more service**	--	+ $0.4M	+ $1.2M	+ $0.9M	+ $0.4M	+ $0.2M
Service	8-min peak 16 hours, 7 days	7-min peak 16 hours, 7 days	6-min peak 18 hours, 7 days	6-min peak 18 hours, 7 days	6-min peak 20 hours, 7 days	6-min peak 20 hours, 7 days
Ridership	+ 2-5%	+ 8-21%	+ 18-40%	+ 19-52%	+ 22-48%	+ 23-65%
Travel times	- 5%	- 9%	- 20%	- 24%	- 29%	- 32%
Safety: Crashes	- 4%	- 12%	- 20%	- 24%	- 28%	- 32%
Road network capacity	+ 4%	+ 7%	+ 18%	+ 18%	+18%	+19%

Bus Priority and BASIC BRT = repurposed travel lanes using red paint, TSP, and basic shelters.
FULL BRT = bus lanes are concrete bus guideways, and stops are upgraded to stations

*Capital costs do not include new vehicles; assumes use of existing fleet, right-of-way

Benefits of a regional approach to bus priority

What the current approach delivers

- Many planned or conceptual corridors but limited implementation
- Bus investments compete with other state and local funding needs: limited implementation
- Projects take a long time to plan and deliver
- Local processes can elevate detractors, leading to delays and delivering less effective solutions
- Projects have inconsistent treatments and hours of operation that confuse road users, result in more lane violations

What a regional approach could do

- Generate new, dedicated funding for bus priority
- Shift capital cost burden (direct and debt/ bonding) from locals to regional fund
- Target funds to corridors and projects likely to get best return on investment
  - high frequency
  - high ridership
  - slow speeds and delays
  - densities of people and jobs
- Improve service AND make it more cost-efficient
- Deliver more effective projects more quickly

Discussion: How should the region fund bus priority?

Options for using and administering the proposed regional bus priority program. Only applies to new regional funding; jurisdictions could and would still fund other projects.

Funds go to COG

COG establishes a competitive grant program

Eligible projects must be included in Regional Integration Action Plan priority corridor

Pros:
- Better return on investment
- More consistent outcomes
- Streamlined and cost-effective procurement
- Potentially faster project reviews and delivery

Cons:
- Some local needs and priorities may not be addressed
- Road owners still own implementation; adding an actor may not speed delivery

New Fund Manager

Funds distributed according to a priority list created with partners

Metro acts as project manager in joint project with local jurisdiction

Funds direct to localities

Funds are required to be used for projects in Regional Integration Action Plan priority corridors

Pros:
- Funding raised and spent locally
- More local control / priorities

Cons:
- Would not substantively address challenges with project delivery and varied outcomes

Consistent Bus Stop Design and Amenities

Action: Agencies use a universal set of bus stop design guidelines

Deadlines:

- Spring 2026: All bus providers agree to use the 2023 WMATA Bus Stop Design Guidelines as regional standard with some flexibility for local conditions, if needed

Benefits

- Improves rider experience with consistent, accessible stops
- Ensures more uniform amenities and standards across the region
- Streamlines planning and implementation for agencies
- Enhances safety, comfort, and usability for all riders

Estimated Costs

Costs not estimated; may remain undefined.

Unified Bus Stop Flags

Action: Develop unified bus stop flags at shared bus stops

Deadlines:

Unified Bus Stop Flags

- Oct 2025: Secure agency executive decisions on draft agreement participation in WMATA's unified bus flags
- Fall 2025+: Signage finalization and implementation in next 3 years

Benefits

- Makes transit easier to understand and navigate
- Helps riders identify services quickly and confidently
- Creates a more cohesive regional transit identity
- Reduces confusion, especially for new or occasional riders

Estimated Costs

WMATA can take on cost of printing and maintaining unified signs at shared bus stops.

Joint Call Center or One-Stop Number

Action: Establish one call center or one-stop number that can field customer inquiries related to every transit operator in the region.

Deadlines:

- Sept 2025: Working group finalizes proposal
- Oct 2025: Local transit agencies decide whether to opt in
- Fall 2025+: Develop agreements and execute.

Benefits

- Simplifies rider experience with one easy-to-remember number
- Streamlines access to support across agencies
- Improves efficiency through centralized call routing
- Maintains flexibility for agencies to integrate or keep their own call centers

Estimated Costs

Under development.

Actions That Will Continue to Be Developed by Working Groups or Larger DMVMoves Project

- Regional bus priority fund structure
- Uniform bus stop ID system
- Standardized maps and wayfinding design guidelines
- Grouped bus procurement
- Joint procurements for other services/products
- Shared skilled trades training programs
- Consistent reporting / certification requirements for WMATA
  - *Handling through separate discussions with relevant agencies*

Acting on DMVMoves recommendations will transform our region's transit system by…

- Focusing on what customers want – fast, frequent, reliable, affordable transit service that is easy to use
- Maximizing utilization of existing roadways, bus routes, and rail lines to increase service availability and reliability
- Achieving service and cost efficiencies by making bus trips faster, coordinating service planning, and sharing resources
- Provide a seamless and consistently excellent customer experience
- Better achieve regional goals and maximize the benefits of transit by providing the right type of service in the right places and the right times

…resulting in real changes for the users of the system:

from Wondering when the bus or train will come

MAKE TRANSIT THE EASY FIRST CHOICE

to Frequent and predictable

from Slow and stuck in traffic

PRIORITIZE TRANSIT ON MAJOR RIGHTS-OF-WAY

to Fast trips where you want to go

from Confusing and inconvenient

FOCUS ON THE CUSTOMER

to Appealing and desirable

from Focusing on local priorities

STRENGTHEN REGIONAL COLLABORATION TO STRENGTHEN TRANSIT SYSTEM

to A regional network that serves multiple needs

INFORMATION ABOUT POTENTIAL FUNDING MECHANISMS

Sales and Use Tax Rate Increase

About

A dedicated sales and use tax rate for transit is the most common dedicated tax source among transit agencies in the U.S. It is also a widely used tax (with over 11,000 sales taxing jurisdictions in the U.S.).

- **Revenue Potential** high because of very broad tax base
- **Growth Potential** medium. Consumption of services has eroded the broad base
- **Revenue from Non-residents** medium – higher in DC because of number of visitors, lower in MD and VA
- **Cost of Borrowing** low due to the very broad base and lower volatility
- **Volatility** medium because consumption will slow/decline in recessions

Potential Revenue Options	Current Rate	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Sales and Use Tax Rate Increase	6%	0.08% pt.	1% pt.	$235	$354	$392

Sales and Use Tax Rate Increase Aligned with Current Jurisdiction Tax Policy

About

A dedicated sales and use tax rate for transit is the most common dedicated tax source among transit agencies in the U.S. It is also a widely used tax (with over 11,000 sales taxing jurisdictions in the U.S.).

Same as previous sales and use tax option, except in DC the tax increase applies only to the District's general retail tax, and in VA it does apply to food purchases.

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Potential Revenue Options	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Sales and Use Tax Rate Increase	0.10% pt.	1% pt.	$191	$354	$341

Sales and Use Tax Continued…

Sufficiency: *The sales tax base is broad (although it could be broadened further by making more services subject to the tax), making it among the more sufficient tax choices.*

Stability: *Sales tax collections may decline during an economic downturn, and that should be taken into consideration when determining an optimal sales tax rate to support WMATA operations and capital needs.*

Equity: *A sales tax is regressive (a negative for vertical equity) because lower income households pay a larger percentage of their income in sales taxes. On the positive side, a sales tax is paid by both residents and non-residents, both of whom consume WMATA services.*

Economic Efficiency: *Because sales taxes are widespread, much of their economic cost has already been factored into market decisions. While there can be border competition when rates are disproportionate, that is generally not the case in the WMATA region.*

Simplicity: *Taxpayers are already familiar with a sales tax, as it exists in both states and the District of Columbia (DC). Since it is already in place, there is little additional administrative expense.*

Sales and Use Tax Base Expansion Services

About

The sales tax was established in the early 20th century, when most consumption goods were tangible goods and not services. This means that most goods are subject to the sales tax, but many services are not. When states updated their sales tax codes, each individual state began taxing some services, though usually not uniformly. DC, Maryland, and Virginia never agreed on a uniform tax law for services.

- **Revenue Potential** high because services are now most of personal consumption
- **Growth Potential** high because the trendline continues to show growth in consumption of services
- **Revenue from Non-residents** low because most taxable services are purchased locally
- **Cost of Borrowing** low due to the very broad base and lower volatility
- **Volatility** medium because consumption will stagnate/decline during a recession

Potential Revenue Options	Current Rate	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Sales and Use Tax Base Expansion Services**	Not Currently In place	1.48% pt.	6% pt.	to be updated		

Sales and Use Tax Base Expansion Services

Sufficiency: *This depends on the nature of the services that would be subject to tax. If expanded to include professional services or services that both consumers and businesses use, it could be a sufficient source. It is more likely to be entirely sufficient if coupled with a general sales tax increase – and a simultaneous expansion to services might lessen the size of the general sales tax rate increase necessary to fund WMATA.*

Stability: *Similar to a general sales tax – consumption may decline during economic downturns.*

Equity: *While a general sales tax is regressive, many services (such as lawn care or tax preparation) are more likely to be consumed by higher income households. As with the general sales tax, including more services would subject non-residents to the tax as well.*

Economic Efficiency: *Unlike an incremental increase in the general sales tax, this would subject services that had not been taxed to a significant increase over its present tax treatment. However, if it is done uniformly throughout the region, border competition issues would be minimized (but still exist).*

Simplicity: *It would be practically impossible to expand the sales tax to services and dedicate just those specific taxes on expanded services to WMATA, as the recordkeeping necessary to accomplish this would be administratively burdensome. It is far simpler to couple an expansion of services with a rate increase, and the revenue from the specific rate increase be dedicated to WMATA. In that case, it only requires the taxing jurisdiction to pro-rate the share of sales tax revenue to WMATA.*

Increase Sales and Use Tax and Base Expansion to Services

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Potential Revenue Options	Current Rate	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Sales and Use Tax Base Expansion Services**	Not Currently In place	0.05% pt. goods 0.60% pt. services	0.5% pt. goods 6.5 pt. services	to be updated		

Increase Sales and Use Tax and Base Expansion to Services

Sufficiency: *This depends on the nature of the services that would be subject to tax. If expanded to include professional services or services that both consumers and businesses use, it could be a sufficient source. It is more likely to be entirely sufficient if coupled with a general sales tax increase – and a simultaneous expansion to services might lessen the size of the general sales tax rate increase necessary to fund WMATA.*

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Real Property Tax Levy

About

Real property taxes are primarily a local government revenue source and are by far the largest own-source tax for local governments in the U.S. Property taxes are second to sales taxes in the number of transit systems that use it. There is generally a fixed rate of property taxes diverted to local transit while the rest goes to the county, school district, municipalities, and/or other taxing districts.

- **Revenue Potential:** high because the tax base is very broad
- **Growth Potential:** varies depending on the condition of the local real estate market and economy
- **Revenue From Non-residents:** low because most is paid by residents
- **Cost of Borrowing:** low due to the very broad tax base and low volatility
- **Volatility** low as taxable value has generally continued to grow, even during most recessions

Potential Revenue Options	Current Rate	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Real Property Tax Levy	Varies, $0.7218-$1.141 per $100 in assessed value (AV)	0.0065% per $100 AV	$0.05 per $100 AV	$150	$208	$413

Real Property Tax Levy

Sufficiency: *As one of the three major tax sources, it has a large enough base, making it sufficient to fund WMATA operations and capital needs (depending, of course, on the dedicated millage rate).*

Stability: *A tax on real property is probably the most stable of the revenue source choices. Because real property is finite, it generally appreciates in value, even during most economic downturns (the largely real estate driven Great Recession was a notable exception). The high interest rate environment of the past two years has not led to a downturn in taxable value of real property, and in many jurisdictions, the increases in taxable value have been greater than the rate of inflation.*

Equity: *Maryland, Virginia, and DC all require uniform assessment of real property, although classes of property may have different shares of assessed value that are considered to be taxable value. In general, property taxes are also considered to be a regressive tax, and recent increases in real property values can translate into tax bills that may 'crowd out' some residents in terms of housing affordability. Because the tax is only applied to residents, it is also an equity issue that residents alone bear the burden of funding WMATA.*

Economic efficiency: *As with the sales tax, property taxes are in use throughout the region, and market decisions have already taken this tax into consideration. That said, market efficiency will be impacted somewhat by whether there is a uniform millage rate for WMATA or whether it will vary by jurisdiction – and by how much.*

Simplicity: *Because market or income-based assessment processes are complex, there is a fair amount of concern with that aspect of the real property tax. Millage rates also vary considerably, and that adds to complexity. While real property values are transparent, the general public tends to view the real property tax unfavorably, and its complexity is part of the reason.*

Payroll / Income Tax

About

Individual income taxes are imposed in DC, Maryland, and Virginia and constitute a major revenue source. All firms with a business address have their payroll taxed according to local tax laws. It does not tax non-salary/non-wage income (such as dividends, interest, or capital gains) that is not salary or wages. Because it is based on the firm's payroll, if residents live outside of the region they work in, they pay their work region's (not their home region's) income tax.

- **Revenue Potential:** high because the tax base is very broad
- **Growth Potential:** high, based on the DMV's significant income
- **Revenue From Non-residents:** medium for a payroll tax – higher in DC because of in-migration for work. Negligible for an income tax
- **Cost of Borrowing:** low due to the very broad base
- **Volatility:** high because employment declines during recessions and increases during expansions, which materially impacts income tax collections

Potential Revenue Options	Current Rate	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Payroll / Income Tax	N/A, MD counties levy income tax ranging from 2.25%-3.2%	0.033% pt.	0.5% pt.	$505	$368	$644

Payroll / Income Tax

Sufficiency: *The income or payroll tax base is broad, making it among the more sufficient tax choices.*

Stability: *Income tax collections will generally decline during an economic downturn (and the declines can be significant) but also tend to bounce back (and the increases can be significant) during an economic expansion.*

Equity: *A payroll and some income taxes are a flat rate, meaning all income (absent exemptions or credits) is taxed at the same rate. The DC, Maryland, and Virginia income taxes are all considered to be graduated-rate, where the marginal tax rate increases at higher income levels. In contrast, both Montgomery and Prince George's County impose a 3.2% tax rate on resident's income. It is also notable that most income tax is paid by residents, although some non-residents will pay a payroll tax.*

Economic Efficiency: *Because income taxes are widespread, much of their economic cost has already been factored into market decisions. However, if the income tax rate is significant, there will be areas around the WMATA region that are paying less income tax, which may affect some location decisions.*

Simplicity: *Taxpayers are already familiar with an income tax, as it exists in both states and the District of Columbia (DC). Were the tax to be at the county/independent city level, there would be additional administrative expense in Virginia.*

Motor Vehicle Sales Tax

About

In many states, the purchase of a vehicle is not subject to sales and use tax but is subject to a motor vehicle sales or excise tax, and the tax revenue then funds transportation.

- **Revenue Potential** low in DC because of fewer sales outlets, residents; medium in VA and MD because of greater sales outlets, residents
- **Growth Potential** medium as car sales have a broad customer base
- **Revenue from Non-Residents** low because most sales are to residents
- **Cost of Borrowing** medium due to broad revenue base and medium volatility
- **Volatility** medium because large purchases are sensitive to the business cycle

Potential Revenue Options	Current Rate	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Motor Vehicle Sales Tax	6% in MD, 4.15% in VA, ranges in DC	0.77% pt.	1% pt.	$0	$59	$71

Motor Vehicle Sales Tax

Sufficiency: *While a reasonably large revenue source, it could not, on its own, support WMATA operations and capital needs without rate increases that would cripple the industry. A similar rate increase for this tax as with an increase in the general sales tax, though, would be sufficient – and the addition of this tax might require a smaller general sales tax increase.*

Stability: *It generally aligns with a general sales tax, although there are instances (such as supply chain disruptions during and after the COVID-19 pandemic) where revenues may fluctuate.*

Equity: *Vehicle purchases are made infrequently, so some of the regressivity concerns related to a general sales tax are diminished. These purchases can be delayed or substituted for lower cost forms of transportation if the amount of tax is a concern. It is primarily paid by residents, however, which is an equity concern.*

Economic Efficiency: *The tax is already in place, and incremental changes to it will likely not impact on market decisions. However, a very large increase would likely lead consumers to shop elsewhere.*

Simplicity: *The tax is in place, understood, and relatively easy to administer.*

Vehicle Registration / Impact Fees

About
Registration fees exist throughout the DMV but vary considerably depending on the vehicle type and weight. As of July 2024:

- Maryland charges between $110 and $161 per year for passenger and multi-purpose vehicles
- In Virginia, the state registration fee for similar vehicles is between $31 and $36 per year; Virginia also charges personal property taxes on vehicles
- In DC, the registration fee for similar vehicles is $72 per year

- **Revenue Potential:** low as the relatively small base would require extremely high fees that aren't politically feasible
- **Growth Potential:** low as the relatively small base would require extremely high fees that aren't politically feasible
- **Revenue From Non-residents:** low as registrations are mostly paid in the state of residence
- **Cost of Borrowing:** medium due to smaller revenue base but with low volatility
- **Volatility:** low as vehicle owners generally require their vehicle for necessary **transportation**

Potential Revenue Options	Current Rate	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Vehicle Registration / Impact Fees	Varies based on weight and class, $36-$161 per vehicle	$27.40 per vehicle	$10.00 Per vehicle	$2	$15	$19

Vehicle Registration / Impact Fees

Sufficiency: *This is a small revenue stream – it could not, on its own, support WMATA operations.*

Stability: *This is a relatively stable source, as the number of vehicles within the region is fairly constant. However, because it is a flat fee (rather than, for instance, a percentage of vehicle market value) it requires consistent fee increases just to keep up with inflation.*

Equity: *This is a yearly fee, and it is a relatively small amount of household income. That said, it would be considered somewhat regressive.*

Economic Efficiency: *It is unlikely that the fee alone would drive decisions on whether or not to own a car, although if rates were increased dramatically, it might lead some households (particularly in DC) to reduce or eliminate vehicle ownership.*

Simplicity: *A significant increase in the fee could lead to compliance concerns, as some households may choose to drive an unregistered vehicle.*

Accommodations Tax

About
Often referred to as a hotel-motel or transient occupancy tax, this is assessed as a percentage of the per night charge for short-term stays. This varies within the region.

- **Revenue Potential:** medium in DC because of visitors. Low because not big tourism destinations in MD and VA.
- **Growth Potential:** varies based on tourism and travel industry growth
- **Revenue from Non-residents:** high because mostly paid by visitors
- **Cost of Borrowing:** high due to the high volatility of the revenue
- **Volatility:** high because visitors sensitive to the business cycle

Potential Revenue Options	Current Rate	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Accommodations Tax	Varies, 5% in some MD counties to 16.5% in DC	2.6% pt.	5% pt.	$122	$26	$44

Accommodations Tax

Sufficiency: *With the exception of DC, this is not a particularly large revenue source within the region. It would not be possible to fund WMATA from this revenue source alone.*

Stability: *This is often a highly unstable revenue source. There have been notable past disruptions (most recently the COVID-19 pandemic but also 9/11) where this revenue stream declined significantly. Economic downturns will also reduce revenue collections as vacation and even some business travel declines.*

Equity: *The rate is uniform across types of short-term accommodations. Because it is a percentage of the nightly room charge, more expensive accommodations will pay more in tax, which is equitable. It is primarily paid by non-residents, which is considered good tax policy.*

Economic Efficiency: *It is not surprising that it is highest in DC, which has significant demand related to tourist and business travel. While high rates may deter some forms of hotel stays (such as conventions that consider all costs of an event), in general, unless rates get prohibitively high, it will not significantly impact market decisions.*

Simplicity: *This is relatively easy to understand and administer.*

Motor Fuel Tax (per gallon)

About

An excise tax on various motor fuels (gasoline and diesel being most prominent) is common and is in place throughout the region. Motor fuel is taxed on volume (by the gallon) and varies within the region.

- **Revenue Potential** low in DC because of use of public transportation, fewer service stations. Medium in MD and VA because larger land areas and more locations
- **Growth Potential** low because of base erosion from EVs, hybrids, and high MPG vehicles
- **Revenue from Non-residents** low because fueling is close to home
- **Cost of Borrowing** medium/medium high due to limited future growth
- **Volatility** varies. Not very volatile except when gas prices increase because of market conditions

Potential Revenue Options	Current Rate	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Motor Fuel Tax (per gallon)	$0.461 in MD, $0.342 in DC, $0.385 in VA, levied per gallon	6.3 ¢ per gallon	10 ¢ per gallon	$6	$92	$61

Motor Fuel Tax (per gallon)

Sufficiency: *While historically considered to be one of the 'big three' of excise taxes (along with taxes on alcohol and tobacco products), it still does not raise sufficient revenue on its own (without oppressively large tax rates) to support WMATA operations and capital needs. It is also an eroding tax base because of the rise of hybrid and electric vehicles.*

Stability: *Vehicle use may tend to decline when fuel prices increase. Because it is based on volume rather than price, it will also decline as higher mileage vehicles replace less fuel efficient ones.*

Equity: *It is considered to be a regressive tax, as low income households pay a larger share of their income as motor fuel tax. Part of the reason may be fuel efficiency (or hybrid and electric vehicles), as higher income households are more likely to purchase newer, more fuel efficient vehicles. The vast majority of the tax would be paid by residents.*

Economic Efficiency: *The tax is already in place, and rates already vary within the region. For example, the average motor fuel rate per gallon is $0.3490 in DC, $0.4719 in Maryland, and $0.4040 in Virginia. The effect on the market would depend on the size of the increase.*

Simplicity: *It is readily understood, and the tax is built into the price at the pump, so it is relatively easy to administer.*

Real Estate Transfer Tax / Recordation tax

About

An excise tax on the transfer or recording of real property. It is generally a percentage of the price paid in an arms-length sale of real property. It is in place throughout the region, although the rates vary, as does who imposes the tax (state or local government).

- **Revenue Potential** low because not a large tax base
- **Growth Potential** varies based largely on interest rates, 'seller's markets.
- **Revenue from Non-residents** low. Buyers generally are or become residents
- **Cost of Borrowing** very high due to the high volatility of the revenue
- **Volatility** high because of variability based on interest rates, 'buyer's markets'

Potential Revenue Options	Current Rate	Rate Increase per $100M	Example Rate Increase	DC	MD	VA
Real Estate Transfer Tax* / *Recordation tax	Varies, combined county and state rate in VA of 0.33%, 1.45% in DC, between 0.7% and 1.0% in MD.	0.1% pt.	0.1% pt.	$26	$29	$13

Real Estate Transfer Tax / Recordation Tax

Sufficiency: *This is a relatively small revenue stream – it could not, on its own, support WMATA operations.*

Stability: *This is an instable revenue source. Recent high interest rates had a marked effect on property sales, and this revenue source has declined or been stagnant for many (if not most) of the governments in the region.*

Equity: *This tax has become somewhat controversial, as the real estate industry argues that it reduces transactions and makes housing less affordable. Many state and local governments have adopted a progressive rate structure, where properties with high sales prices are taxed at a higher percentage of the sale price. This may reduce some equity concerns. At the same time, housing purchases are infrequent, and the transaction may be delayed or substituted if this share of the cost of purchase is an issue.*

Economic Efficiency: *As noted, the industry claims the tax reduces transactions and makes housing less affordable. That said, the tax is in place throughout the region (and nation). However, a significant rate increase would likely reduce transactions.*

Simplicity: *The tax is already widely used and costs to administer it are low.*

METRO'S VISION FOR WORLD-CLASS TRANSIT:
RAIL AUTOMATION

From WMATA Board of Directors Meeting
April 24, 2025

Metro's history of automated operations

Increasing automation

Grades of Automation
Scale from 1-4 describing increasing levels of automation

Manual operation
Driver stops/starts the train

GoA 1
Operator controls train acceleration, braking, door operation, and monitoring the track

Metro designed for GoA 2 but operating in manual mode **(GoA 1)** since 2009

Semi-automated operation
Operator supervises train

GoA 2
Operator (in the cab) supervises the train, monitors track conditions, operates doors and train departure

We are Here: Metro returned to Automatic Train Operation **(ATO, GoA 2)** on the Red Line in Dec. 2024

Next Steps: Planned return to ATO **(GoA 2)** on all lines

Fully automated operation
No operator required

GoA 3
Train attendant (not in a cab) assists passengers and may operate the train if needed

GoA 4
No operator or attendant required for normal operation

Program Plan: Evaluate a **fully automated (GoA 4) system**

Current Metrorail challenges

Safety

Ongoing trespassing incidents and on-track debris

- Trespassers, trash, and slips/trips/falls
- Human error in operation
- Challenging to mitigate with current system design

Reliability

Aging and unreliable infrastructure

- Human variability in operations and signal system failures cause delays
- Growing maintenance costs; replacement parts are difficult to source

Capacity

Insufficient room for long-term growth

- Bottlenecks at key locations limit service
- Expensive alternatives to adding capacity

Efficiency

Outdated concept of operations

- Rising operating expenses and inflexible service model

Components of fully automated transit

1. Signaling Systems

Metro Integrated Command & Communications Center (MICC)

Communications-Based Train Control (CBTC) that can control all aspects of train operations.

Adjust train movements in real-time for smooth traffic flow based on crowding levels, weather, incident recovery, and work zones.

2. Vehicles

Paris Metro: MP05 rolling stock

Railcars equipped with CBTC technology located onboard with less wayside infrastructure.

Precise, automated operations reduce variability – same operation every time.

3. Platform Doors

Honolulu Skyline: Hālawa station

Protect customers on the platform with physical barriers, such as platform screen doors.

Platform screen doors keep people and objects off the tracks.

Automation is now the global standard

New Lines & Systems

Copenhagen Metro

Designing for driverless operation is the global standard for newly built rail transit lines

Airports

Washington Dulles AeroTrain

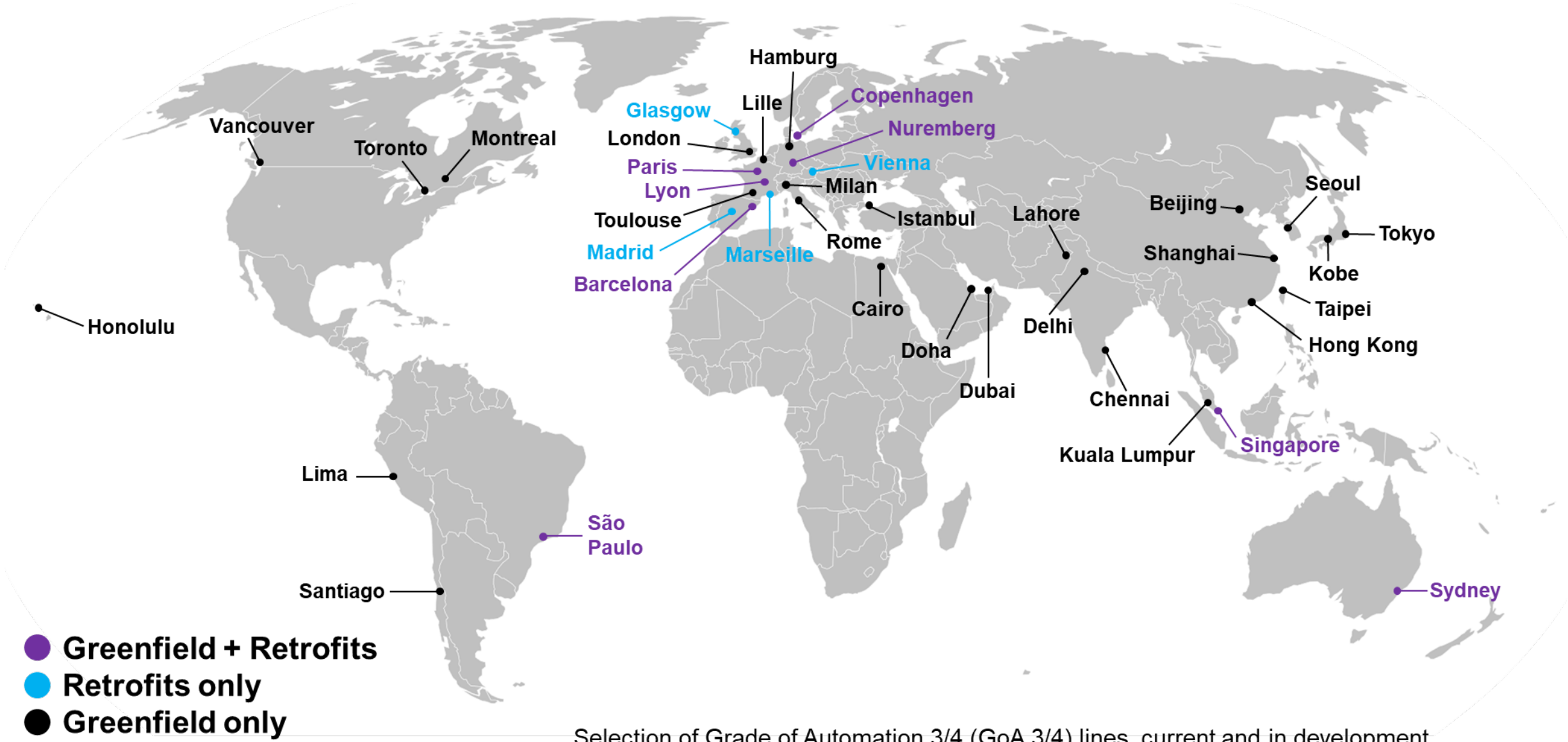
25+ fully automated systems operate in US airports; some since the 1970s. These are often “must-ride” systems with no alternative, demanding high reliability 24/7

Retrofits

Paris Metro: Line 4 Platform Screen Door Testing

Cities are retrofitting conventional lines (including 100+ year old Lines 1 & 4 in Paris) for full automation to add capacity, improve service and decrease cost

Metros are automating across the world



Selection of Grade of Automation 3/4 (GoA 3/4) lines, current and in development

Trespassing is an ongoing problem

Safety

Sections | The Washington Post — Democracy Dies in Darkness | Get one year for $40

Gridlock

Woman struck and killed by Metrorail train at Union Station

By Justin George

June 23, 2021 at 8:35 p.m.

A woman was fatal
Station on the Red

Emergency respon
firefighters from th
responded, shuttin
spokeswoman She
12:30 p.m. and inv
initially identified

Metro Transit

52° | DC NEWS NOW

MONTGOMERY COUNTY

Trains delayed after person struck, killed by train in Rockville, Metro says

by: Paola Belloso
Posted: Aug 30, 2024 / 11:12 AM
Updated: Aug 30, 2024 / 11:15 A

SHARE

ROCKVILLE, Md. (DC News No
and killed by a train on Friday

WMATA said Red Line trains w
because of the incident in bot

ains are also operating ever

4 WASHINGTON

METRO (WMATA)

Man Struck by Train at Minnesota Ave.

Published February 14, 2020 • Updated on February 14, 2020 at

ARLnow
Local is everything

News

Firefighters rescue person struck by a Metro train in Crystal City

By Jo DeVoe

Published March 10, 2023 at 12:45PM

Trespassing incidents have major safety & service impacts

Safety

RD Grosvenor-Strathmore

January 25, 2025, 5:26PM: Person fatally struck by train; Montgomery Fire & Rescue and Medical Examiner came to the scene

- Nearly seven hours of service disruption, delaying or canceling over 100 train trips
- Trains turned back to mitigate delays
- Resulted in 8,900 late customers

GR West Hyattsville

March 12, 2025, 2:56pm: Person struck by train; rescued by Prince George's Fire & EMS

- Three hours of service disruption, delaying or cancelling 48 train trips
- Service suspended between West Hyattsville and Hyattsville Crossing; cascading delays for Green and Yellow Lines
- Resulted in 15,000 late customers

Metro's signal system is aging and less reliable

Reliability

Metro's signal system is old & costly to maintain: few vendors, limited availability of parts and signals are the top cause of infrastructure-related service delays.

Both the infrastructure and technology are obsolete; track circuits of older design, at or approaching obsolescence.

The required investment in signals and rolling stock is an opportunity to plan rail automation.

Vital Relays and Local Control Panel

Track Circuit Module

Train Control Room

Metro will have fewer decentralized assets to maintain

Reliability

Today's System:
Relay-based track circuits
Grade of Automation 2

- 165 localized Train Control Rooms
- 700+ miles of copper cable
  28,000+ vital relays
- 3,500+ track circuits

- Fewer parts
- Smaller & simpler footprint
- Better performance

Modern, Automated Systems:
Communications-Based Train Control
Grade of Automation 4

- Centralized control; Significant reduction in train control rooms
- Fiber optic infrastructure
  Modern zone control
- Less wayside equipment; Railcar-based equipment

Automation increases capacity

Capacity

Higher signal system throughput and improved reliability enables higher capacity: Remove variability from service, reduce scheduled buffer time

- Improve on-time performance to 95-99%
- Increase throughput: more trains per hour
- Turn trains faster at the end of the line

Service flexibility: Automated systems can respond to unplanned events or surges in demand easier

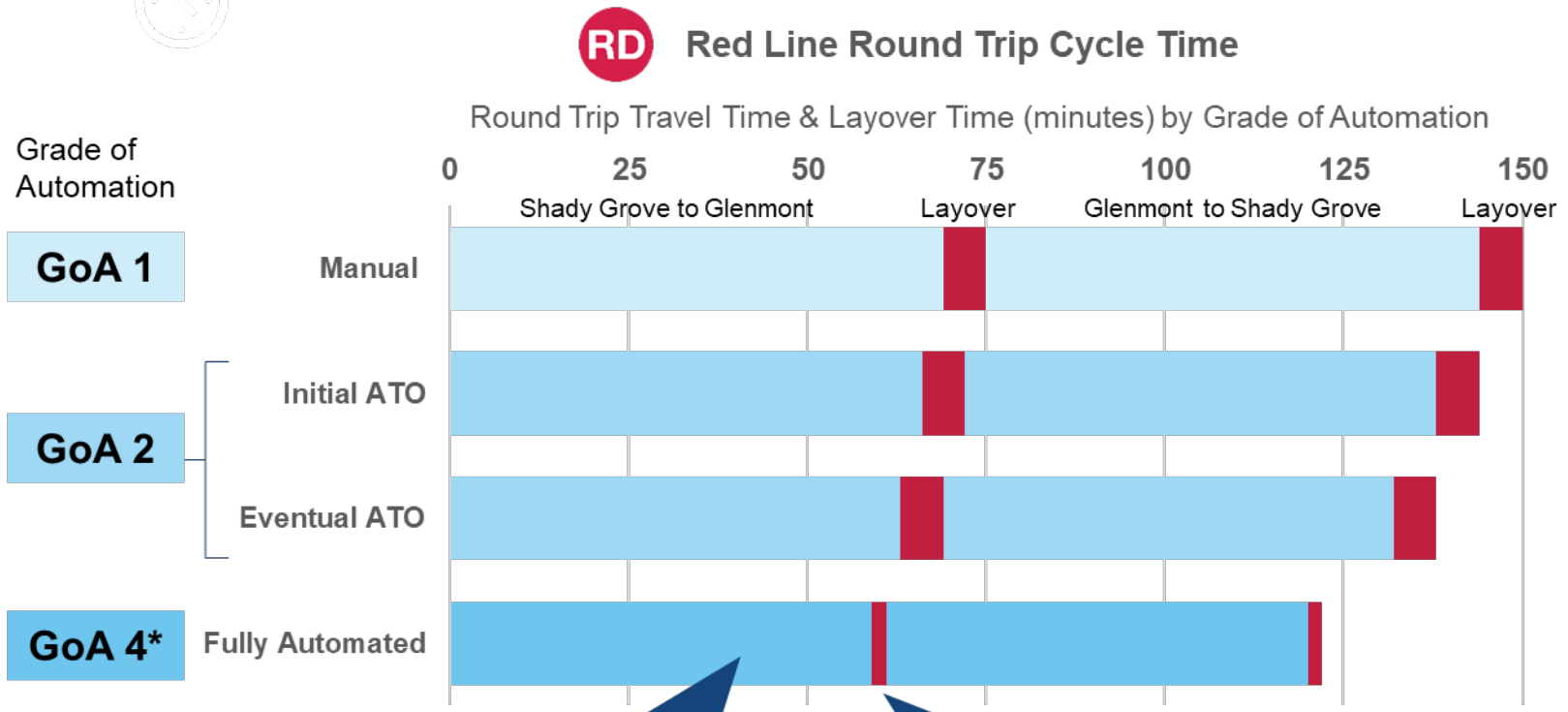
Copenhagen Metro

M3 Service operating in a different pattern to serve special events

Automation means better service

Capacity

Automated operations are faster and more efficient, increasing capacity with the same infrastructure



Cycle Time (minutes)	Trains Required for 5 min headway	Trains Required for 4 min headway
150	30	38
144	29	36
138	28	35
122*	**25**	**31**

Full Automation reduces scheduled buffer time, speeding up travel time compared to GoA 2

Automated turn-arounds and less delay recovery at terminals reduces scheduled layover time

Shorter cycle time enables same service with fewer assets

*Fully Automated cycle times are illustrative and hypothetical, based on performance of similar systems. Actual system performance will need to be determined.

Reliable, fast service drives efficiency

$ Efficiency

- **Higher Asset Productivity:** Provides more service and capacity from the same infrastructure and assets
- **Lower Operating Costs:** Costs are driven more by system uptime and less by level of service provided, enabling more service at low marginal cost
- **Higher Ridership and Revenue:** frequent and reliable service drives ridership growth

MRT – Singapore

Initial strategy to implement rail automation

Metro would take a regional, system-level approach to phase in automation

Implementation for automation would occur in phases across the rail network. Incremental benefits will be realized with each segment completed.

- Modernize signal system with Communications-Based Train Control (CBTC)
- Upgrade railcars for CBTC
- Install platform screen doors integrated with signal system
- Phased roll-out of automated operations

Critical to align fleet and signaling decisions

With the 8000-series fleet acquisition underway, now is the time to make decisions on rail automation

Fleet and signaling systems are highly interconnected

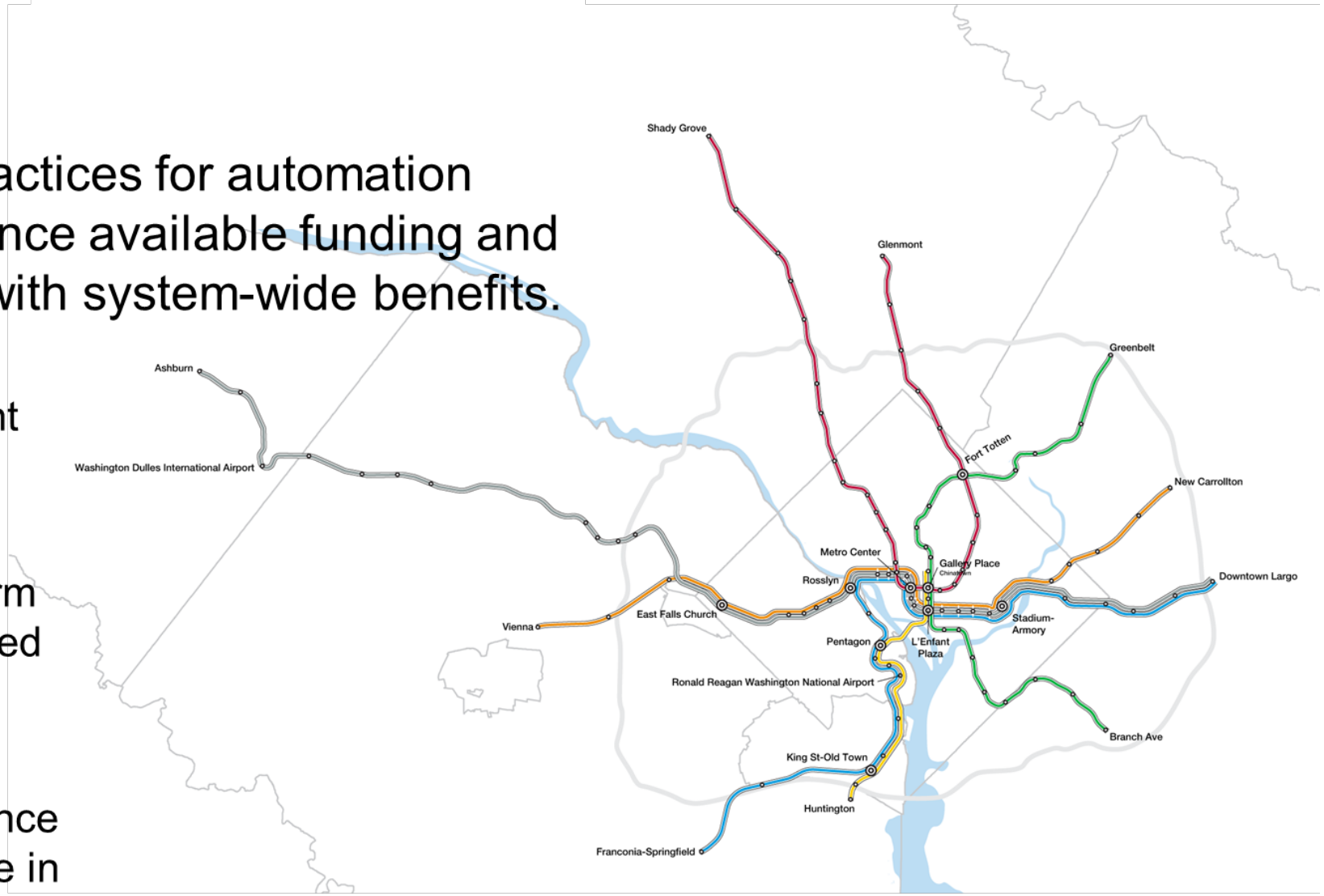
- Agencies typically make major decisions on signaling systems in conjunction with railcar purchases
- The 8000-Series are designed for conversion to CBTC and automation compatibility

Railcar Series	Entered Service	Current Fleet	Future Fleet
3000	1984-1988	276	-
6000	2006-2008	180	180
7000	2015-2020	748	748
8000	2028-	-	256 to 800
TOTAL		**1,204**	**1,184 to 1,728**

Potential phased implementation

Following industry best practices for automation retrofits, Metro would balance available funding and infrastructure constraints with system-wide benefits.

- Modernize signals by segment across the system, linking segments together
- Prioritize installation of platform screen doors by location, based on infrastructure needs and operational benefits
- Start automated operations once infrastructure and systems are in place



More direct delivery approach reduces costs

- **Commit to Rail Automation vision and plan**
  - Pursue system-wide automation utilizing a phased implementation strategy
- **Formulate an integrated program management team to reduce soft costs**
  - Utilize internal experts for project management and oversight to deliver the project with fewer consultants
  - Change the way we do things: Drive delivery efficiency by optimizing installation and testing practices
- **Combine benefits of staff expertise, repetition, and efficiency to reduce costs over lifespan of the project**
- **More details in December 2025 Business Plan strategy review**

Retrofitting for automation is less expensive and benefits the whole system faster than building new lines

	Automation Retrofit	New Build Rail Line
Cost per mile	$40 to 50m	$800 to 1,000m
	20x	
Rationale	Increase capacity and quality of existing system incrementally	Expand in one area, providing new connections, relieving existing bottlenecks

Conceptually, systemwide automation retrofit is achievable with incremental funding of $100 to 150 million per year and federal capital investment grants

Conceptual return on investment

Rail Automation Business Plan is underway, including detailed lifecycle cost analysis and alternative delivery options to reduce cost.

Preliminary results:

- **Faster, more efficient service:** Red Line service with automation would save 5 trains compared to manual operations
- **Higher capacity:** Automation enables productivity. The efficiencies from faster, more reliable service can be reinvested in service, increasing capacity
- **Lifecycle cost savings:** Efficient and productive service means saving money by purchasing fewer railcars to achieve the same capacity – requiring fewer yard expansion projects and avoiding lifetime maintenance costs for those railcars

Example: Red Line Automation

Grade of Automation	Trains Required for 5 min headway
GoA 1	30
GoA 2	28
GoA 4	**25**

Conceptual Impacts of Red Line Automation:

Automation saves five trains from manual mode; up to 40 fewer railcars to run the same service

~$220 million in lifecycle cost savings to acquire and maintain 40 railcars

Plus additional savings to avoid cost of yard expansion

Preliminary costs and benefits

Automation Program enables direct efficiencies and regional benefits

Capital Investments

$5.65b Automation Program Cost: Rough order of magnitude (FY2025 dollars)

- **Communications-Based Train Control:** $3.6b investment in upgrading signal systems and railcars to modern standards
- **Platform Screen Doors:** $2.1b for improved safety, customer experience, and full GoA 4 automation

Efficiencies

Automation investments make it possible to deliver more service at lower cost

- **Capital Cost Offsets:** $0.9b in lifecycle cost savings with a smaller, more productive fleet & avoiding yard expansion
- **Operating Efficiencies:** Transform Metro's cost structure with 5% to 10% reduction in annual net operating costs

Regional Benefits

Faster, reliable service benefits the entire region

- **Capacity Increases:** 10% to 25% increase in capacity
- **Safety Improvements:** Platform Screen Doors prevent trespassing deaths and injuries
- **Time saved for customers:** gives customers access to more jobs, and saves $100m to $215m of their time annually

Preliminary results. Detailed analysis of costs and benefits is underway as part of the Rail Automation Business Plan.

Rough Order of Magnitude Cost/Benefit Estimates. FY2025 dollars

Rail automation is the path to World Class Transit

Benefits have potential to transform Metro's operations

Safety

- ✓ Safer operations: reduce staff on roadway, keep trespassers off tracks, reduce track fires

Capacity

- ✓ Increased capacity with faster travel and more trains per hour

Reliability

- ✓ Increase service reliability up to 99%
- ✓ Less physical infrastructure to maintain

Efficiency

- ✓ More productive service with lower operating costs
- ✓ Grow ridership and revenue

Proposed rail automation timeline

January 2025

- Initial Discussions: FY26-31 Capital Improvement Plan

April 2025

- Overview: Rail Automation Opportunities and Challenges

Summer 2025

- Procurement for preliminary design & platform screen door demonstration

December 2025

- Rail Automation Program & Business Plan
- Board Strategy Workshop

CY2026

- Platform Screen Door demonstration
- Board consideration and adoption of Rail Automation Program & Business Plan

Summer 2025 & Ongoing
Peer Studies & Learning

FY2026+
Implement Vision, Program, and Phasing Plan

METRO'S VISION FOR WORLD-CLASS TRANSIT:
RAIL AUTOMATION GLOBAL EXAMPLES

Madrid Metro Lines 6 and 8

Metro de Madrid is retrofitting two lines for fully automatic operation by 2030 to reduce passenger journey times and improve capacity and reliability.

- **Line 6** – circular line, system's busiest – completed by 2027
- **Line 8** – connects to airport – completed by 2030

The program was announced in February 2024 and work began March 2025 on Line 6. The program includes overnight work and segment shutdowns to complete rapidly in just two years.

The program includes major contracts with CBTC and platform doors suppliers. The timing aligns with new fleet procurement and planned track and power infrastructure renewal on these lines.

Paris Métro

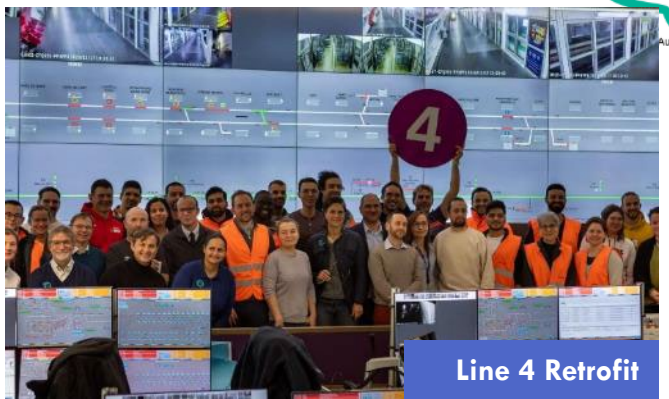
Paris Métro is a pioneer for automated transit. In 1998, Paris opened **Line 14**, the first high-capacity automated line in the world.

Following the success of Line 14, officials decided in 2004 to retrofit the 100+ year old **Line 1** (Métro's busiest line) to fully automated operations. Métro completed the retrofit in 2012.

Since then, Métro has continued to build new fully automated lines and retrofit existing ones. The **Grand Paris Express** will add 120 miles of automated lines with four new lines & two extensions. Meanwhile, Métro converted **Line 4** to automated operation in 2022 and will convert **Line 13** by 2035.

Line 1 Retrofit

Line 14 New Build

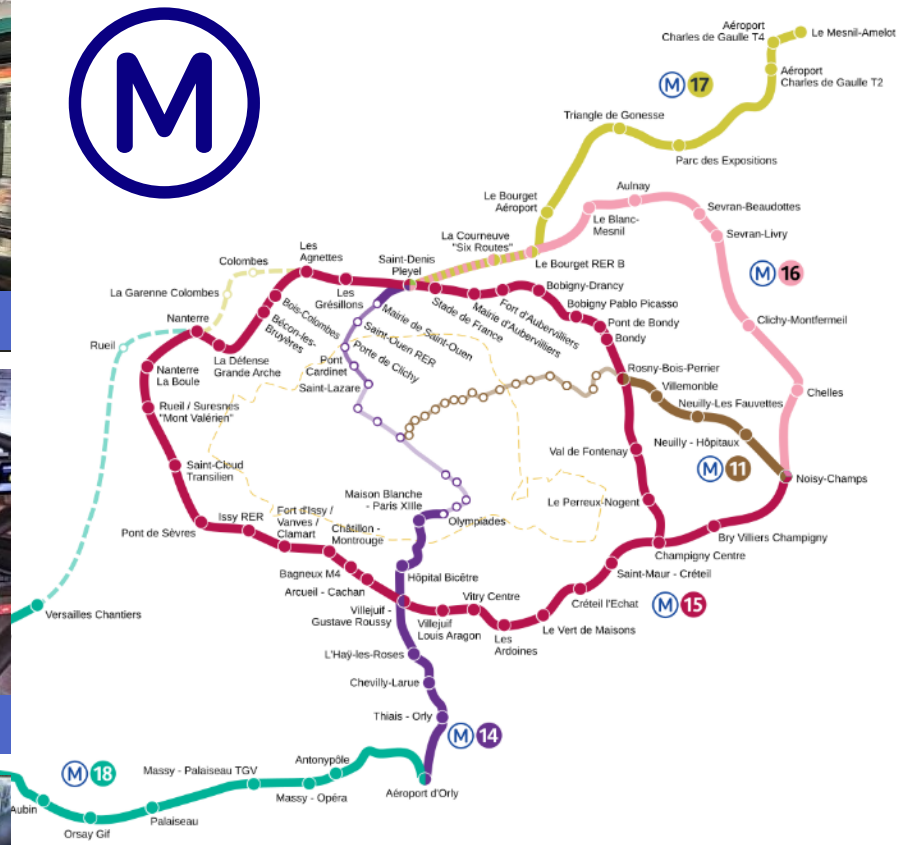


Line 4 Retrofit

Notable Figures:

- OTP improved from 79% to 98%
- Capable of 85 second headways

1



Grand Paris Express:

- 120 miles of new Metro routes (opening 2024 to 2030)
- Four new lines (15, 16, 17 & 18)
- Two line extensions (11 & 14)
- 68 new stations

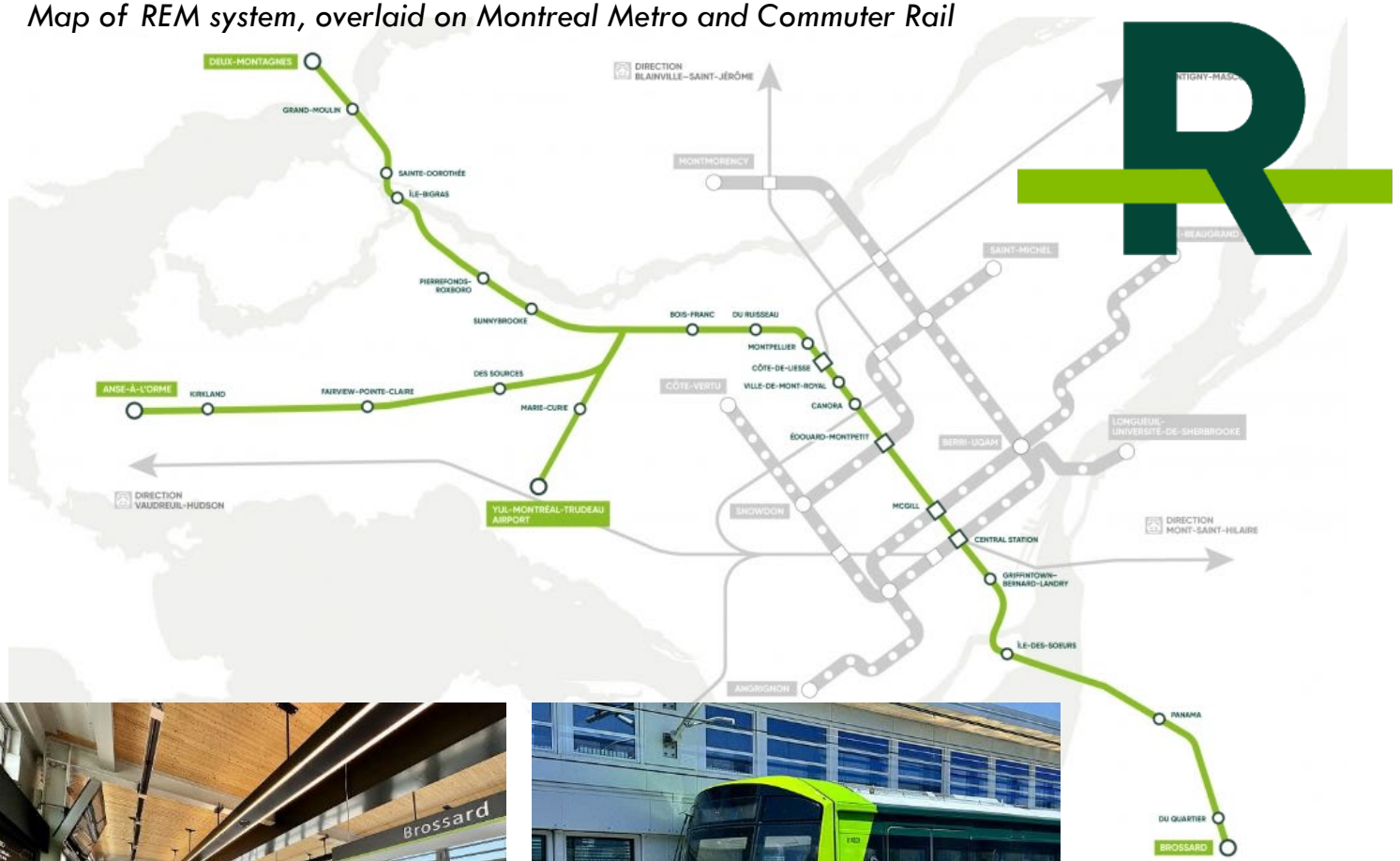
Montreal REM

The **Réseau Express Métropolitain** (Metropolitan Express Network) is a fully automated medium capacity Metro system, built as a complementary network to Montreal's existing Metro system.

The system was announced in 2016; Phase 1 opened in July 2023. The ultimate system will be 42 miles long with 26 stations. Portions of the system are a conversion of a commuter rail line to automated rapid transit.

Automation and high frequency service provide the needed capacity, allowing for smaller station footprints (250' long, vs. 500' on the Montreal Metro) to reduce construction cost. All stations have platform screen doors.

Map of REM system, overlaid on Montreal Metro and Commuter Rail

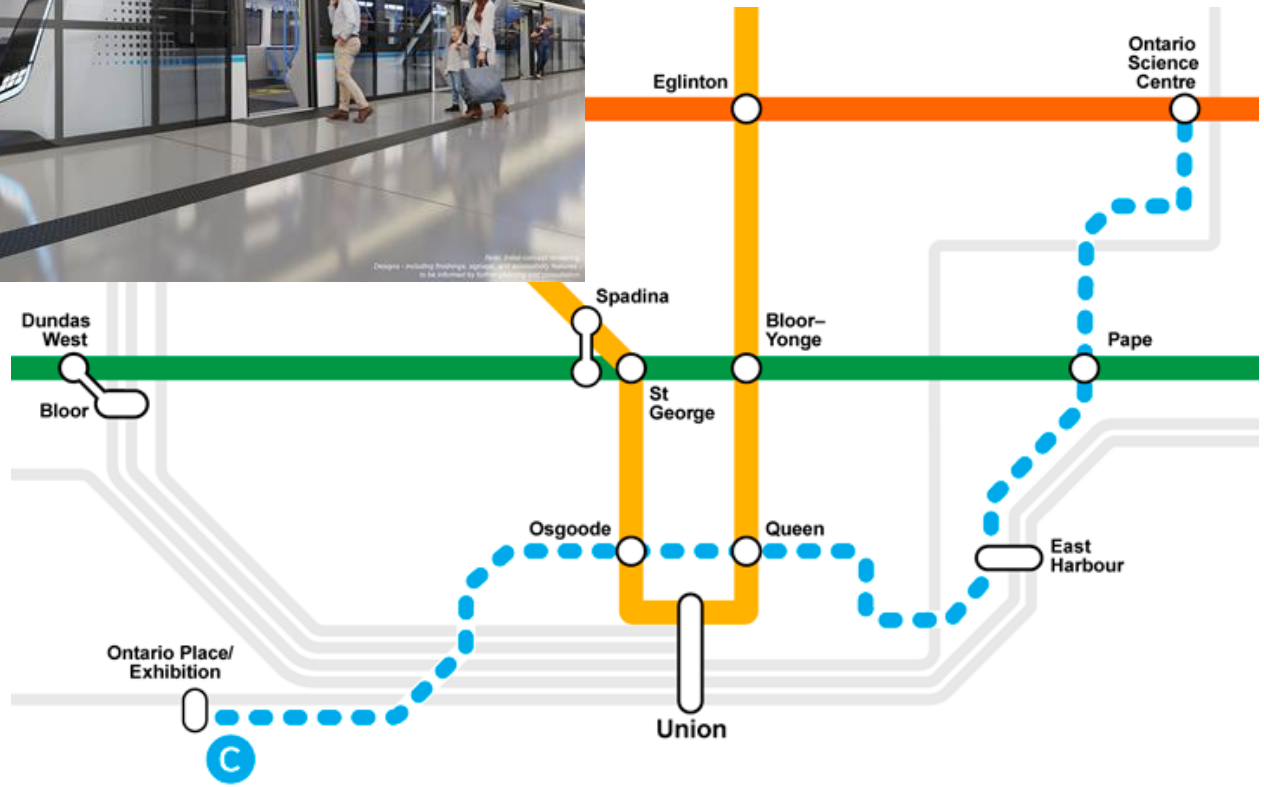


Toronto Ontario Line

Toronto's Ontario Line is the city's newest transit project. With a projected service date of 2031, the line will include a new fleet of driverless subway trains fitted with CBTC that supports GoA 4 with 90 second headways. Capacity is expected to be ~30,000 passengers per hour.

The Ontario Line will not be compatible with Toronto's other subway lines, using a different track gauge, train control system, and shorter trains. The line will achieve high capacity with increased frequency from automation. Automation also enables smaller station footprints, reducing construction cost.

Part of the project includes the construction of a new digital control center, platform screen doors, and a maintenance and storage facility. Hitachi rail will maintain and operate trains and the line for 30 years.



Ontario Line (blue) and connections to Toronto's transit network

Barcelona L9 and L10

Transports Metropolitans de Barcelona

Barcelona's Line 9 and Line 10 are fully automated lines using the same trunk line through the center of Barcelona. L9 opened in 2009, followed by L10 in 2010. These two lines were the first fully automated Metro line in Spain. All stations are equipped with platform screen doors.

Trains are controlled from the Metro Control Center at La Sagrera. L9 also inter-operates with other Metro lines. The S9000 rolling stock is capable to run with or without drivers and are also utilized on Barcelona's other lines.

L9 (orange) and L10 (blue) in Barcelona's transit network

London Elizabeth Line

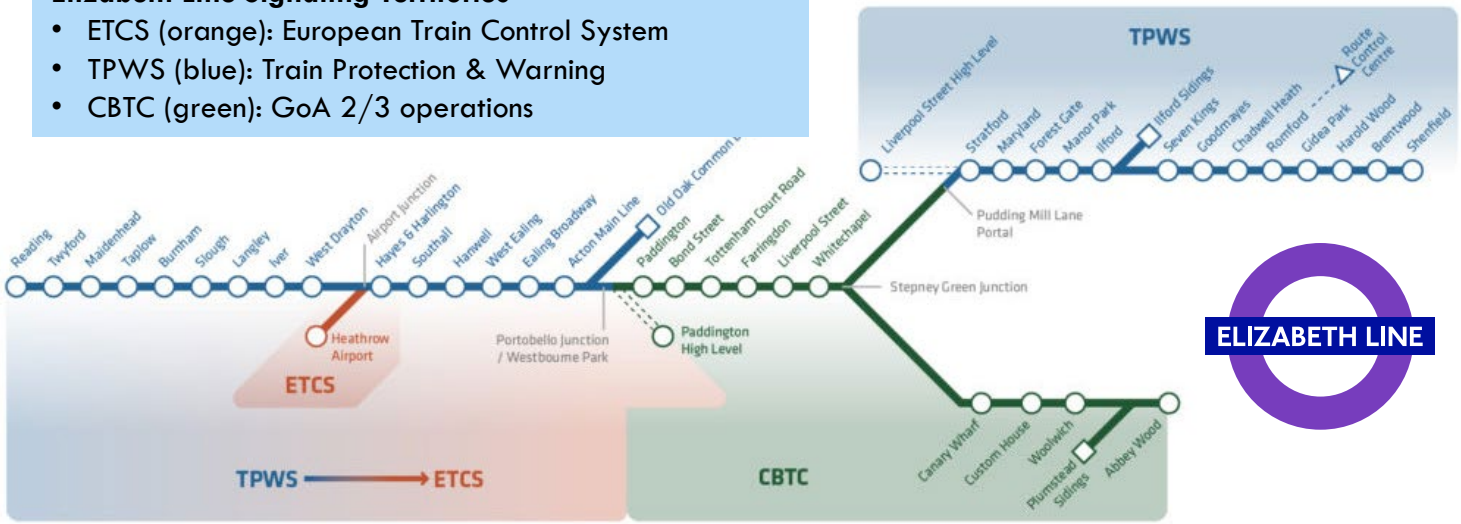
London's Elizabeth Line is one of Europe's largest infrastructure projects related to rail rapid transit, which opened in 2022.

It incorporated a CBTC signaling system for the central section of the line (operating like a Metro) while also being compatible with mainline rail signaling systems for the east and west surface sections (operating on shared tracks with commuter and intercity trains).

The Elizabeth Line's CBTC system is integrated with platform screen doors for additional safety and efficiency. It currently operates at GoA 2 in the core section but uses GoA 3 automation for reversing moves at terminals.

Elizabeth Line Signaling Territories

- ETCS (orange): European Train Control System
- TPWS (blue): Train Protection & Warning
- CBTC (green): GoA 2/3 operations



Singapore MRT

Singapore's Mass Rapid Transit (MRT) system operates six lines serving 143 stations over 150 route miles of track. The entire system is capable of automated operation.

The system opened in 1987 with two lines, the North-South Line and East-West Line. Both of the original lines were upgraded to CBTC and driverless operation by 2019.

Four additional lines opened between 2003 and 2020, each fully automated and driverless.

Singapore pioneered the use of Platform Screen Doors. The initial lines included platform screen doors at all underground stations, while every above-ground station was retrofit to include doors by 2012.

Automation Retrofits

- North-South Line (red): opened 1987, automated in 2019
- East-West Line (green): opened 1987, automated in 2019

METRO'S VISION FOR WORLD-CLASS TRANSIT:
BUS SERVICE AND BUS PRIORITY

From WMATA Board of Directors Meeting
April 24, 2025

Customers respond to frequent service

Better Bus Network is adding more frequent service and with additional investment, we can continue to improve access and grow ridership with more frequent service

Metro's Frequent Service Network

Current Bus Service Frequencies

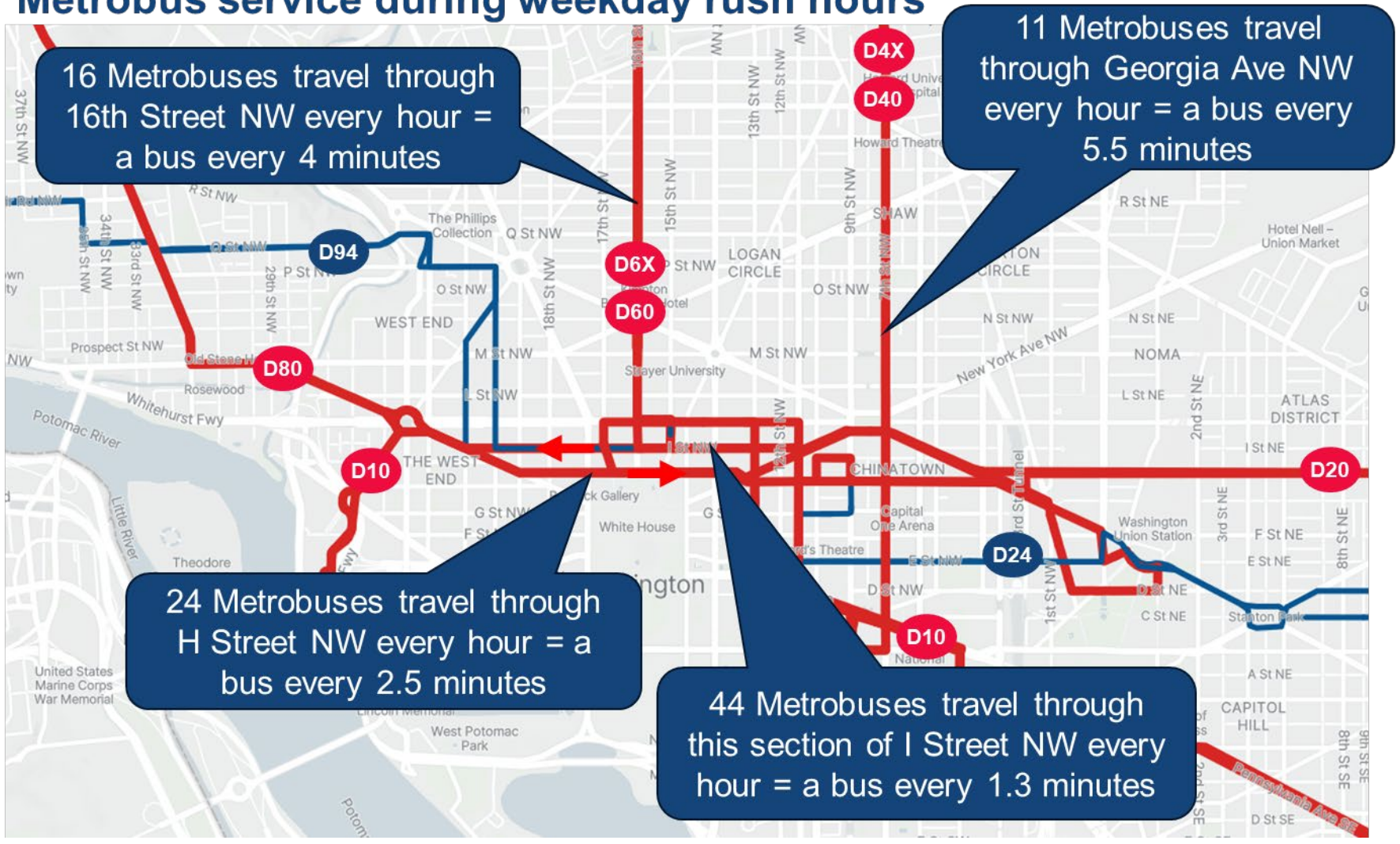
	Peak period frequency (min)
High Frequency	5-12
Medium Frequency	12-20
Coverage	20-60
Peak/ Commuter	Demand based

Vision for Future Bus Service Frequencies

	Peak period frequency (min)
High Frequency	5-10
Medium Frequency	10-20
Coverage	20-30
Peak/ Commuter	Demand based

Interlining multiple routes and operators can create even more frequent service corridors

Metrobus service during weekday rush hours



- 7 Metrobus routes serve I Street NW
- Service frequency ranges from 6- 20 minutes during peak hours (44 buses total)
- Additionally, OmniRide and other commuter services use H, I, and K street corridors
- Georgia Avenue carries over 23,000 customers daily, almost as many ride the Green Line between Greenbelt and Petworth

On-street infrastructure investments on major roads varies widely

No Priority

- **Service: 5-20 min peak frequency, 16 hr span**
- Bus Lanes: 0%
- Signal Priority: 0%
- Stop Spacing: 0.2-0.3 mile
- Bus Stop Infrastructure: Shelters

Bus Priority (aka BRT Lite)

- **Service: 5-10 min peak frequency, 16 hr span**
- Bus Lanes: 25 to 50% peak period or all-day, off-set or curb lane
- Signal Priority: 25 to 50%
- Stop Spacing: 0.2-0.3 mile
- Bus Stop Infrastructure: Shelters and potential all-door boarding

Bus Rapid Transit

- **Service: 5-8 min peak frequency, 18-20-hr span**
- Bus Lanes: 50 to 100% exclusive right-of-way
- Signal Priority: 75 to 100% and auto turning restrictions
- Stop Spacing: 0.3-1.0 mile
- Bus Stop Infrastructure: Shelters + Fast, all door boarding

Region's frequent service network provides the highest benefit for bus priority investments

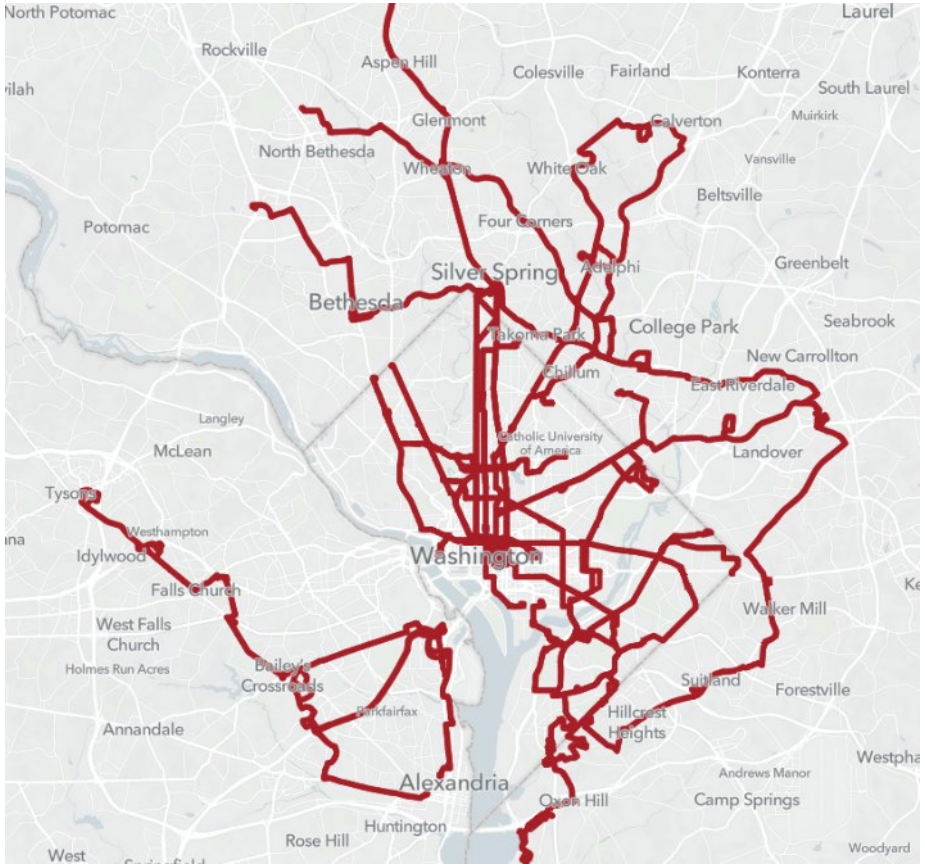
Customers want **frequent, reliable,** and **fast** service

High frequency routes (12-mins or better) carry almost **50% of bus customers** daily and have opportunity to grow ridership

Average **scheduled speeds** are **7-10 mph,** while **actual speeds** may be as slow as **3 mph**

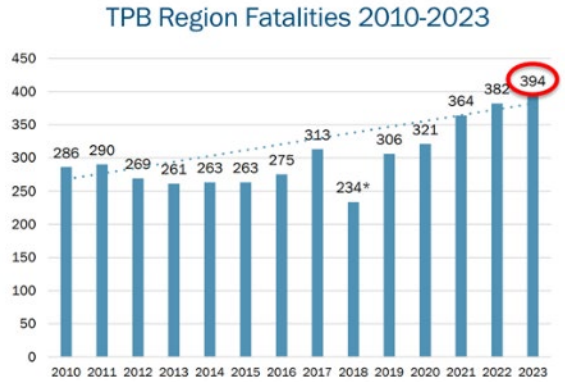
Opportunity to **expand this network** to include additional interlining with local and commuter bus providers

Region's Frequent Service Network of 12-min or better service



Challenges to maximizing benefits from our frequent Metrobus network

Safety



Our region's streets are increasingly unsafe

- 394 traffic deaths in 2023, a 10+ year high

Reliability

Congestion makes buses slow and unreliable

- **73% on-time performance** on the 12-minute bus network
- **45%** of late trips due to inadequate scheduled runtime or congestion

Capacity

Our streets are underutilized

- **1.1%** increase in congestion between 2019 and 2024
- **Cars are not space-efficient** and can't scale with growth

Efficiency

Slow Metrobus service costs taxpayer dollars

- **$70M+** annual cost for buses stuck in traffic

Our region's streets and traffic signals can and should work harder for transit and bus customers

*Source: Service Excellence Report FY2025, Q2; Streetlight, WMATA analyses

When congestion makes buses slower, we need more buses to run the same service

To keep buses running every…

10 minutes

On a route that takes…

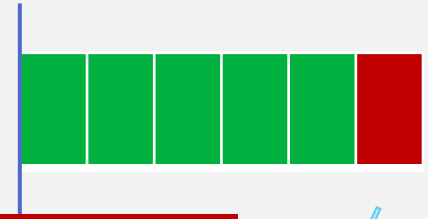
50 minutes

Metro needs to provide…

5 buses and operators

When that service becomes **10 minutes slower** because of congestion…

60 minutes



+20%

time penalty for customers

6 buses and drivers

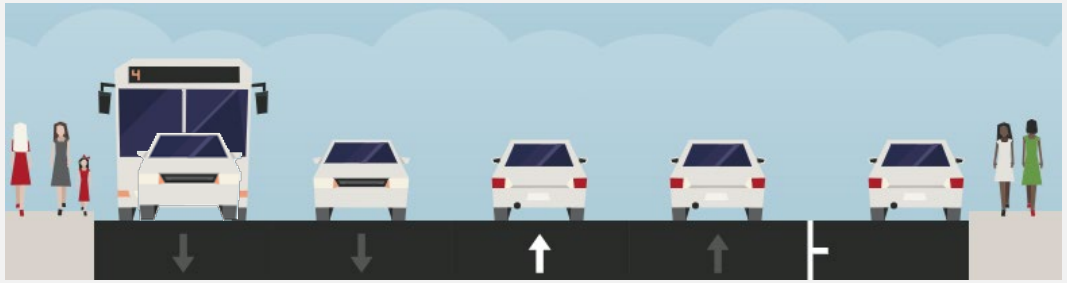
+1

bus to purchase and maintain, additional bus operator to hire

With dedicated bus lanes, the same street can serve almost 50% more customers

FREQUENT BUSES[1] IN MIXED TRAFFIC

Person Throughput: **4,400** per hour

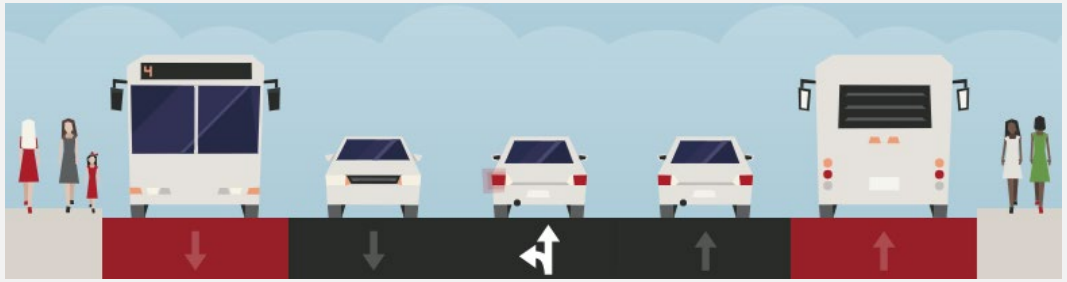


1,400	800	800	1,400	0
Mixed Traffic	Private Vehicles	Private Vehicles	Mixed Traffic	Parking Lane

[1]*Assumes buses at 6-minute headways*

FREQUENT BUSES[2] IN DEDICATED BUS LANES

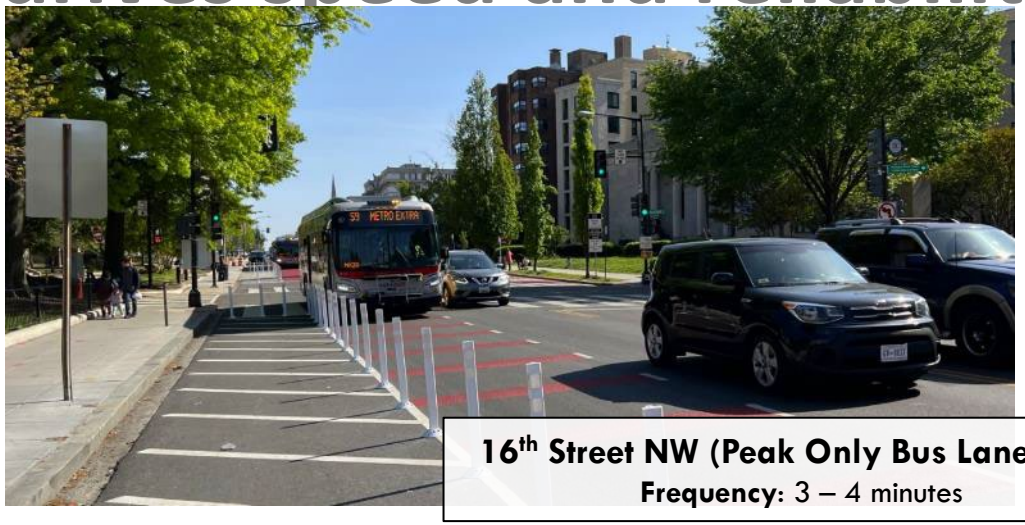
Person Throughput: **6,300** per hour



2,100	800	500	800	2,100
Dedicated Bus Lanes	Private Vehicles	Turn Lane	Private Vehicles	Dedicated Bus Lanes

[2]*Assumes buses at 3-minute headways*

Investments may vary but length, continuity, and consistency drives speed and reliability outcomes



16th Street NW (Peak Only Bus Lanes), DC
Frequency: 3 – 4 minutes

RapidRide G Line, Seattle
Frequency: 6 minutes

Livingston Avenue Busway, Brooklyn
Combined Frequency: 2 minutes

Rouen, France (BRT Silver)
Frequency: 2-4 minutes

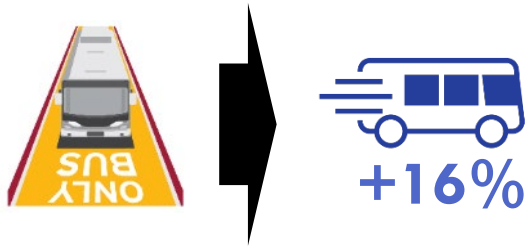
*Note: Gold, Silver, Bronze ratings via Institute for Transportation and Development Policy Bus Rapid Transit Standard

Bus priority in our region show promise and can do more with coordinated, scalable investments

Safety

- **28% fewer crashes** on 16th Street NW (DC)
- **56% reduction in injury crashes** on Pennsylvania Avenue SE (DC)

Reliability

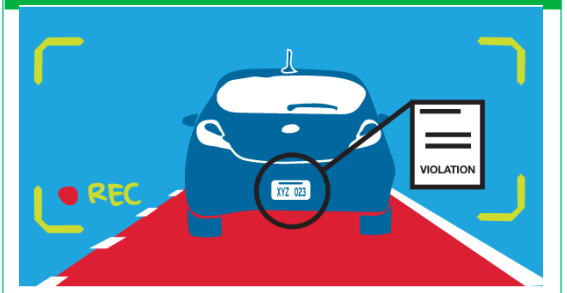


- Georgia Avenue bus lanes **sped up the slowest buses by 16%** (MD)
- **90% OTP on Metroway** compared to the systemwide Metrobus standard of 79% (VA)

Capacity

Georgia Avenue bus lanes **moved 900 more people** per hour in the same street space with dedicated lane (MD)

Efficiency



Clear Lanes (DC) improves bus stop access, allowing some paratransit customers to use buses instead of MetroAccess

- Every paratransit trip that shifts to Metrobus **saves over $100**

*Sources: DDOT, MDOT, WMATA

Cities across the world have demonstrated the benefits of bus priority

Rouen France TEOR Bus Rapid Transit

A **high-quality bus-based transit system** can provide faster, more frequent, reliable service delivered faster and more cost-efficiently

Reliability

Travel Time

Up to **25%**

Paris

Capacity

Ridership

Up to **20%**

New York

Efficiency

Subsidy Per Passenger

Up to **18%**

Los Angeles

Safety

Traffic Collisions

Up to **42%**

New York

*Note:
Performance outcomes can vary significantly by corridor context and infrastructure investment.

Frequent bus service that is fast and reliable with bus priority is the path to World Class Transit

Through DMVMoves, develop regional bus priority network and implementation framework that maximizes benefits:

- Continuous, enforced bus lanes
- Consistent all-day hours
- Optimized transit signal priority
- Enhanced, widely spaced bus stops
- Fast, level boarding

Region's High Frequency Bus Corridors

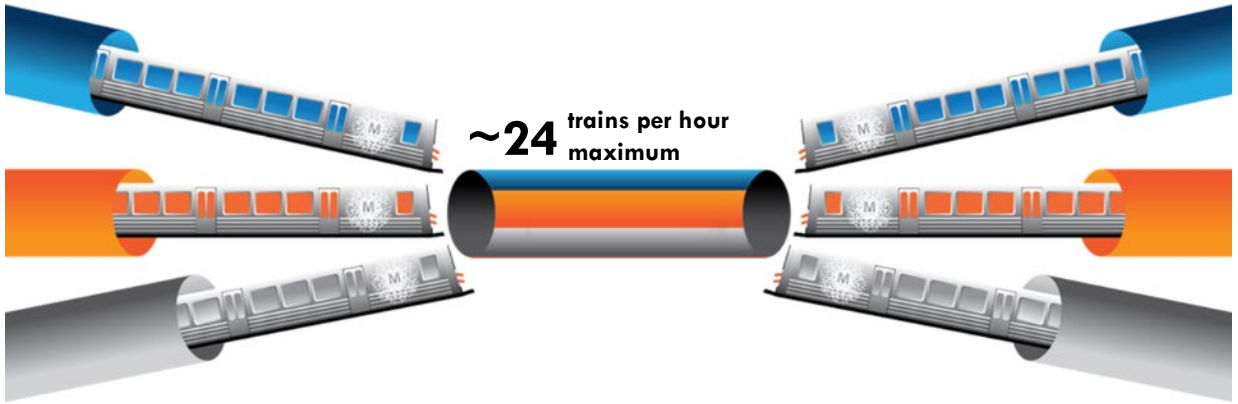
METRO'S VISION FOR WORLD-CLASS TRANSIT:
APPLY SOLUTIONS TO THE BLUE/ORANGE/SILVER CORRIDOR

From WMATA Board of Directors Meeting
April 24, 2025

The Blue/Orange/Silver Study focused on addressing capacity and reliability challenges with rail extension

BOS Study Purpose and Scope

- Blue, Orange, and Silver lines share a tunnel and tracks between Rosslyn and Stadium-Armory stations
  - *Challenges: reliability and capacity*
- Investigated new rail tunnels and extensions to address these challenges



Option with Highest Benefits: Blue Line Loop

- Separated Blue Line with new tunnel
- High benefits to ridership, capacity, and ability to achieve regional goals
- $30-$35B in capital costs and decades of lead time to realize benefits

~$30-35B over ~20 years

Revising strategy to meet BOS corridor needs with a faster and more cost-effective approach

1 Rail Automation

- Improves corridor's capacity, reliability and safety needs
  - *Significantly increases the number of trains per hour Metro could operate*
- Reduces customer travel time
- Makes rail service more cost-effective
- All of which could increase economic activity and growth

2 Cross-Region Bus Priority

- Provides connectivity from Rosslyn to Stadium Armory via Union Station
- Addresses corridor capacity needs and provides more travel options
- Leverages and supports redevelopment plans and priorities
- Multiplies transit connections and transfer opportunities

3 Station Access and Capacity

- Adds entrances, escalators, stairs, and elevators at undersized stations
  - A. *Farragut North & West connection*
  - B. *Foggy Bottom second entrance*
  - C. *Metro Center/Gallery Place connection*
- Ensures customers can move safely in, out, and through stations