RETHINKING THE BUS: FIVE ESSENTIAL STEPS FOR IMPROVING MOBILITY IN THE CAPITAL REGION

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EXECUTIVE SUMMARY

In the **Capital Region of Baltimore, Washington, and Richmond**, more than ten million people rely on the region's transportation system every day. But traffic congestion is increasing, commutes are becoming longer and more frustrating, and many people still struggle to access jobs and opportunity reliably and affordably. To address these issues, multiple elements of the transportation network require attention, from improving the performance of key highways[1] to seamlessly connecting our mobility options.[2] Though long overlooked, **buses are also a key part of the solution to the region's mobility challenges**.

While there have been notable improvements to bus service in recent years, the region can do more to allow buses to reach their full potential as a mobility solution. All transportation stakeholders—from local and state governments to transit agencies to the private sector—have a role to play in rethinking the bus.

Buses have natural advantages over other types of transportation: they come in many sizes, are affordable and accessible to nearly everyone, and can serve all types of areas. Buses can provide long-distance commuter service or short trips around a city, and they run on existing roads without requiring expensive new infrastructure. In short, buses can be a cost-effective, efficient solution for moving people, particularly in heavily-populated areas.

However, many parts of the United States, including the Capital Region, have not fully valued or maximized the power of the bus. Local and state governments, which own the roads on which buses travel, typically require buses to use the same congested lanes and wait at the same red lights as cars, despite their ability to carry many times more people and offer a viable alternative to single occupancy vehicles. Bus service has been limited by competing funding priorities.

FIGURE 1. PERCENT CHANGE IN POPULATION & BUS RIDERSHIP BY METRO AREA, 2010-2017

Legend: ■ POPULATION ■ BUS RIDERSHIP
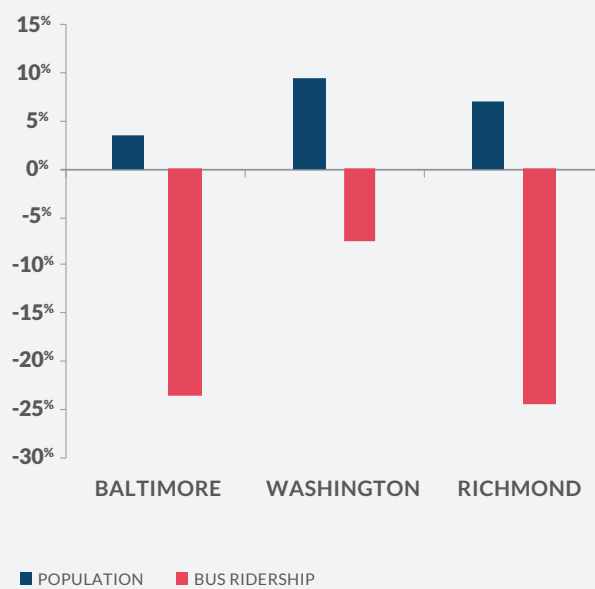
Source: U.S. Census and TransitCenter's NTD Transit Ridership Analysis, 2002-2017.

FIGURE 2. CHANGE IN BUS RIDERSHIP, 2010-2017

METRO AREA	CHANGE
Baltimore	-23.52%
Washington	-7.68%
Richmond	-24.66%
20 largest U.S. bus systems	-11.85%

Note: 20 largest bus systems based on 2017 ridership.
Source: TransitCenter's NTD Transit Ridership Analysis, 2002-2017.

Other modes—bikeshare, rail, ride-sharing—have captured the spotlight, engendering regional conversations about strategies and solutions that rarely include buses.

As a result, buses are often the slowest vehicles on the road, and the ride of last resort for many people. It is no wonder that bus ridership has been declining in the Capital Region, mirroring a national trend. (See Figures 1 and 2.)

Slow buses and declining ridership limit the region's economic potential. Poor service does little to combat traffic congestion, which costs people both time and money. Unreliable public transportation makes it harder for workers to find jobs and for the region's employers to recruit talent. This in turn undermines the region's ability to attract new and expanded businesses. While a significant investment has already been made in buses (the region's bus fleet totals more than 3,800 vehicles[3]), as a whole, the region has not fully leveraged the potential of this important asset to help solve mounting transportation challenges.

It's time for the Capital Region to rethink the bus. **The region needs buses that are fast, reliable, and frequent.** Riding the bus should be easy and convenient and the experience should be comfortable, safe, and modern. Capital Region consumers should be able to count on buses to take them where they need to go, not leave them waiting at the stop. Buses should be treated as a valued part of the transportation system and empowered to effectively serve the needs of consumers in the region.

There are some promising changes already in place, and other efforts are underway. The Greater Richmond Transit Company (GRTC) recently launched the Pulse, the longest bus rapid transit (BRT) line in the Capital Region and the Richmond metro area's first BRT service, as well as a complete redesign of routes within the city. The Maryland Transit Administration (MTA) implemented a major redesign of Baltimore's bus routes to increase frequency on major corridors and improve reliability. Residents and visitors in Washington are enjoying faster service on the region's

limited-stop MetroExtra and Metroway bus routes, and the Washington Metropolitan Area Transit Authority (WMATA) is moving forward on implementation of its Priority Corridor Network and also launching study, with regional stakeholders, to better define the role of bus in the region.

Still, there is more that can be done, as other regions have shown. Seattle has used a combination of dedicated bus lanes, priority movement for buses at key intersections, higher frequency on its most popular routes, and faster fare payment to make its buses faster, more reliable, more accessible, and easier to use. Seattle's bus ridership has continued to grow—up 16 percent since 2010[4]—while most other bus systems are shedding riders.

Houston recently completed a comprehensive set of route changes to provide high-frequency bus service to thousands more residents, with limited impact on its annual budget. Since the change took effect, Houston's bus ridership has been steady while other Texas cities have lost riders.[5]

Over a decade ago, Seoul's leaders responded to increasing traffic congestion and declining bus ridership with a series of reforms, including route redesigns, fare payment changes, and bus priority treatments. Bus speeds during peak periods increased 30 percent following the reforms, and ridership increased by more than 10 percent.[6] Seoul's bus system is now recognized as one of the fastest, most convenient, and most reliable in the world.[7]

The Capital Region's bus systems are already working hard, providing more than 900,000 trips each weekday.[8] But **the region has been slow to adopt best practices for bus service across the entire system**. The entire Capital Region has just 12.5 miles of dedicated bus lanes. There are just over 300 intersections enabled with transit signal priority (TSP) out of the thousands of intersections used by buses in the region. Richmond's new Pulse BRT is the only bus service in the region that allows off-board fare payment to speed boarding.

Creating a high-performing bus network is a shared responsibility. Transit agencies, local and state officials, employers and employees, and the community must work together to fully leverage the region's bus systems and lay the groundwork for future success. That strategy must address five key actions, which can be undertaken immediately and at a far lower cost than most major road or rail projects:

- Optimize routes
- Make space for the bus
- Make boarding faster
- Make buses easy to use
- Measure and report on performance

This brief offers recommendations specific to each metro area, to help them build upon the progress that has already been made while encouraging the region to continue to rethink the bus.

CAPITAL REGION TRANSIT PROVIDERS

While the three regional transit providers—MTA, WMATA, and GRTC—are the focus of this report, at least thirty different agencies provide some form of public transportation in the Capital Region. Some of these are significant bus systems in their own right; Montgomery County and Fairfax County each have bus fleets comparable in size to regions such as Orlando and Buffalo. Many of these transit providers—such as the RTA which serves Howard, Anne Arundel, and other locations in Central Maryland, and FRED, which serves the Fredericksburg area—find themselves with a dual mission: to address mobility needs within their borders while also helping their residents connect with opportunities in the rest of the region. The Partnership encourages all transit providers in the region to adopt the best practices called out in this brief.

METRO AREA	PRIORITY ACTIONS	LEAD ACTOR
NEXT MOVES TO RETHINK THE CAPITAL REGION'S BUSES		
BALTIMORE	Improve bus speed and reliability with dedicated lanes and signal priority on high ridership, congested corridors	Baltimore City and county DOTs and MTA
	Transform North Avenue with continuous bus lanes and bike and pedestrian infrastructure	Baltimore City DOT and MTA
	Connect more people and jobs by adding frequency and service hours to key routes, including routes serving low-income areas with high non-vehicle ownership rates	MTA, Baltimore Mayor, and County Executives
	Deliver a bold transit vision through the Central Maryland Regional Transit Plan Commission	Appointing entities, MTA, BMC
	Pilot innovative transit services to fill mobility gaps in suburban areas	MTA, local transit providers, employers
	Increase transparency and public reporting of bus performance	MTA
WASHINGTON	Make buses more reliable and efficient through a coordinated regionwide effort to optimize bus service	WMATA, including its Board and its bus drivers; local transit providers and their bus drivers; local governments
	Develop a regionwide strategy for implementing dedicated lanes, signal priority, and other bus priority treatments to improve reliability and speed of buses on congested corridors	District, state, county, and city DOTs
	Complete ready-to-go bus improvement projects such as 16th St., Downtown West and US-29	District, state, county, and city DOTs
	Establish mobile fare payments to speed boarding and coordinate with other services	WMATA and local transit providers
	Amend formula for allocating Metrobus costs to include incentives for prioritizing buses	WMATA
RICHMOND	Further expand bus service in Henrico and Chesterfield counties building on the expanded service that launched in September 2018 on three major Henrico routes	Henrico and Chesterfield Boards of Supervisors
	Expand service and stop locations along Jefferson Davis Highway to Chester and U.S. 1 to Ashland to lay the groundwork for the next BRT line	City and county elected officials, GRTC
	Consolidate Richmond transportation staff into a single City department	City of Richmond Chief Administrative Officer
	Implement and regularly update the Richmond Connects Strategic Multimodal Transportation Plan	City of Richmond Mayor and CAO
	Monitor and report on bus on-time performance by route	GRTC

INTRODUCTION

With population growing, traffic congestion increasing, and job access challenges continuing for many residents and employers, the Capital Region needs to rethink its buses. While some major advances have already been made—such as Richmond's and Baltimore's recent redesigns and Washington's growing Priority Corridor Network—the region as a whole lacks a forward-thinking strategy to make buses a truly competitive transportation option. With a new commitment to rethink the bus, the region could become a national transportation leader with buses that are fast, frequent, reliable, and easy to use.

Rethinking the bus does not require years of planning; it can start today. Better bus service will attract more riders and improve travel for those already riding. More fare revenue coupled with more efficient service will give taxpayers more value for their public transportation spending.

According to the National Capital Region Transportation Planning Board, on average 50–60 percent of a bus' running time is spent in motion, 20 percent is at bus stops, and 20–30 percent is at traffic signals or in congestion-related delay.[9] There is no simple fix to address all of these aspects of bus service. Creating a system that prioritizes bus movement can effectively serve the region's mobility needs, but it will require a new approach for planning and delivering service, and an overhaul of the way buses interact with other mobility options in the region, including existing roadways.

IMAGINE IF...
...you could beat traffic by taking a fast, modern bus.

FIVE ACTIONS TO RETHINK THE BUS

Bus service is not an end in itself, but rather a means toward making the Capital Region one of the world's best places to live, work and build a business. To that end, the Region's bus systems (along with all other components of the region's transportation network) should be designed to deliver (and should report progress toward) four key mobility priorities: connecting the super-region, improving the consumer experience, ensuring equitable access, and integrating innovation.[10]

A new regional commitment to the following five actions will enable our bus systems to improve the transportation system's performance and advance those goals[11]:

- Optimize routes
- Make space for the bus
- Make boarding faster
- Make buses easy to use
- Show how buses are performing

The Capital Region has already begun to take on these actions and has achieved some notable successes. This momentum must continue until buses throughout the region achieve the values we expect and perform at a high level. While not every action or tool will be applicable in all circumstances, all bus systems in the region could benefit from adopting more of these tools to optimize their service.

1 Optimize routes to improve service and better match demand

In the Capital Region, as in many parts of the country, one can still find bus routes that are not well-matched with riders' needs. Some stop short of major employment centers. Others, designed to serve 9-to-5 commuters, are ineffective for those who work less traditional schedules. Land use policies that encourage development in far-flung suburbs have forced transit agencies to stretch some routes past the point of being cost-effective. Years of one-off tweaks and adjustments have led to routes that serve stops off the main road, slowing travel for everyone aboard.

While transit agencies regularly tweak bus routes, several regions (including both Baltimore and Richmond) have taken a more comprehensive approach: a complete overhaul of their bus networks. This process starts with a simple premise: ask the community what they value in bus service, and develop routes and schedules that serve these goals. In some cases, existing routes may already effectively serve those needs, while in others, new or modified routes must be created. There will always be trade-offs involved: buses that arrive frequently mean people spend less time waiting, but they cost more to operate. Providing service to the neighborhood on the outskirts of town increases access for those residents, but could mean less service in denser areas where more people would ride. The following tools are some of the ways that routes can be optimized to help communities serve more riders within existing resources.

IMAGINE IF...

...no matter when you got to the bus stop, a bus would never be more than a few minutes away.

⚙ TOOLS

CONNECT MAJOR DESTINATIONS

Analyze where people need to go and when, and design bus routes to serve those destinations at those times.

Major activity centers are no longer limited to the central core, but bus networks have not always kept up. Suburban college campuses or employment centers might have the potential to generate just as many public transportation trips as their downtown counterparts, but often receive less service in systems that were designed for suburb-to-downtown commuting. Connecting these locations to the public transportation network increases access to jobs and educational opportunities for residents throughout the region; moreover, when the buses connect the places people want to go at the times they need to access them, ridership will increase.

REDESIGN INDIRECT ROUTES

Straighten out routes that divert or branch.

Over the years, many bus routes become less direct as the result of political or community pressure to add stops off the main corridor. The amount of time lost through these diversions can be significant and costly to the region. Some routes branch into different sub-routes, providing direct service to more stops but at lower frequency (and with greater confusion for riders). While not every route that branches or diverts must be changed and the impact to riders, particularly older riders and those with disabilities, should be considered, straightening out or consolidating routes where it makes sense can improve speed and reliability, and may also allow for more frequent service on the resulting route. While the result may be routes that are farther from people's homes or jobs, the overall trip may be shorter once the faster speed or higher frequency is factored in.

MATCH FREQUENCIES WITH RIDERSHIP DEMAND

Create a network of high-frequency routes serving corridors with the greatest potential for public transportation use.

High-frequency routes have multiple advantages. They can alleviate overcrowding on high-demand corridors. Since they come often, consumers don't need to consult a schedule; they know that if they show up at the stop, a bus will soon arrive. Waiting time, which can be one of the most frustrating parts of the public transportation trip, is reduced. Such routes can improve travel times for existing riders (since they will spend less time waiting for the bus) and attract new riders as well.

BREAK UP LONG ROUTES

Improve performance by converting long routes into shorter ones.

When a single route runs from one side of a region to another, it almost invariably is delayed due to the many issues it encounters along the way. Transit agencies have found that when long routes are broken up into shorter ones, buses on the resulting routes are able to follow their schedules more closely. Since time spent waiting for a delayed bus is among the biggest deterrents for riders, keeping buses on schedule helps to retain and attract riders.

OPTIMIZE THE DISTANCE BETWEEN BUS STOPS

Speed service by locating stops at an appropriate distance from each other.

Frequent stops require buses to pull in and out of traffic more often, adding time to bus trips. In a survey of transit agencies, consolidating stops was found to be the most effective strategy they had employed for increasing bus speeds.[12] Stop consolidation programs generally consider not just bus speeds, but also topography, land use, and other characteristics such as concentration of elderly riders that may dictate stop placement. Though opposition to eliminating stops can be expected in some areas (particularly if it impacts older riders or people with disabilities), the benefit of a faster, more reliable trip may make the trade-off of a slightly longer journey to a bus stop worthwhile for many riders.

UTILIZE NON-TRADITIONAL BUSES AND ROUTES

Provide on-demand, deviated fixed-route, or other nontraditional service in areas that would not generate enough riders to warrant regular fixed-route service.

In some parts of every region, development is too sparse to make regular fixed-route service cost-effective. Yet people in these areas also need access to jobs, healthcare, and other services. Transit agencies can supplement their fixed-route service with "microtransit," which refers to a variety of mobility options that utilize smaller vehicles on routes that are customizable to meet demand. Models already exist in transit agencies' paratransit operations and other specialized transportation services. These services can help fill gaps, whether they are provided by the transit agency directly or through a contract with a private mobility provider (in which case, customer service, labor, and maintenance standards should be developed to ensure high quality service). However, they can also be costly on a per-passenger basis and should be undertaken only to meet priority needs that cannot be addressed with more cost-effective fixed-route service.

CAPITAL REGION SNAPSHOT

How well are buses connecting people with destinations in the Capital Region?

Only a small percentage of jobs in the Capital Region are accessible to the average resident within 45 minutes by all transit options (i.e., bus, light rail, streetcar, subway, etc.). A majority of low-income households in the Capital Region live within a quarter-mile of a bus stop offering weekday and weekend service, a higher percentage than that of households of all incomes. However, access to Richmond's bus service is noticeably lower for both low-income households and the entire population than access in the Baltimore and Washington metro areas. For those who work weekends, bus service remains much harder to access than during the week.

ACCESS TO JOBS VIA PUBLIC TRANSPORTATION

METRO AREA	AVERAGE NUMBER OF JOBS ACCESSIBLE BY TRANSIT WITHIN 45 MINUTES	% OF TOTAL JOBS
Capital Region	**112,401**	**2.4%**
Baltimore	68,000	5.6%
Washington	153,200	5.3%
Richmond	20,982	3.4%

Note: MWCOG conducted an accessibility analysis for the Washington Metro Urbanized Area, a smaller geographic footprint than this study, which found transit providing 397,000 jobs within 45 minutes on average.
Source: Citilabs Data and LEHD Origin-Destination Employment Statistics.

HOUSEHOLDS NEAR WEEKDAY BUS SERVICE (AM PEAK)

METRO AREA	% OF HOUSEHOLDS WITHIN ¼ MILE OF A BUS STOP	% OF LOW-INCOME HOUSEHOLDS WITHIN ¼ MILE OF A BUS STOP
Capital Region	**59%**	**75%**
Baltimore	67%	85%
Washington	82%	91%
Richmond	28%	53%

Note: Low-income household figures are based on ACS 5-year threshold levels that compare income and number of people or families.
Source: Citilabs Data and LEHD Origin-Destination Employment Statistics.

HOUSEHOLDS NEAR WEEKEND BUS SERVICE (SUNDAY AM)

METRO AREA	% OF HOUSEHOLDS WITHIN ¼ MILE OF A BUS STOP	% OF LOW-INCOME HOUSEHOLDS WITHIN ¼ MILE OF A BUS STOP
Capital Region	**42%**	**61%**
Baltimore	52%	76%
Washington	56%	72%
Richmond	16%	35%

Note: Low-income household figures are based on ACS 5-year threshold levels that compare income and number of people or families.
Source: Citilabs Data and LEHD Origin-Destination Employment Statistics.

Like many U.S. cities, Columbus, Ohio has seen thousands of jobs move to the suburbs over the last 40 years, yet its buses still traveled a hub-and-spoke pattern designed to bring workers downtown. Leaders at COTA, the region's transit agency, realized that a change was needed. After four years of study and public engagement, COTA launched a completely redesigned bus network in May 2017. The new routes focused on areas of high demand, and many high-frequency routes did not venture into downtown at all, instead serving suburban shopping centers, a casino, the airport, and other job centers throughout the region. COTA also added additional weekend service, which is important to bring workers to weekend jobs. Though meeting demand in the region's suburban areas is still a challenge, following the redesign, the number of people living within a quarter mile of a frequent bus line increased by 89 percent, and the number of jobs within a quarter mile of a frequent bus line increased by 71 percent.[13] By creating more efficient routes, the agency was able to increase frequencies without requiring an increase in its operating budget.

BEFORE **AFTER**

Credit: Jarrett Walker + Associates.

Columbus' high-frequency bus routes before and after the redesign.

2 Make space for the bus on the region's roads

Buses use the same roads as many other vehicles: cars, trucks, bicycles, and motorcycles. In some places, there is enough space on the roads to easily accommodate everyone. In others, road space is in high demand, leading to traffic congestion and slower travel. For buses, these capacity constraints not only reduce speed, but also reduce reliability and increase operating costs.

Improving bus service in these conditions requires local and state governments to make sure buses have the space they need to move quickly on the region's roads. There are a number of ways to give priority to buses in order to move the greatest number of people as quickly as possible through an area with limited capacity. By increasing the speed of bus travel, total trip times are reduced. Research has shown that when travel times decline by 10 percent, bus ridership tends to increase 4-6 percent.[14] The tools to help buses move faster on shared roads are generally low-cost and flexible, in that they can be targeted to specific locations and removed if conditions change. Jurisdictions that implement these changes must be committed to enforcing them if they are to have the desired effect.

IMAGINE IF...

... the first words that came to mind when you thought about your city's buses were "convenient" and "reliable."

⚙ TOOLS

DEDICATE LANES TO BUSES

Use all day or peak period bus-only lanes to reduce travel time for bus riders in congested areas.

When buses have a dedicated lane, they can bypass areas of significant traffic congestion, improving both speed and ability to stay on schedule. Bus lanes can run the length of a corridor or just a few blocks; their location should be dictated by balancing the benefits for the bus with the needs of the drivers in adjacent lanes. Often, bus lanes can be accommodated without reducing capacity for other drivers by rededicating parking lanes to buses. To be effective, bus-only lanes must be enforced or cars and trucks (parked or moving) will reduce the benefits for bus riders.[15]

OPTIMIZE TRAFFIC SIGNALS

Give buses priority at traffic lights.

With modern vehicle location technology, a bus can send a signal as it approaches an intersection to tell the traffic light to stay green long enough for the bus to get through or provide a special signal to the bus to start its journey through the intersection before other vehicles, a feature known as transit signal priority ("TSP"). By avoiding the wait at red lights, buses can serve their routes more quickly, with little impact to drivers.

INSTALL BUS BULBS AND BOARDING ISLANDS

Allow the bus to pick up and drop off riders without having to pull out of travel lanes.

Where stops require buses to pull out of travel lanes, re-entering those lanes can be one of the most time-consuming and potentially unsafe parts of the trip. One solution is to build sidewalk extensions (bulbs) or islands that allow waiting passengers to reach buses without requiring the bus to leave the travel lane, thereby speeding up the bus trip.

Bus boarding island, Seattle
Credit: Adam Coppola Photography

Credit: Dan Malouff/CC BY-NC 2.0

USE QUEUE-JUMPS

Allow buses to bypass traffic at intersections.

At busy intersections, buses are often caught in long lines of traffic as cars wait to turn left or right. Providing buses with a separate lane at such intersections (known as a "queue-jump") sends them to the front of the line, making it easier for them to stay on schedule. Queue jumps are often used in conjunction with TSP.

ALLOW BUS-ON-SHOULDER

Let buses use the shoulder lane when conditions warrant.

Shoulder lanes that are wide enough and strong enough to carry buses can give buses an alternative to creeping along in heavy traffic. This can be particularly useful on major highways or arterials, which tend to have larger shoulders than urban streets.

CAPITAL REGION SNAPSHOT

## How fast do buses travel in the Capital Region?

In the Washington and Richmond areas, bus speeds have fallen since 2010, while in Baltimore, speeds have remained fairly flat. As buses take longer to finish their routes, more buses must be added to maintain the same frequency of service, costing transit agencies and the public more.

2016 AVERAGE BUS SPEED (MPH)	
GRTC	10.89
WMATA	10.15
MTA	11.33
20 largest U.S. bus systems	10.24
19 largest U.S. bus systems after NY MTA	10.98

Source: National Transit Database, vehicle revenue miles divided by vehicle revenue hours (excludes commuter buses).

Note: This data predates BaltimoreLink and Richmond's redesign. New York MTA's bus system provides more trips than the next three systems (Los Angeles, Chicago, and Philadelphia) combined, and its average bus speed is the slowest of the large agencies at 7.08 mph. However, certain MTA routes have been prioritized for faster service: the Select Bus Service (SBS) routes, which feature limited stops, bus-only lanes, and off-board fare collection, have seen travel time improvements up to 23% and ridership increases between 10%-31%. Source: Transit Center

PERCENT CHANGE IN AVERAGE BUS SPEED, 2010-2016
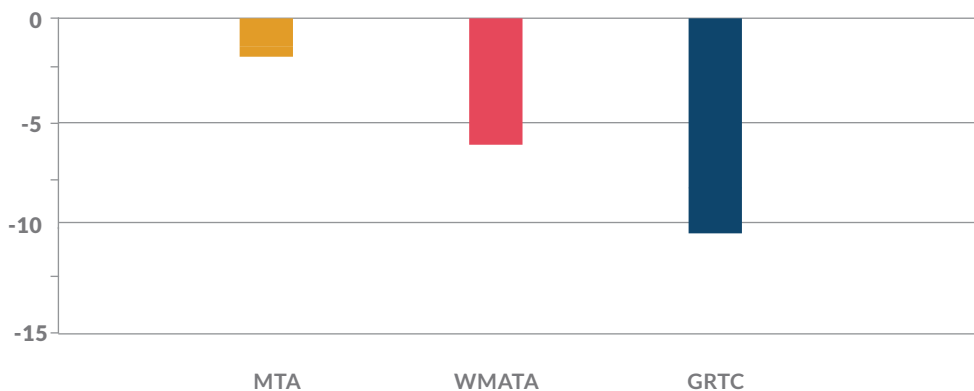
Note: This data predates BaltimoreLink and Richmond's redesign. Source: National Transit Database, vehicle revenue miles divided by vehicle revenue hours (excludes commuter buses).

CAPITAL REGION SNAPSHOTS

How often do Capital Region buses show up on time?

Most transit agencies in the United States (including GRTC) consider a bus on time if arrives between 1 minute early and 5 minutes late, but both WMATA and MTA use a wider window: arrivals between 2 minutes early and 7 minutes late are considered "on time."[16]

	ON-TIME PERFORMANCE GOAL	CURRENT PERFORMANCE
MTA	80% on time	66.4% on time (high frequency routes are 76% on time; local routes are 66% on time)
WMATA	79% on time	79% on time (July 2017-March 2018)
GRTC	80% on time	Not yet available for newly redesigned system (average over past 3 years was 75% on time)

Source: Maryland Department of Transportation, WMATA, GRTC email messages to author.

How often are buses given priority treatment on Capital Region roads?

All the Capital Region's metro areas have some roadways on which buses get priority treatment (e.g. dedicated lanes or TSP). However, these locations represent a small fraction of the total road network.

METRO AREA	DEDICATED BUS LANES	INTERSECTIONS WITH TSP
Baltimore	5.9 miles, all on one-way streets in downtown (North Avenue Rising project would add 7 additional lane miles, 3.5 miles in each direction)	26 (along CityLink Red and Green lines) (North Avenue Rising project would add 28 more)
Washington	3.2 miles (1.6 miles in each direction)	227 (195 in D.C. and 32 in northern Virginia)
Richmond	3.4 miles (for the Pulse BRT)	55 are planned for the Pulse BRT

Source: MTA, WMATA, GRTC email messages to author.

King County Metro buses serve the Seattle region

NATIONAL SNAPSHOT

The city of Seattle and King County Metro have together created an environment in which buses can thrive. Part of the city's success stems from its conscious decision to prioritize buses on congested city streets. Bus-only lanes—and in some places, bus-only roads—allow many more people to travel through high-demand, congested areas than could be accommodated in cars. In other areas, queue jumps allow buses to move to the head of the line at intersections, and bus bulbs and boarding islands allow buses to reach riders without having to pull out of traffic. The ORCA farecard allows consumers to board quickly, not just on King County buses, but on other local buses and trains as well. The region's land use laws have focused employment growth into concentrated areas, making them more cost-effective to serve with public transportation. Seattle voters approved a package of new taxes to help support public transportation, allowing the transit agency to increase service and frequencies on a number of routes. As a result of those changes, the percent of households in the city within a 10-minute walk of a bus route that comes at least every 10 minutes grew from 25 percent in 2015 to 64 percent in 2017.[17] It is not surprising, given the commitment to buses shown by both high-level officials and the general public, that Seattle—in a minority of U.S. regions—is seeing bus ridership grow.

3 Make boarding faster

Those who regularly ride the bus would not be surprised to learn that from one-fifth to one-third of buses' travel time is spent waiting for people to board and pay.[18] On most bus routes, people must line up at the front door, walk up several steps, and then either show a pass to the driver, tap a card on a reader, or feed dollars and change into a farebox. A person paying with cash will take about three times as long to pay as someone paying with a mobile phone[19], so the more cash consumers a bus has, the more time will be spent on boarding. Transit agencies are beginning to address this issue with both physical and technological changes to the boarding process.

TOOLS

USE OFF-BOARD OR TAP-AND-GO FARE PAYMENT

Encourage riders to use options other than paying cash at the farebox.

Using cash on board the bus is the slowest and most costly way to pay a fare.[20] Other options include having people pay fares before they get on the bus, for example at ticketing machines at major stops or local stores, or issuing fare media such as smartcards or mobile payment that require the consumer to simply tap a reader. To be effective in reducing boarding times, these options must be easy to use, easy to acquire, and available to all, even those who do not have a credit card or smartphone. Transit agencies allowing off-board fare payment generally enforce compliance with random fare inspections.

ALLOW ALL-DOOR BOARDING

Use all available doors to allow more passengers to board at the same time.

Most buses have doors at the front and in the middle, but the middle doors are used only by exiting passengers because the only farebox is located at the front. If off-board or tap-and-go payments are allowed, a reader can be installed at the middle doors, allowing more passengers to board the bus in a shorter time, increasing bus speeds by up to ten percent.[21]

CAPITAL REGION SNAPSHOTS

Do bus systems in the Capital Region allow riders to pay for trips by phone?

Currently, about 80 percent of riders on MTA buses, 12 percent of riders on WMATA buses, and 25 percent of riders on GRTC buses use cash payment. Public transportation providers in the Capital Region have been slow to adopt mobile payment technology compared to peer agencies, and are now working to catch up. MTA, WMATA, and GRTC have separate plans in place to adopt mobile payments within the next 12 months.

REGIONAL TRANSIT AGENCY	STATUS OF MOBILE PAYMENTS
MTA	Expected to launch in 2018
WMATA	"Mobile ready" by 2019, mobile payment providers will set their own schedules for launching the service
GRTC	Already available for unlimited ride passes. Additional passes will be added by the end of 2018. (Also working to add RVABikeShare to its fare payment cards.)

Sources: Greater Washington Partnership report.

Do bus systems in the Capital Region allow all-door boarding?

All-door boarding is limited in the Capital Region. MTA and WMATA do not offer all-door boarding or off-board fare payment on any of their buses. GRTC's new Pulse BRT line offers both all-door boarding and off-board fare payment options. However, these features are not provided on any of its other routes.

INTERNATIONAL SNAPSHOT

Since 2014, buses in London no longer accept cash, saving the transit agency nearly £26 million annually. The Oyster smart card had been available since 2003 and had penetrated so deeply among riders that by 2012 only 1 percent were still using cash. In 2012, London's buses were equipped to accept credit and debit cards as well as the Oyster card. Riders can buy and re-load Oyster cards online or at 4,000 vendors around the city.[22]

4 Make buses easy to use

The harder it is for consumers to get information about a particular transportation option, the less likely it is that they will choose that option. Buses are susceptible to a host of challenges in this area, including, among other things, hard-to-read maps and confusing fare policies. Buses also face physical issues that can make them difficult to use, such as bus stops that are hard to get to due to lack of sidewalks or crosswalks. Addressing these issues, particularly when coupled with service improvements to increase speed and reliability, can improve the experience of existing riders and attract new ones.

⚙ TOOLS

PROVIDE REAL-TIME INFORMATION

Let people know when their bus will actually arrive.

Real-time bus location technology lets transit agencies know where their buses are at all times. Coupled with other traffic information, this technology can be used to project when a bus will reach a particular stop. Sharing this information with riders can significantly reduce the frustration associated with waiting for the bus. A 2011 study found just having this information reduces the perceived wait times for the bus—the amount of time people think they are waiting—by as much as two minutes (30 percent).[23]

SIMPLIFY SCHEDULES

Use clockface schedules to make it easier for people to remember when the bus is coming.

Buses that come at irregular intervals make it nearly impossible for anyone but a daily rider to remember their schedule. Having to look up complicated timetables to figure out when to get to the bus stop is an inconvenience that can drive consumers to other options. Creating high-frequency routes can help address this, as consumers know that whenever they arrive at the stop, the bus will come within a few minutes. For lower frequency routes, transit agencies can establish "clockface schedules," i.e. buses that arrive every 20, 30, or 60 minutes. In that way, consumers know that a bus will come, say, at :27 minutes and :57 minutes past each hour, making it easier for them to access the bus system without having to check a timetable for each trip.

IMPROVE WAYFINDING

Use intuitive route names, clear maps, and informative signage.

Many transit agencies rework wayfinding approaches to be more useful and clearer when routes and schedules are being changed. Do bus stop signs clearly indicate where buses serving that stop are headed? Do route names make it easy to tell where the bus is going? Do bus shelters have real-time arrival information and clear maps of the route? These are some of the elements that can improve consumers' perception of buses as a convenient mobility option.

MTA improved bus stop signs as part of BaltimoreLink to provide more useful information for riders

Credit: MTA.

ESTABLISH BUS-FRIENDLY FARE POLICIES

Adopt fares and transfer policies that incentivize consumers to use buses regularly.

Bus fares are typically among the most affordable when it comes to paying for transportation. Still, it is worth considering whether fare policies overall encourage people to use buses on a regular basis. Consider whether the cost of weekly or monthly passes provides savings to bus riders, and whether bus riders can get free or low-cost transfers to other bus or rail services.

CONNECT BUSES WITH AN INTEGRATED MOBILITY PLATFORM

Integrate payments, trip-planning, and location of mobility options.

Versatile as they are, buses cannot be door-to-door for every trip. Consumers typically use multiple options—including walking, bicycling, or transfers between buses—to make their trips. Making these connections as easy as possible reduces barriers to taking the bus. An integrated mobility platform that provides one-stop trip planning covering all available options, coupled with the ability to pay for a trip with the same fare media regardless of service provider, would allow buses to compete on more even footing with private app-based mobility options. Transit agencies in peer regions around the world that have deployed integrated ticketing systems have seen ridership increases from five to 20 percent.[24]

IMPROVE PHYSICAL ACCESS TO BUS STOPS

Make sure riders can safely and conveniently reach the bus.

Frequent buses and real-time information will mean little if consumers find it too difficult to reach the place where the bus stops. In some areas bus stops might be located in the strip of grass between a service road and the main arterial, or at the edge of a parking lot, or in a host of other inhospitable spots. Safe pathways may not be available for consumers to make their way from the stop to their destination. A physical assessment of bus stops should be part of any effort to improve bus service, with the recognition that many of the attributes that make a bus stop safe, such as sidewalks and crosswalks, are under the jurisdiction of local governments rather than the transit agency.

PROVIDE A SAFE AND COMFORTABLE TRIP

Use physical and service improvements to ensure riders and drivers feel safe using the bus

Overall, buses are one of the safest ways to travel. The risk of serious crime on transit is small; in 2010, there were fewer than 5,000 serious crimes[25] on transit across the country, in a year when more than 10 billion transit trips were taken.[26] However, arguments, harassment, property theft, and other incidents can disrupt and delay the bus and undermine safety—particularly when the incident involves an assault on the driver—and contribute to the perception that public transportation is unsafe. Physical improvements, such as protective shields between the driver and riders, internal and external cameras, systems permitting drivers to alert law enforcement, and lighting at bus stops, can increase safety, and can be added to existing vehicles or stops, or incorporated into designs for new buses. Service changes can also help, like increasing frequency to reduce over-crowding or allowing drivers to drop off riders at any safe location along their routes after dark, rather than only at designated stops.

BALTIMORE

WASHINGTON

RICHMOND
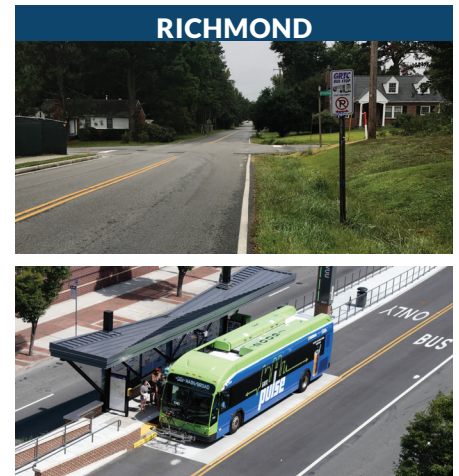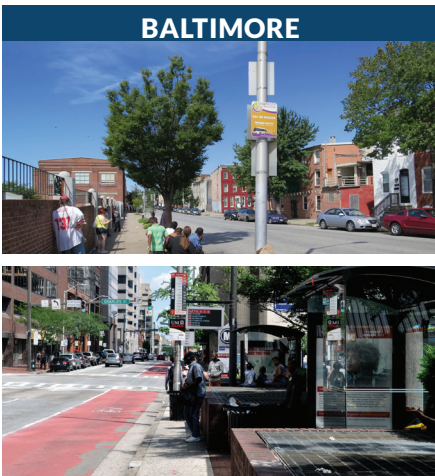
Customer amenities and accessibility vary among Capital Region bus stops.

Credits (clockwise from top left): Paul Sableman/CC BY-NC 2.0; Flickr/nevermindtheend; Ross Catrow; Dan Malouff/CC BY-NC 2.0; Dan Malouff/CC BY-NC 2.0; Dan Malouff/CC BY-NC 2.0.

CAPITAL REGION SNAPSHOTS

Do Capital Region bus systems make real-time arrival information available?

All of the principal public transportation providers in the Capital Region make real-time bus arrival information available online, through text, and through mobile apps. WMATA was the first to offer real-time bus tracking in 2009, followed by GRTC in 2013 and MTA in 2015. Riders can also sign up for automatic status updates via email or text. WMATA has placed real-time arrival signs at more than 170 bus stops.

Which bus systems in the Capital Region offer free transfers to other bus or rail systems?

The transfer policies of Capital Region transit agencies vary considerably, although they are all designed to encourage riders to use faster payment methods than cash, such as passes and smartcards.

REGIONAL TRANSIT AGENCY	TRANSFER POLICIES
MTA	No free or discounted transfers
WMATA	Regular bus-to-bus transfers are free with a SmartTrip card; regular bus-to-Express bus transfers with a SmartTrip card pay the full fare minus $2 (the fare for regular bus); bus-to-rail and rail-to-bus transfers with a SmartTrip card pay full fare minus $.50. (The majority of large rail systems in the United States provide a free rail-to-bus transfer)
GRTC	One Ride Plus Pass allows one transfer and costs $1.75 ($0.25 more than a single-ride bus pass)

Sources: MTA, WMATA, and GRTC.

NATIONAL SNAPSHOT

In Pittsburgh, the public transportation system's ConnectCard is linked with the HealthyRide bikeshare system to offer consumers unlimited 15-minute bike rides. This partnership grew bikeshare usage in Pittsburgh by 10 percent.[27]

5 Measure and report on bus performance

Publicly reporting performance data serves two goals. When performance is strong, data can help to counter misperceptions about the bus system. When performance is lacking, data can help to identify particular issues or bottlenecks, the first step in correcting them. Performance reporting should focus on how well the region's bus systems are contributing to the four mobility priorities: connecting the super-region (e.g., percent of jobs accessible by transit within 45 minutes), improving the customer experience (e.g., how often buses and trains arrive on-time), ensuring equitable access (e.g., percent of jobs and services accessible to low-income residents by transit within 45 minutes), and integrating innovation (e.g., percent of riders paying with mobile phones).

TOOLS

PUBLISH REGULAR PERFORMANCE REPORTS

Help consumers understand how buses are performing on the issues they care about

Performance reporting should be clear and reflect the consumer experience. In other words, rather than reporting on overall system averages, agencies should report on individual routes, so consumers can find information on the routes they actually use. Metrics such as on-time performance and person throughput (how many people buses are moving on particular corridors) can be helpful for both consumers and traffic engineers. A new metric being piloted in some cities focuses on the minutes of delay experienced by riders—a useful indicator for consumers of the reliability of their bus or train.[28]

INSTITUTE AN OPEN-DATA POLICY

Allow third parties to access real-time and historic operations data to help meet consumer needs

Making public transportation data open and accessible enables third-party developers to create tools that help consumers make informed decisions about their mobility options. Allowing such tools to proliferate makes it more likely that consumers will find an app or a web-based tool that suits their particular needs, and avoids the transit agency having to dedicate staff to develop and update apps. The more real-time information consumers can get about actual service conditions, the easier it becomes for them to use all mobility options, and to choose the one that best meets their needs for that particular trip.

CAPITAL REGION SNAPSHOT

Which Capital Region public transportation providers report on reliability by route?

None of the regional public transportation providers in the Capital Region regularly report on-time performance by bus route.

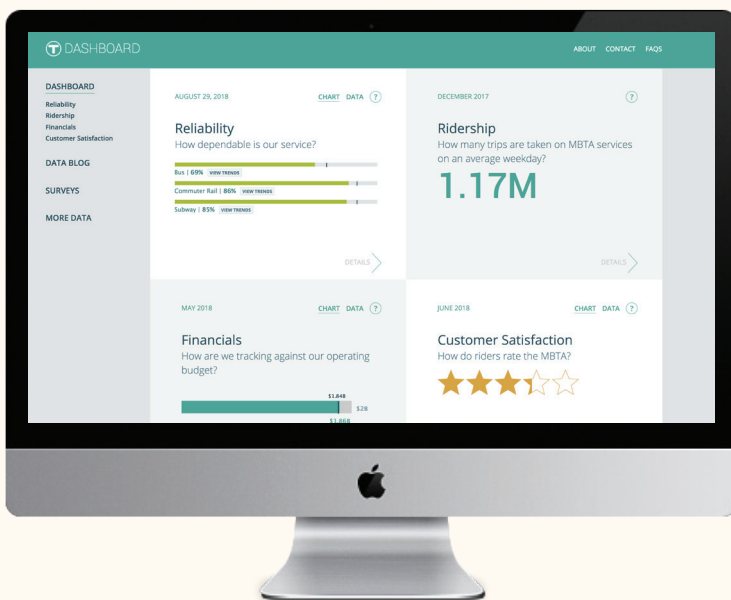| REGIONAL TRANSIT AGENCY	ON TIME PERFORMANCE REPORTING
MTA	Reported monthly for CityLink routes as a group and for ExpressLink and LocalLink buses as a group
WMATA	Reported quarterly for all Metrobuses as a group
GRTC	Not regularly reported

Sources: MTA, WMATA, and GRTC.

NATIONAL SNAPSHOT

INTERNATIONAL SNAPSHOT

The Massachusetts Bay Transportation Authority's performance dashboard reports bus on-time performance by route, among other data.
Source: MBTA.

Transport for London (TfL), which runs all of London's public transportation as well as traffic signals and major roads, adopted an open data policy nearly ten years ago. Today, over 11,000 data developers have registered to access the free data feeds. TfL's data is used in over 600 apps that help guide more than 42 percent of Londoners in making informed mobility decisions.[29] A recent analysis of TfL's open data policy estimated that it saves the region up to £130 million a year in reduced travel time, increased public transportation ridership, job creation, and other benefits.[30]

WHAT ABOUT FUNDING?

These tools are not a replacement for adequate funding, but when strategically implemented, they can take pressure off transit agencies' operating budgets. When buses are able to complete their routes faster, they can start their next route sooner, allowing the same number of vehicles and drivers to provide more service. Bus service that is faster and more reliable will attract more riders, which will lead to more fare revenue and require less from other funding sources.

Many of these tools require some capital investment, but most are relatively modest and should not require a protracted discussion such as that surrounding major rail or roadway investments. For example, MTA spent about $636,000 per mile installing dedicated bus lanes as part of BaltimoreLink, including planning, design, and construction costs. (This does not include costs to enforce the restricted lane, which has been recognized as a challenge for MTA and the city and limits the benefits received from the dedicated space.) Installing TSP equipment along four corridors and 760 buses cost MTA about $8 million.[31] Producing new bus stop signs and posters for Richmond's redesigned system cost $983,000. The entire redesign process, including all related capital and operating expenses, totaled $5 million.[32]

Still, the benefits achieved through use of these tools can be further enhanced by local and state leaders providing more funding for buses and drivers to handle demand that cannot be accommodated within existing budget constraints. The specifics may differ—one area may need more frequent routes to serve high-demand areas, while another may need extended hours to better serve late-night riders—but in virtually all cases, buses could become a competitive option for even more people if operating funding were increased.

_____

"Bus service that is faster and more reliable will attract more riders, which will lead to more fare revenue and require less funding from other sources."

NEXT MOVES TO RETHINK THE CAPITAL REGION'S BUSES

The Capital Region needs to rethink its bus systems. Although advances have been made in all three metro areas, overall, the region has not fully maximized the potential of its investments and offered service that is desirable for many consumers. Travel preferences are changing. The proliferation of on-call services has reduced tolerance for long waits or waits without information, and parking apps have made it easier than ever to find and pay for a parking space. Fortunately, with a renewed commitment to improving service, buses can be competitive when it comes to modern mobility.

Baltimore, Washington, and Richmond have already begun to implement some of the tools to improve service, yet there is still much work to be done. Now is the moment to leverage those past actions and launch further improvements to create the bus system the region needs for a competitive economic future. The Greater Washington Partnership, Greater Baltimore Committee, Central Maryland Transportation Alliance, Greater Washington Board of Trade, Coalition for Smarter Growth, DC Sustainable Transportation, ChamberRVA, and RVA Rapid Transit are committed to working with the region's leaders to get this done.

It would be a mistake to believe that the responsibility for fixing these problems rests solely with the transit agencies. In those regions that have truly transformed their bus service, it took leadership from elected officials—in city government or on the transit board—to make it happen. While incremental improvements in bus service may be possible without such leadership, our goal must be bolder, and to achieve it, our leaders must be bolder as well.

Next Moves for
BALTIMORE

On June 18, 2017, the Maryland Transit Administration launched BaltimoreLink, a comprehensive redesign of bus routes in the Baltimore area. The redesign included a new high-frequency network with color-coded routes traversing the city, additional service to several emerging job centers, a modest amount of dedicated bus lanes, and implementation of TSP at several key downtown intersections.

A year later, the results of BaltimoreLink are mixed. Reliability of some bus routes has improved, but overall on-time performance is still below MTA's goal of 80 percent. A recent report by the Central Maryland Transportation Alliance found that while the number of Baltimore residents with access to full-day high-frequency bus service went up from 13 percent to about 20 percent, access to some parts of the region was reduced, leaving many suburban job sites inaccessible to city residents.[33]

With light rail, subway, and commuter rail in addition to buses, the Baltimore area urgently needs a deliberate, collaborative effort to provide a forward-looking public transportation plan to improve all modes. The recently enacted Maryland Metro/Transit Funding Act presents the opportunity to do just that. But improvements to Baltimore's bus system need not wait. BaltimoreLink is already in effect, and can serve as the foundation for additional, near-term improvements to better address consumers' mobility needs.

IMAGINE IF…

…you could take a job across town knowing that the bus would get you there on time every day.

NEXT MOVES TO RETHINK BALTIMORE'S BUSES

1. The city of Baltimore and state of Maryland should develop and implement a plan to make space for buses on the roads each entity owns in the Baltimore metro area. BaltimoreLink called for dedicated lanes and TSP to improve travel times through the congested downtown core. Those treatments appear to be working in the locations in which they have been implemented and enforced,[34] but targeted expansion is needed to fully realize the potential of BaltimoreLink's high-frequency routes. City and county transportation departments are largely responsible for implementing changes to roads and traffic signals and further deployment of these cost-effective improvements will speed up and improve bus service. A Memorandum of Understanding should also be executed with relevant police departments to make enforcement expectations and responsibilities clear.

> **Lead actors:** Baltimore City and county Departments of Transportation and MTA
>
> **Key tools:** Dedicate lanes to buses, optimize traffic signals
>
> **Outcome:** Faster, more reliable bus travel

2. The North Avenue Rising project promises to significantly improve the speed and reliability of bus travel along a historically and culturally important corridor within the city of Baltimore. The project received funding from the federal government through the former TIGER grant program (now known as BUILD), and the detailed design is underway. While current plans would provide some improvement, gaps remain in the planned bus lanes that would limit the project's benefits. City and state officials should maximize the potential benefits of this project by developing a strategic plan to deliver dedicated bus lanes and safe biking and walking pathways along the entire corridor.

> **Lead actor:** Baltimore City Department of Transportation and MTA
>
> **Key tools:** Dedicate lanes to buses, optimize traffic signals, improve physical access to bus stops
>
> **Outcome:** Faster, more reliable bus travel

3. The Maryland Transit Administration (MTA) should engage with city and county leaders, the business community, and the public to develop the next phase of bus service improvements (essentially, a BaltimoreLink phase 2), including additional high-frequency routes and extended service to key destinations such as suburban job centers.

> **Lead actors:** MTA, Mayor of Baltimore, County Executives of adjacent counties
>
> **Key tools:** Connect major destinations, match frequencies with ridership demand
>
> **Outcome:** Increased access to jobs and economic opportunity

4. The region should seize the opportunity presented by creation of the Central Maryland Regional Transit Plan Commission by the Maryland Metro/Transit Funding Act to ensure the Commission is properly resourced to address the Baltimore region's public transportation needs. As MTA is a statewide agency, with the potential for a change in direction every four-year election cycle, the Commission should focus its attention on establishing a plan that enhances the reliability and state of good repair for the existing system and prioritizes capital investments to expand and connect the system to improve economic development and access to essential destinations for all consumers in the region. The Commission should remain in existence permanently to maintain continuity across political cycles.

> **Lead actor:** Appointing entities (Anne Arundel County, City of Baltimore, Baltimore County, Harford County, Howard County, President of the Senate, Speaker of the House, and the Governor , MTA, Baltimore Metropolitan Council)

> **Outcome:** Strategic plan for high-performing transit system

5. In addition to providing more fixed-route service where it is warranted, MTA, county public transportation systems, and the region's employers should develop pilot programs that can leverage non-traditional bus options to better connect city residents with suburban job centers. While denser corridors require regular fixed-route service, some areas may be more efficiently served by more flexible on-demand or deviated route service using smaller vehicles. The BWI/Arundel Mills area,

for example, is the focus of a new pilot by MTA to improve access for workers to jobs using shuttles or other microtransit options to complement the fixed-route buses that serve the area. More efforts like these are needed to help workers reach jobs in other suburban job centers, and should be a focus of MTA's new Job Access and Reverse Commute Program (HB1468, enacted in 2018).

> **Lead actors:** MTA, local public transportation providers, employers

> **Key tool:** utilize nontraditional buses and routes

> **Outcome:** increased access to jobs and economic opportunity

6. BaltimoreLink was a major transformation of the Baltimore area's bus routes, yet it has been difficult for the public to assess how well the redesign has achieved its goals. MTA does not regularly report on important metrics such as on-time performance, cut runs, or end-to-end running time. MTA should provide monthly reports clearly describing the metrics used (e.g., the definition of "on time"), and performance of the system and each route at various times of day. MTA should also make its real-time bus data available in an easily accessible portal.

> **Lead actor:** MTA

> **Key tool:** publish regular performance reports

> **Outcome:** higher-performing buses due to improved trouble-shooting

Next Moves for
WASHINGTON

Unlike Richmond and Baltimore, the Washington metro area has never had a comprehensive bus route overhaul. Many bus routes are decades old, following streetcar lines or old commuting patterns; while some of these lines continue to have high ridership, others may need to be adjusted to better serve today's needs. Some routes end where there was space for the bus to wait or turn around half a century ago, leaving newer destinations unserved. Metrobus names are either numbers or letters (or both), depending on whether the route was originally a streetcar route—a piece of information no longer relevant for today's riders.[35] Route names give riders no information about how often the bus will come or where it goes, unlike in Baltimore, where routes named by color indicate that they are part of the high-frequency network.

County- and city-provided bus services have grown tremendously in the past few decades (though they too are now experiencing ridership declines). Since each local provider has been developing its service as it sees fit, decisions about which routes will be covered by WMATA and which will be locally provided vary depending upon the jurisdiction. The region lacks a consistent strategy or guiding policy regarding the interaction of WMATA with local bus services. WMATA is launching a study, alongside reginal stakeholders, that is expected to establish the business case for the regional public transportation system's bus investments and a detailed strategy to guide that investment.

WMATA has also initiated a regionwide strategy to deploy faster service on 24 high-ridership corridors, known as the Priority Corridor Network (PCN). The PCN improves bus service with bus-only lanes and other bus priority treatments, new buses and better passenger amenities, and limited stop service. However, implementation has been time-consuming, due in part to the fact that there is no consistent policy for making space for buses on roads in the Washington metro area. With many counties and cities as well as two states and the District of Columbia playing a role in roadway management, WMATA and county transit agencies are faced with a hodge-podge of different policies regarding TSP, dedicated bus lanes, and other critical roadway treatments that could help their buses move faster.

NEXT MOVES TO RETHINK WASHINGTON'S BUSES

1. The region's recently launched bus study should include a process to work with local jurisdictions and state DOTs to develop a new effective regional bus network. Optimizing routes—whether provided by WMATA or local agencies—could improve service and efficiency, attracting more riders without additional strain on operating budgets. Coordination is critical: local services are currently designed to complement WMATA routes. If WMATA's bus routes are changed, many local routes will have to change as well. The process should begin with a period of public engagement to elicit input on goals and tradeoffs and interviews with bus drivers to identify issues they face on their routes and possible solutions, followed by analysis to identify the specific routes and services that should be redesigned to more efficiently meet the community's goals, with the expectation that the total amount of bus service should not be reduced.

> **Lead actors:** WMATA, its Board, and its bus drivers; local public transportation providers, including bus drivers; and local governments
>
> **Key tools:** Connect major destinations, match frequencies with ridership demand, redesign indirect routes, break up long routes, simplify schedules, improve wayfinding
>
> **Outcome:** More frequent and reliable buses to major job and activity centers

2. A regional template should be developed for bus priority treatments to help make space for buses on the region's roads. The Washington area's

roads have many different owners, each with its own policies regarding TSP, bus-on-shoulder, dedicated bus lanes, and other bus priority treatments. A regionwide strategy would create a clear understanding of when such treatments are warranted (for example, through adoption of an MOU on goals or standards for bus service) and the process for implementing them.

> **Lead actors:** District, state, city, and county departments of transportation
>
> **Key tools:** dedicate lanes to buses, install bus bulbs and boarding islands, optimize traffic signals, use queue jumps, allow bus-on-shoulder
>
> **Outcome:** faster, more reliable buses

3. The region should quickly complete ready-to-go bus improvement projects, such as the 16th Street and Downtown West bus priority projects in the District and Montgomery County's first Bus Rapid Transit project on the US 29 corridor. These projects can serve as demonstrations to the region of the benefits of rethinking the bus, and build momentum for regionwide advancements.

> **Lead actors:** District, state, city, and county departments of transportation
>
> **Outcome:** faster, more reliable bus service in key corridors

4. Fare payment changes are needed to speed boarding and integrate with other mobility providers. Though WMATA is planning to develop a mobile ticketing app over the next few years, there are currently no

plans to integrate WMATA's payment technology with that of other services such as bike- or scooter-share. Due to this limitation, county bus services are investigating the possibility of developing their own payment apps, potentially creating an even more fragmented system than we have today.[36] The region needs an integrated fare payment system with both mobile payment options and convenient options for those without access to credit cards or smartphones.

Lead actors: WMATA and local transit providers

Key tool: use off-board or tap-and-go fare payment

Outcome: Faster, easier-to-use bus service

5. The formula by which WMATA determines each jurisdiction's payment for bus service should be reviewed to ensure that it provides appropriate incentives to jurisdictions to adopt bus priority treatments or other improvements to bus service.

Lead actors: WMATA

Outcome: Faster, more reliable bus service

IMAGINE IF...

...you could pay for your whole trip in one transaction, even if you used both a bikeshare and a bus

Next Moves for

RICHMOND

On June 24, 2018, the Greater Richmond Transit Company (GRTC) launched a new Bus Rapid Transit (BRT) line, known as the Pulse, as well as a comprehensive redesign of the city of Richmond's bus routes. Every route in the city changed, as the city's network was reoriented to a clockface system with buses arriving every 15, 30, or 60 minutes, depending on the route. The Pulse BRT—the Capital Region's second and longest BRT route—serves as the backbone of the new network, complemented by a number of new high-frequency routes. Bus stops, which were previously located on every block on many routes, will now generally be every three blocks. Many routes were simplified and straightened out. Overall, the new system is intended to increase the speed and reliability of bus service in Richmond.[37] In the first few weeks of service, daily ridership on the Pulse has exceeded GRTC's goal by 27 percent.[38]

GRTC will also soon be launching a new fare payment system to replace its paper farecards with smartcards. The smartcards will be available to purchase in over 300 retail outlets in the Richmond metro area, and a recently debuted mobile ticketing app is free to download. GRTC also plans to integrate RVA Bikeshare into this ticketing system, a regional first.[39]

The Pulse is just one part of the Richmond region's vision for the future of transit. A vision plan was developed by the Virginia Department of Rail and Public Transportation and the Richmond Regional Transportation Planning Organization in 2016, with participation by many stakeholders.[40] The plan calls for five BRT lines, including the Pulse, as well as more frequent service on key corridors and several express regional routes. Henrico County is making progress on one of the plan's recommendations by launching new service to Short Pump, a major employment and shopping area, in fall 2018, a significant improvement in service for this growing economic engine.

Still, there is continued need in the Richmond metro area for additional public transportation improvements. In part of Henrico and in Chesterfield County, the two counties with nearly 60 percent of the metro area's jobs, thousands of people and jobs remain disconnected by public transportation from the rest of the region. Many of the regional activity centers

identified by the Richmond Regional Planning District Commission are in these two counties, and connecting them with public transportation should be a priority for county leaders.[41] Chesterfield County, though an equal partner in GRTC with the city of Richmond, currently has virtually no fixed route service, with just a single express bus stop and a handful of stops on three hourly routes that cross into the county for a short distance.

NEXT MOVES TO RETHINK RICHMOND'S BUSES

1. The counties surrounding Richmond should invest in additional bus service. County residents without regular access to a car are unable to access jobs in their own jurisdiction, let alone neighboring jurisdictions, and city residents cannot get to jobs, healthcare, or educational facilities in the counties by transit. Henrico County is to be commended for its historic investment in its 2019 budget for public transportation service expansion, and should continue to expand its fixed-route options, building on the redesign study that was completed in 2017 by the same team that analyzed the city's bus routes.[42] Chesterfield County should pursue fixed route service in its heavily-populated residential and job corridors such as Jefferson Davis Highway and leverage non-traditional bus options in areas where development is more sparse in order to connect residents both in the county and outside the county to large job sites.

> **Lead actors:** county boards in Henrico and Chesterfield
>
> **Key tools:** Connect major destinations, match frequencies to ridership demand
>
> **Outcome:** Improved access to regional job and activity centers

2. The City of Richmond, Henrico County, Hanover County, and Chesterfield County should direct GRTC to plan and invest in phased growth toward a quality BRT corridor for the Jefferson Davis Highway/Route 1 corridor connecting Ashland to Chester running through downtown Richmond. The Greater RVA Transit Vision Plan calls for five BRT corridors, including the existing Pulse service on Broad Street, that pass through downtown Richmond and connect to key activity centers in each direction. Growing the BRT system will increase its benefits exponentially, and the region should continue building on its momentum to ensure that the system can reach its full potential.

> **Lead actors:** city and county elected officials, GRTC
>
> **Key tools:** Connect major destinations, match frequencies to ridership demand, optimize traffic signals, use queue jumps, use off-board or tap-and-go fare payment
>
> **Outcome:** Faster, more reliable bus service on important corridor

3. To streamline implementation of additional improvements, the city of Richmond should reorganize its dedicated transportation staff so that they are all part of a single department. Currently, staff with transportation and transit planning, engineering, and construction responsibilities sit in different departments with limited coordination. The department housing the transportation staff should include a transportation director that oversees transportation planning, engineering, and construction for areas like transit, road operations and maintenance, parking, biking and walking, and transportation demand management. This will elevate the coordination and capacity for the city's transportation system, which should promote greater efficiency, better projects and plans, and more accountability for continued mobility improvement.

> **Lead actor:** City of Richmond CAO

> **Outcome:** More efficient planning and delivery of bus improvements

4. The City of Richmond should develop an updated multimodal transportation plan, building on the Richmond Connects Strategic Multimodal Transportation Plan, with specific bus service improvement strategies, including bus prioritization in key corridors. The Plan should be led by the dedicated transportation department, and should be updated at least every five years. The City should regularly report on implementation between updates.

> **Lead actors:** City of Richmond Mayor and CAO

> **Outcome:** More efficient planning and delivery of bus improvements

5. GRTC should make additional data publicly available, including monitoring and reporting on key indicators of its new bus network, such as ridership and on-time performance, systemwide, by route, and by time of day, in order to identify any problems. Ridership is already reported monthly on a systemwide basis; those reports should be enhanced with additional data. GRTC should also make its real-time GTFS feeds available through an open data policy.

> **Lead actor:** GRTC

> **Key tools:** publish regular performance reports, institute an open-data policy

> **Outcome:** higher-performing buses due to improved trouble-shooting

CALL TO ACTION

Many different actors have a role to play in improving bus service in the Capital Region. While transit agencies have the most direct role in running bus service, local and state agencies own the roads on which the buses operate, manage the traffic signals, and control the curb space on which bus stops are located. The decisions made by local and state agencies regarding land use, rules of the road, and funding have a material impact on bus service, and are outside the control of the transit agency. Local and state officials also impact transit-agency decision-making, as they serve on the agencies' boards of directors or in other oversight roles. In short, the region's transit agencies cannot fix our buses alone.

For too long, no one in the region has "owned" the responsibility for improving our bus network. It has been too easy to point the finger at another party—for bad planning, inadequate funding, or a host of other issues. But we can no longer afford the status quo. The organizations who produced this report are joining together to call upon the elected officials of this region to rethink our bus systems to better serve our growing region's needs. Every tool in the toolbox is within your control. You are the owners of the region's roads. You provide funding that sets the outcomes for the region's public transportation systems. You can make this happen—and we are ready to help.

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ENDNOTES

1. "Tackling the Capital Region's Roadway Congestion: Performance-Driven Tolling," Greater Washington Partnership, May 2018, http://www.greaterwashingtonpartnership.com/wp-content/uploads/2017/09/201805_GWP_Issue-Brief_Performance-Driven-Tolling.pdf

2. "Unlocking the Promise of Integrated Mobility in the Capital Region," Greater Washington Partnership, July 2018, http://www.greaterwashingtonpartnership.com/wp-content/uploads/2018/05/201807_GWP_Issue-Brief_Integrated-Mobility.pdf

3. Vehicles Available at Maximum Service, National Transit Database, 2016.

4. "TransitCenter's NTD Transit Ridership Analysis, 2002-2017," TransitCenter, May 2018, https://transitcenter.org/2018/05/01/transitcenters-ntd-transit-ridership-analysis-2002-2017.

5. "TransitCenter's NTD Transit Ridership Analysis, 2002-2017," TransitCenter, May 2018, https://transitcenter.org/2018/05/01/transitcenters-ntd-transit-ridership-analysis-2002-2017. Houston's bus ridership went down just 0.01% between 2016 and 2017, while Dallas's declined by 4.56%, San Antonio's declined by 4.54%, and Austin's declined by 1.33%.

6. Dr. Sang Keon Lee, "Reformation of Mass Transportation System in Seoul Metropolitan Area," Presentation, November 2013, http://www.scag.ca.gov/programs/Documents/Partners/014_MetroTrans.pdf.

7. See, e.g., Mate Petrany, "These Ten Cities Have the Best Public Transportation in the World," July 25, 2014, https://jalopnik.com/these-ten-cities-have-the-best-public-transit-in-the-wo-1610824583; and James Gabriel Martin, "These Cities Have the Best Public Transportation in the World," November 8, 2017, https://www.lonelyplanet.com/news/2017/11/08/cities-best-transportation-world-emissions/.

8. Average Typical Weekday, Unlinked Passenger Trips, National Transit Database, 2016.

9. "Bus Priority Treatment Guidelines," National Capital Region Transportation Planning Board, April 2011, p. 6, https://nacto.org/docs/usdg/bus_priority_treatment_guidelines_national_capital_region_trans_planning_board.pdf.

10. For more on the four mobility priorities, see "Advancing Our Region: Preface to a Blueprint for Regional Mobility," Greater Washington Partnership, 2017, http://www.greaterwashingtonpartnership.com/wp-content/uploads/2017/09/Preface-to-a-Blueprint-for-Regional-Mobility-Report_Final.pdf.

11. These actions relate directly to bus service. Other actions, such as land use and parking policies, also affect bus ridership and performance, but are outside the scope of this paper.

12. Daniel K. Boyle, "Commonsense Approaches for Improving Transit Bus Speeds," Transit Cooperative Research Program Synthesis 110, 2013, p. 30, http://www.trb.org/Publications/Blurbs/170433.aspx. Survey respondents did not quantify the improvement in speed that resulted from bus stop consolidation.

13. Daniel C. Vock, "Buses – Yes Buses – Are 'the Hottest Trend in Transit'," Governing, September 2017, http://www.governing.com/topics/transportation-infrastructure/gov-big-city-bus-systems.html.

14. Todd Litman, "When Are Bus Lanes Warranted?" Victoria Transport Policy Institute, November 25, 2016, p. 4, http://www.vtpi.org/blw.pdf. While this is the general trend, not every route will experience the same amount of ridership growth.

15. Exceptions can be made for emergency vehicles or cars turning right at intersections.

16. Colin Campbell, "One Year of BaltimoreLink Bus System: Ridership Bounces Back, Ridership Still Falls Short," Baltimore Sun, June 15, 2018, http://www.baltimoresun.com/news/maryland/baltimore-city/bs-md-baltimorelink-one-year-20180608-story.html; "Vital Signs: January-March 2017," WMATA, May 2017, p. 24, https://www.wmata.com/about/records/scorecard/upload/Vital_Signs_Report_Q1_2017_Final1.pdf#page=24. MTA's high-frequency bus routes are considered on-time if they arrive at the expected interval (e.g. every 15 minutes), rather than according to a specific timetable.

17. Laura Bliss, "Why Seattle is America's Bus-Lovingest Town," CityLab, May 11, 2018, https://www.citylab.com/transportation/2018/05/seattle-the-city-that-respects-the-power-of-the-bus/559697/?utm_source=twb; Andrew Small, "How Seattle Bucked a National Trend and Got More People to Ride the Bus," CityLab, October 16, 2017, https://www.citylab.com/transportation/2017/10/how-seattle-bucked-a-national-trend-and-got-more-people-to-ride-the-bus/542958/.

18. "Better Boarding, Better Buses: Streamlining Boarding and Fares," National Association of City Transportation Officials and TransitCenter, February 2017, p.1, https://nacto.org/wp-content/uploads/2017/02/NACTO_Better-Buses_Boarding.pdf; "Metrobus Studies," PlanIt Metro blog, https://planitmetro.com/metrobus-studies.

19. "Unlocking the Promise of Integrated Mobility in the Capital Region," Greater Washington Partnership, July 2018, http://www.greaterwashingtonpartnership.com/wp-content/uploads/2018/05/201807_GWP_Issue-Brief_Integrated-Mobility.pdf.

20. Managing cash is costly for the transit agency, as it must pay to transport cash from buses and rail stations to the counting facility, and for staff at that facility to prepare it for the counting machines.

21. David Block-Schachter, et al., "AFC 2.0 Systems Integrator Contract," Presentation, Massachusetts Bay Transportation Authority, November 20, 2017, https://cdn.mbta.com/sites/default/files/fmcb-meeting-docs/2017/november/2017-11-20-fmcb-afc2.pdf.

22. "Better Boarding, Better Buses: Streamlining Boarding and Fares," National Association of City Transportation Officials and TransitCenter, February 2017, p.3, https://nacto.org/wp-content/uploads/2017/02/NACTO_Better-Buses_Boarding.pdf.

23. Eric Jaffe, "The Real Benefits of Real-Time Transit Data," Sidewalk Labs, June 15, 2018, https://medium.com/sidewalk-talk/the-real-benefits-of-real-time-transit-data-1fee19988b73

24. Unlocking the Promise of Integrated Mobility in the Capital Region," Greater Washington Partnership, July 2018, p.9, http://www.greaterwashingtonpartnership.com/wp-content/uploads/2018/05/201807_GWP_Issue-Brief_Integrated-Mobility.pdf.

25. Serious crimes include murder, rape, robbery, and assault.

26. Todd Litman, "Safer Than You Think: Revising the Transit Safety Narrative," Victoria Transport Policy Institute, July 2018, p.21, http://www.vtpi.org/safer.pdf.

27. "Unlocking the Promise of Integrated Mobility in the Capital Region," Greater Washington Partnership, July 2018, p.8, http://www.greaterwashingtonpartnership.com/wp-content/uploads/2018/05/201807_GWP_Issue-Brief_Integrated-Mobility.pdf

28. "To Improve Transit, Be Smart about Delays," TransitCenter, May 17, 2016, http://transitcenter.org/2016/05/17/improve-transit-smart-delays/.

29. "Open Data Policy," Transport for London website, accessed on August 3, 2018, https://tfl.gov.uk/info-for/open-data-users/open-data-policy#on-this-page-1.

30. "Assessing the Value of TfL's Open Data and Digital Partnerships," Deloitte, July 2017, http://content.tfl.gov.uk/deloitte-report-tfl-open-data.pdf.

31. MTA email message to author, 2018.

32. GRTC email message to author, 2018.

33. "Are We Better Off: Assessing BaltimoreLink's Promises One Year Later," Central Maryland Transportation Alliance, June 2018, http://www.cmtalliance.org/uploads/file/reports/Are%20We%20Better%20Off%20-%20v5.pdf.

34. Testimony of Kevin Quinn, MTA Administrator, Maryland House Appropriations Committee, January 24, 2018.

35. Alon Levy, "Four Ways to Build a Better Bus System," D.C. Policy Center, September 29, 2017, https://www.dcpolicycenter.org/publications/four-ways-to-build-a-better-bus-system/.

36. "Unlocking the Promise of Integrated Mobility in the Capital Region," Greater Washington Partnership, July 2018, http://www.greaterwashingtonpartnership.com/wp-content/uploads/2018/05/201807_GWP_Issue-Brief_Integrated-Mobility.pdf.

37. "The Case for Better Public Transit in Richmond," The Great Richmond Re-Route website, accessed on August 3, 2018, http://thegreatrichmondreroute.com/the-case-for-transit/.

38. Median daily ridership of 4474, compared to goal of 3500, as of August 22, 2018. RVA Rapid Transit, https://twitter.com/RVARapidTransit/status/1032264180890574848.

39. "Unlocking the Promise of Integrated Mobility in the Capital Region," Greater Washington Partnership, July 2018, http://www.greaterwashingtonpartnership.com/wp-content/uploads/2018/05/201807_GWP_Issue-Brief_Integrated-Mobility.pdf.

40. "Greater RVA Transit Vision Plan," DRPT and RRTPO, 2016, http://www.drpt.virginia.gov/media/2339/grtvp_final.pdf.

41. "Richmond Regional Comprehensive Economic Development Strategy, 2017 Annual Update," Richmond Regional Planning District Commission, p.7, http://www.richmondregional.org/CEDS/CEDS_Update_2017.pdf.

42. "Henrico County Transit Choices Report," Michael Baker International and Jarrett Walker + Associates, August 2017, http://ridegrtc.com/media/main/Henrico_Transit_Choices_Report_-_August_2017_Print_Quality.pdf.

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The Greater Washington Partnership is a first-of-its-kind civic alliance of CEOs in the region, drawing from the leading employers and entrepreneurs committed to making the Capital Region—from Baltimore to Richmond—one of the world's best places to live, work and build a business.