



Finance Committee

Information Item III-A

October 12, 2017

Understanding Rail and Bus Ridership

Washington Metropolitan Area Transit Authority

Board Action/Information Summary

☐ Action ☒ Information

MEAD Number:
201917

Resolution:
☐ Yes ☒ No

TITLE:

Understanding Rail and Bus Ridership

PRESENTATION SUMMARY:

WMATA has responded to the changing nature of transit ridership by building stronger intelligence about WMATA's ridership drivers and identifying actions that can be taken to stabilize rail and bus ridership.

PURPOSE:

To update the Board on 1) ridership trends and analytic capabilities; 2) factors that influence Metrorail and Metrobus ridership; 3) short-term measures underway to stabilize ridership; and 4) concrete areas for Board and jurisdictional support.

DESCRIPTION:

Transit properties nationwide are experiencing ridership declines. Declines in rail and bus ridership at WMATA have been occurring since the early part of this decade, and staff has taken measures to understand the specific circumstances driving Metrorail and Metrobus ridership declines with the intent of discerning actions that can be taken to stabilize ridership and begin to bring riders back.

Staff has determined that the historical relationship between general regional population and employment growth and trip-making generally – both on transit and on the roadways – has been altered. Examination of potential causal factors, such as gas prices, transit benefits, and alternatives to transit, among others, suggested that WMATA needed to rebuild its capacity to monitor and forecast ridership using new data and methods.

Staff is completing this effort currently and has determined that while some factors – such as total amount of travel demanded by the region – are beyond WMATA's control, there are some areas which merit immediate action to sustain and begin to restore ridership. WMATA can collaborate with the Board and jurisdictional partners to take appropriate action in these areas, and improved predictive analytics later this calendar year will help provide more accurate information for future budget and service discussions.

Key Highlights:

For many years WMATA forecasting models would suggest that ridership was, among other things, a function of regional growth, and the economy. In recent years, this has proven untrue: the region is growing, and the economy is improving – but ridership is declining.

To better respond to trends, WMATA is building a Ridership Intelligence Platform. It is better able to understand behavior and travel patterns of different customer segments. Additionally, staff is bringing online very detailed data to understand the customer's experience. This will tell staff how many riders experienced crowding in vehicles, on platforms, and more. Finally, WMATA is finishing a forecasting tool to both understand the impact of different levers on ridership and test scenarios to understand possible impacts from changing those levers.

The work is still very fresh, but it is clear already that a new pattern is emerging. For example, telework is helping to push peak rail ridership down by 15-20% on Fridays, compared to midweek. Additionally, four-day-a-week commuters now outnumber 5-day-a-week commuters, and monthly frequencies have been declining slowly for several years.

Background and History:

Previously, WMATA constructed rail ridership forecasts that until 2010 explained 96% of the annual variation in ridership. In 2010 staff began to see divergences from these forecasts, driven almost entirely by the impact of weekend work zones and midday single tracking on off-peak ridership. Over the subsequent years, staff continued to see larger divergences from forecasted ridership, and sought to provide reasons for these divergences through a series of tactical research exercises exploring potential causal variables. In conjunction with evidence from the Transportation Planning Board's regional household travel research, these research exercises culminated in staff's conclusion that historical models were no longer as useful in forecasting ridership, and that new modeling intelligence was needed.

A data analytics model was custom-built to model and monitor travel behavior and patterns. Additionally, consultant support was retained to build a "big data" platform that could help deliver a new ridership forecast and scenario modeling tool. This platform, forecast, and tool will be available to WMATA decision-makers in the end of calendar 2017 and be used for future ridership trend analysis, forecasting, and the identification of tactics WMATA can employ to induce ridership stability and growth.

Discussion:

When examining ridership factors that are within the control of WMATA, it is clear that improving service delivery is critical for retaining customers and beginning to bring back those who left in recent years. In fact, research has found that at least 30% of our ridership losses in 2013-2016 were due to decreasing customer on time performance.

To that end, the General Manager released his Back2Good plan in 2016 to focus on improvements to the tracks, railcars, and maintenance practices that would positively impact the customer experience. The team has published Back2Good updates over the past year, and have amplified the message through unpaid media coverage, social media, and advertisements. These efforts will continue in the coming months as we hope to see sustained improvements, such as the reduction in passenger offloads and improvements in customer on-time performance; however, we realize that it will take some time to regain the trust and confidence of customers needed to return to the

system.

In addition, communications and marketing efforts continue to 1) encourage off-peak rail ridership through partnerships, 2) strengthen the SmartBenefits programs and regional employer relationships, and 3) promote pass products, automatic reload and other fare products.

The Board and local jurisdictions can play a critical role in driving ridership. First, and most critically, is the continued development of commercial and residential projects near Metro rail stations and along Metrobus corridors. It is also critical for jurisdictions to make investments in sidewalks, curb ramps, bus shelters, and other street-level infrastructure that connects the local communities to Metro. And finally, traffic signal prioritization and bus lanes will help to speed up buses and provide more capacity, as well as improve customer experience.

FUNDING IMPACT:

Information Item

| | |
|----------------------------|--|
| Project Manager: | Shyam Kannan |
| Project Department/Office: | Capital Planning and Program Management/Office of Planning |

TIMELINE:

| | |
|--|------|
| Previous Actions | None |
| Anticipated actions after presentation | None |

RECOMMENDATION:

N/A



Washington Metropolitan Area Transit Authority

Understanding Rail and Bus Ridership

Increasing Our Understanding of a Changing Travel Landscape

Finance Committee

October 12, 2017

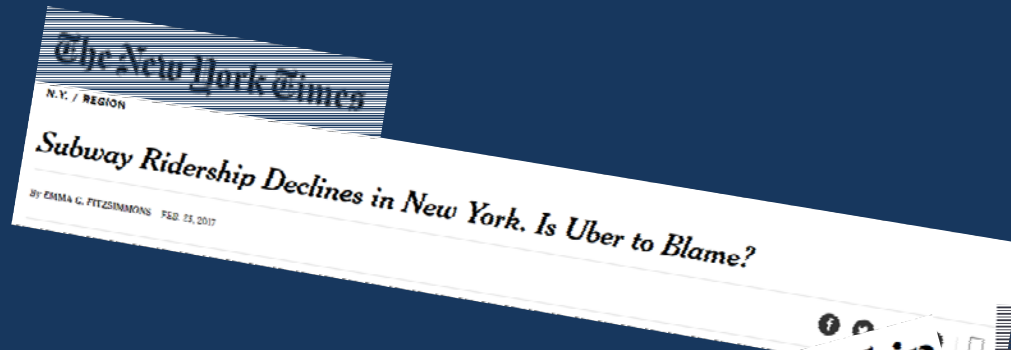


Purpose

- Update the Board on ridership trends and analytic capabilities
- Summarize factors that influence Metrorail and bus ridership
- Identify short-term measures underway to improve ridership
- Provide concrete areas for Board and jurisdictional support

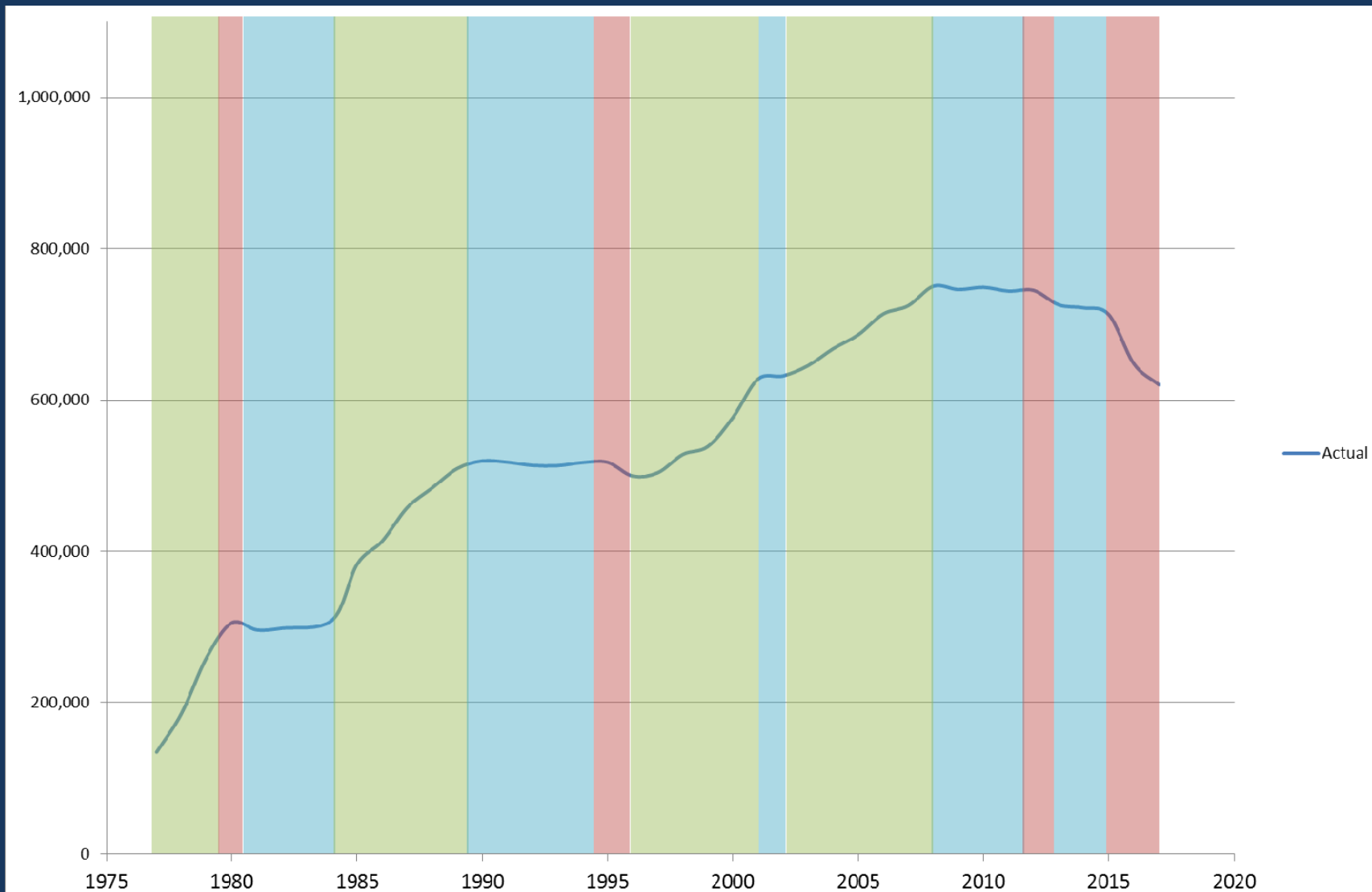


Transit Ridership Is Declining Across the Country





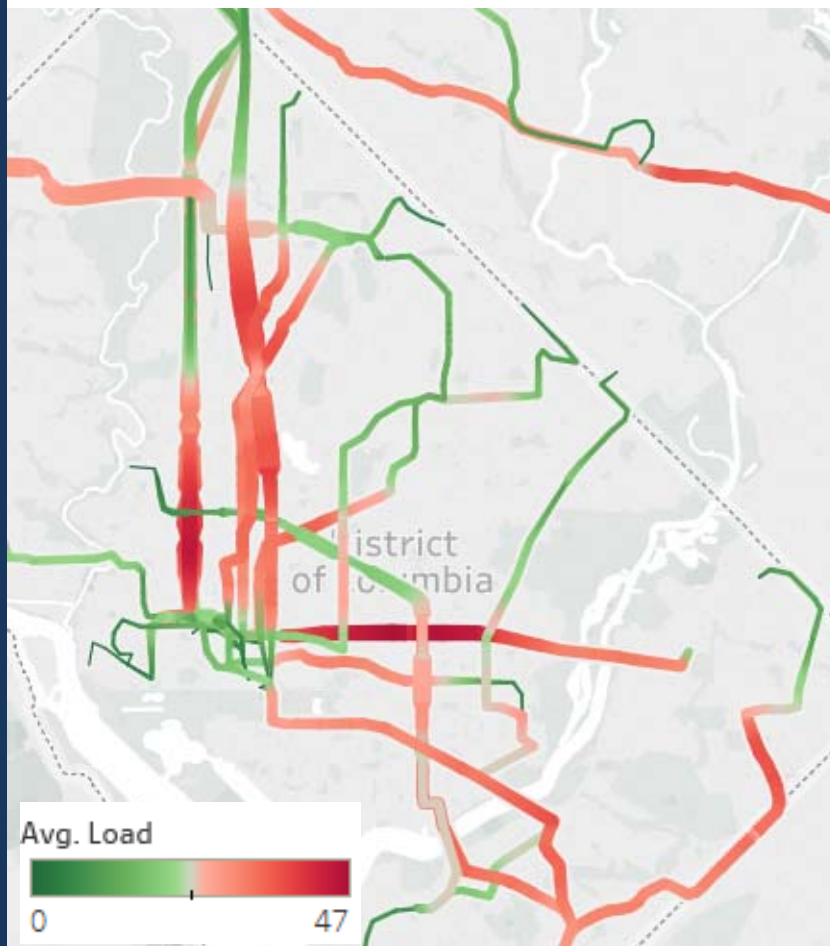
Long Arc of Metrorail Ridership: Pattern of Surges and Swoons





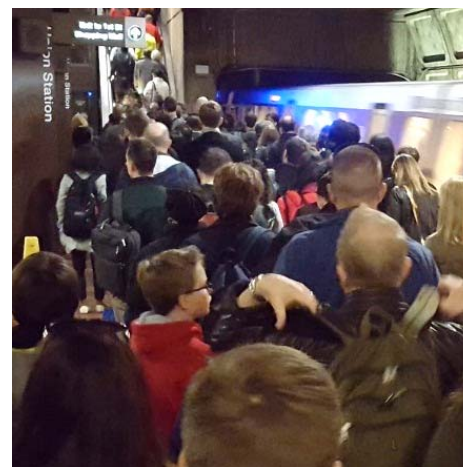
Metro's Paradox: Buses and Trains Still Crowded at Certain Times

**Average Metrobus Crowding, 8-9am
(select routes)**



On-Board Trains:

Crowding ranges from 90-120 passengers per car on most lines (July 2017)



In Stations:

Occupancy exceeds our thresholds at many core stations

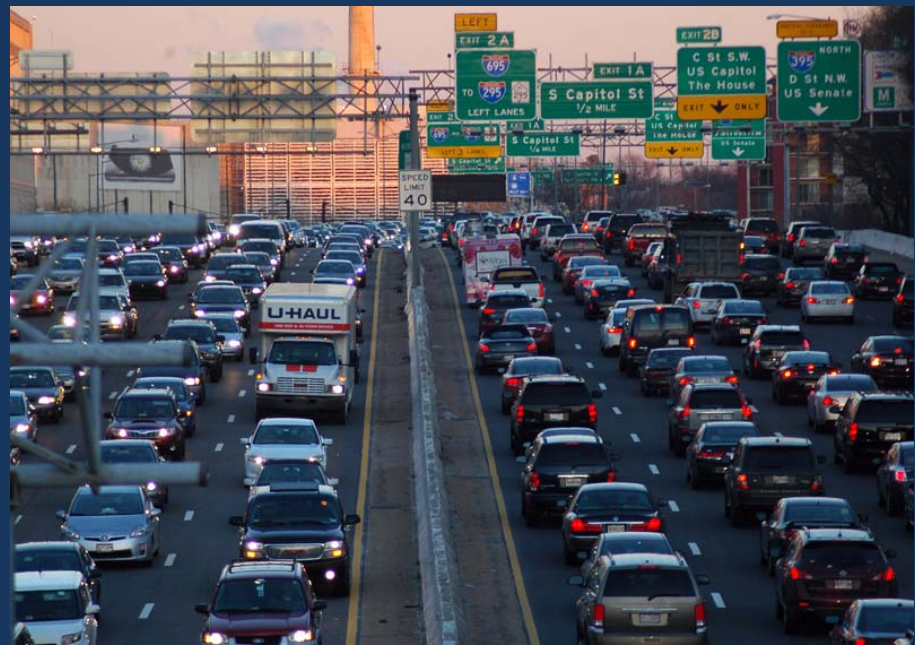


Congestion is Region's #1 Concern

- Poll conducted this summer asked residents of the National Capital Region what is the most pressing problem for the region?

#1 Traffic (26%)

#2 Metro (20%)





Phase 1 - Tactical Research on Potential Factors for Our Declining Ridership

SmartBenefits: Federal benefit drop in 2014 saw reduction in high-use SmartBenefits customers in 2015

Reliability: At least 30% of rail losses in 2013-2016 were due to decreasing customer on time performance

Telework: Average trip frequency has fallen from 20 to 18 trips/card/month; surveys show strong growth in telework

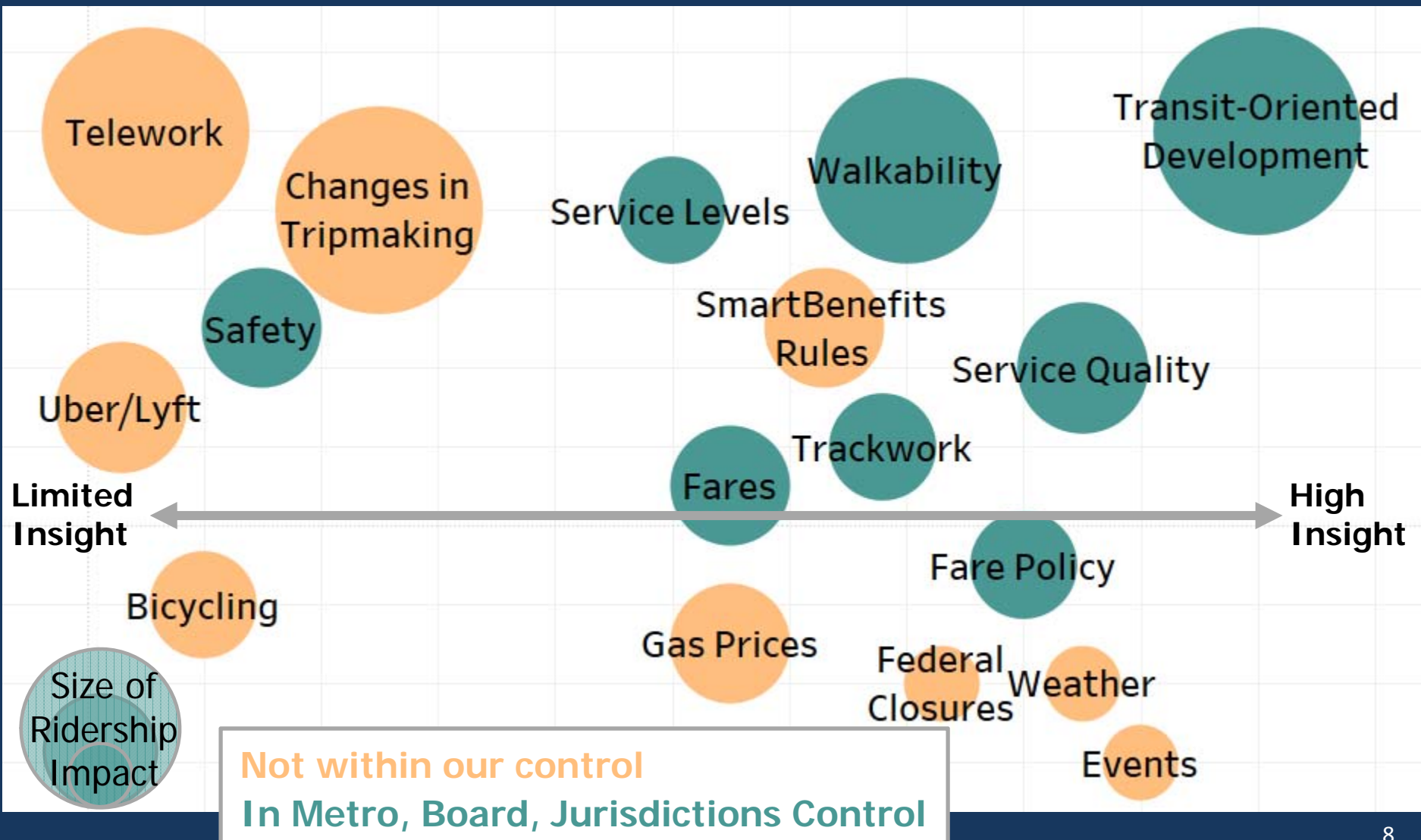
Rail's Impact on Bus Ridership: Rail-related bus ridership has been falling faster than “standalone” bus ridership

TNCs (Uber, Lyft, etc.): Likely closely aligned with evening losses, but don't explain everything. Actual data unavailable

Real Estate Development: Growth around stations highly correlated with walk ridership. Explains gains at some stations.



Findings from Phase 1 Factors Influencing Ridership





Phase 2 - Metro is Building a Ridership Intelligence Platform

Customer Travel Analytics

- Researching riders, not just trips
- Market segmentation analysis
- Understand ridership by customer type
- Track how customer base is changing

Detailed Passenger Movements

- Quantifying every customer's experience, every day
- Assigning passengers to vehicles
- Measure rail crowding and delays
- Inferring bus riders' destinations

Forecasting Tools

- Understanding past drivers of ridership
- Data analytics, mining techniques, machine learning
- Tool to test "what-if" scenarios
- Assist budget process

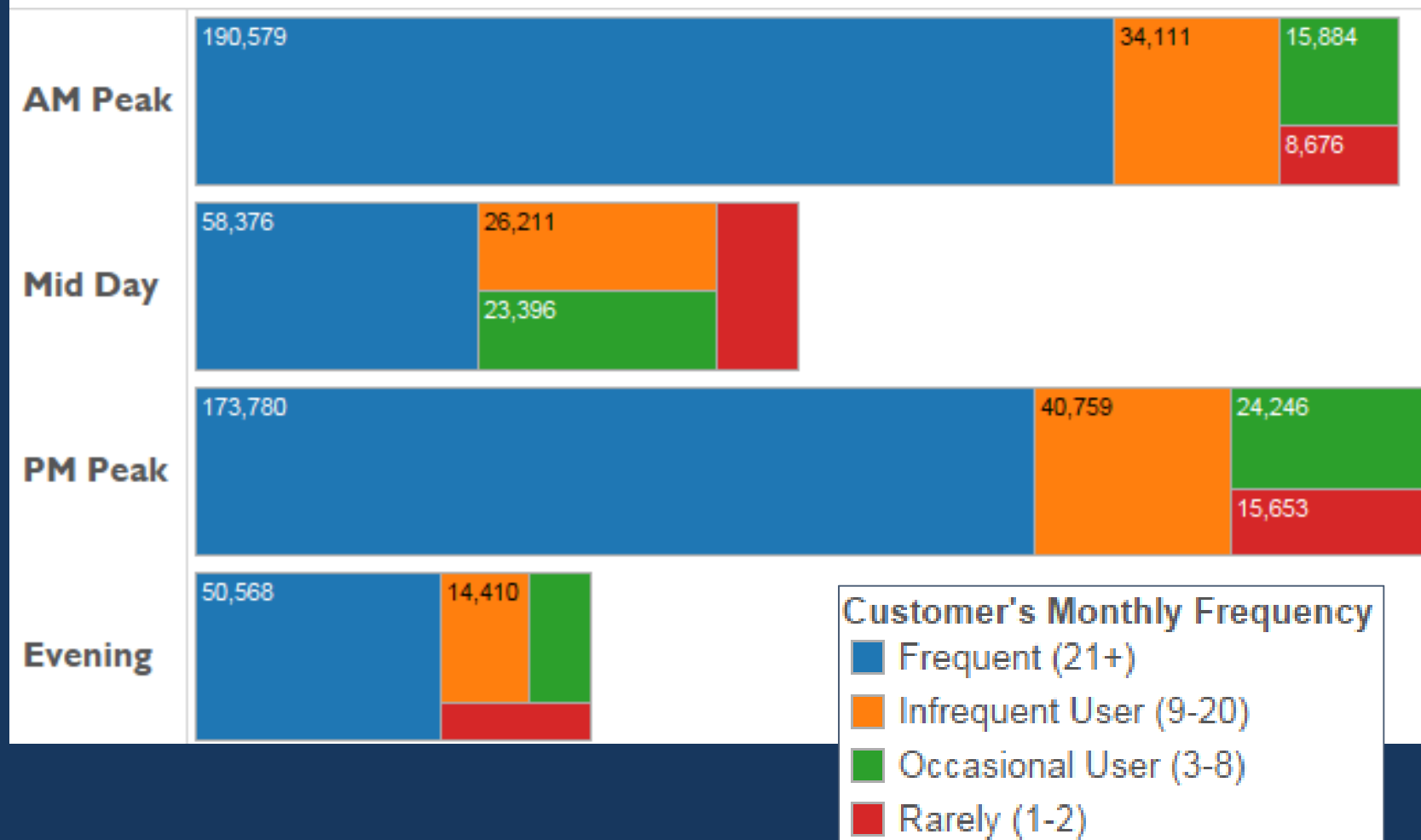
*Supported by the
Business Intelligence
team in IT Dept.*



Example Phase 2 Findings

Travel Frequency Decreasing

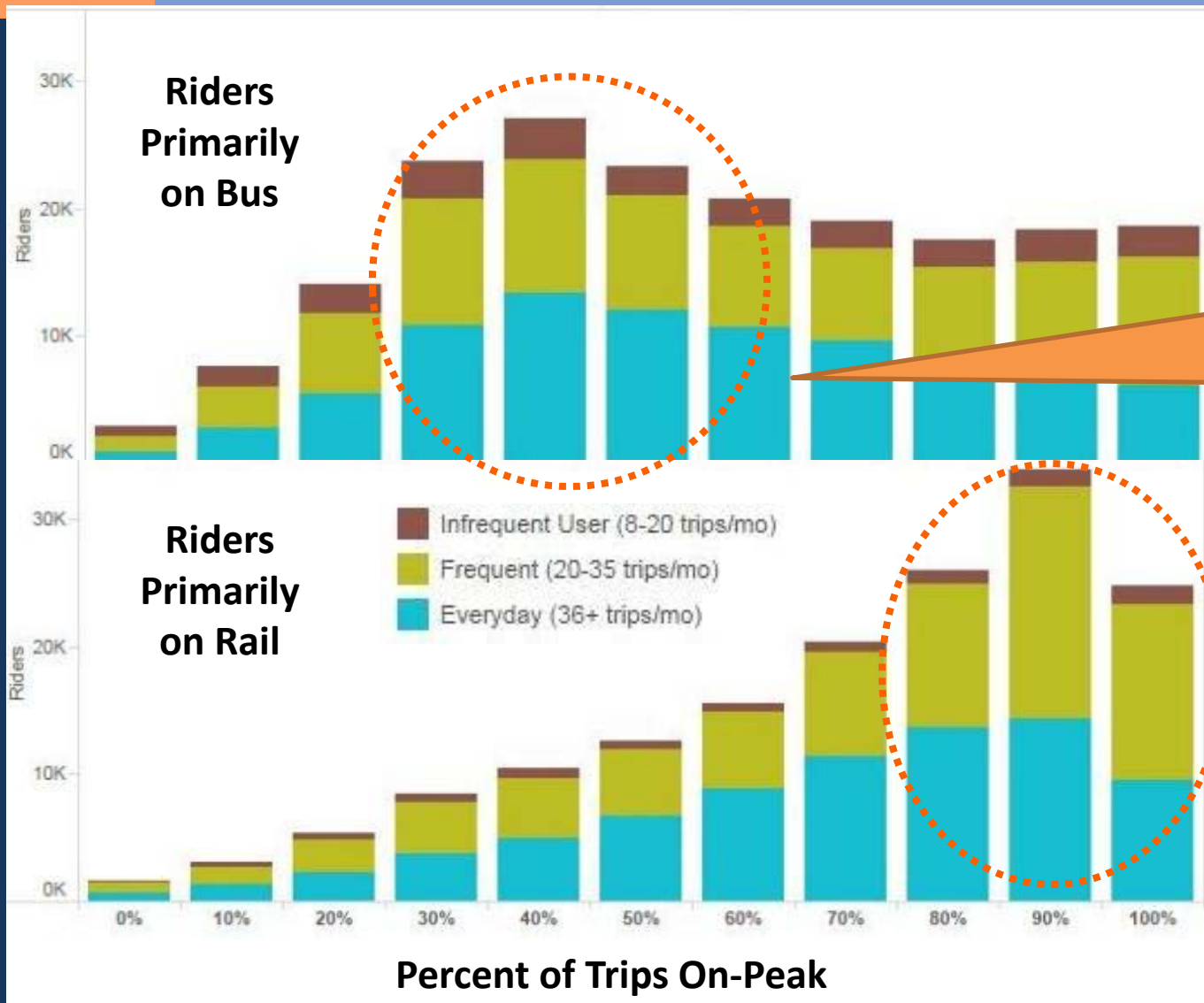
Typical weekday rail ridership, by customer's monthly frequency





Example Phase 2 Findings

Rail More Peak-Dependent than Bus



Bus's core market is customers who are only 30-60% on peak (in part because they are high frequency)

Rail's core market is customers who are 80-100% peak



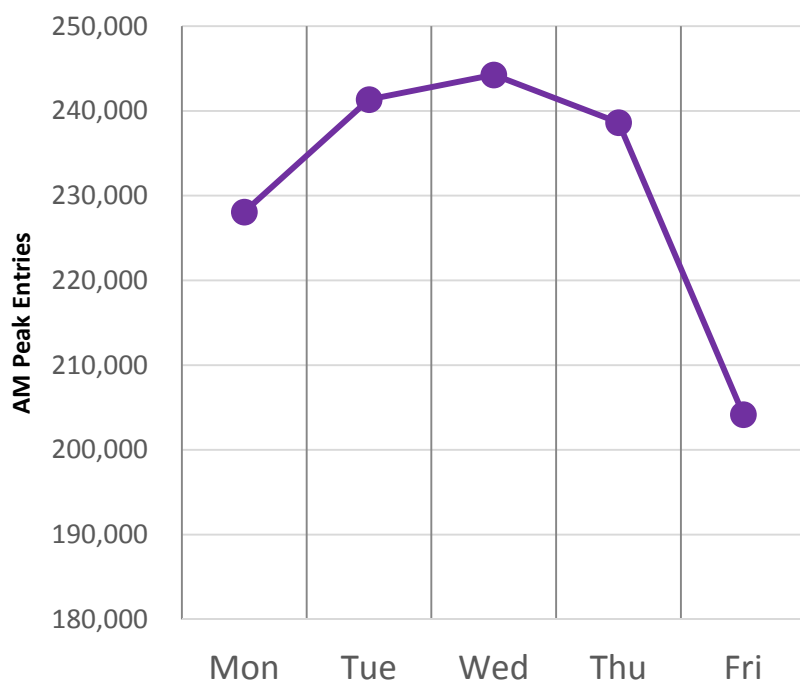
Mobility Landscape is Changing

Is this Part of the New Normal?

Telework and/or alternative work schedules (AWS) are helping to push down ridership by 15% on Fridays

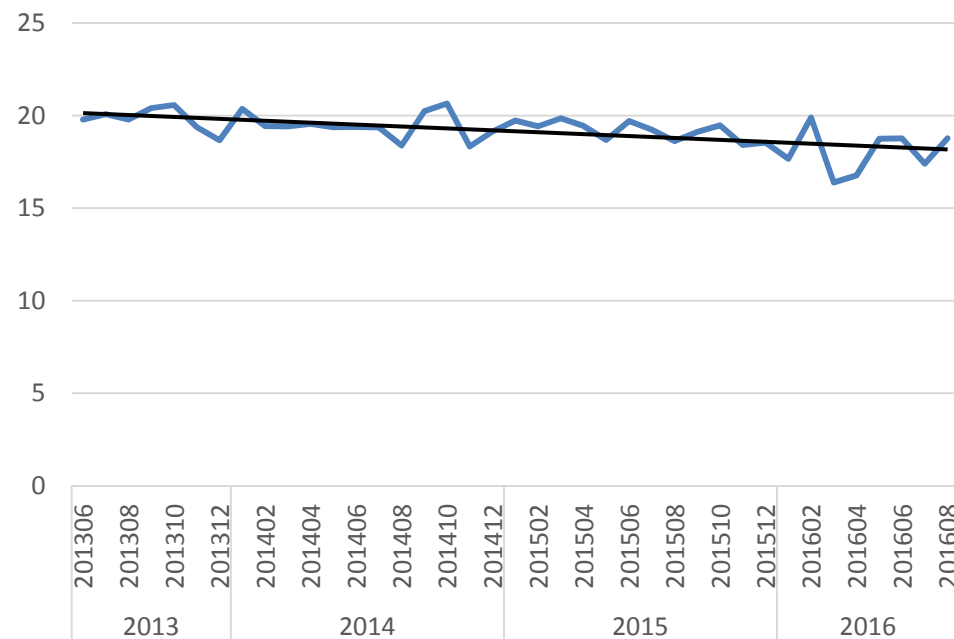
Four-day-a-week commuters now outnumber five-day-a-week commuters

Average Peak Ridership by Day of Week



Average Frequency Down From 20 to 18 rail trips/month/card

Cards >5 rail trips/month





Marketing & Communications Efforts to Promote Ridership

- Focus on 30% of riders who left because of service reliability issues
- Encourage off-peak rail ridership through partnerships
- Strengthen SmartBenefits program and regional employer relationships
- Promote pass products, automatic reload, other fare products



Marketing & Communications Efforts to Promote Ridership

- Back2Good updates: web, social, print
- New video playing online & social media
- Phase 3 development underway



BACK2GOOD

SERVICE RELIABILITY

- **Customer offloads down nearly 40%** in first seven months of 2017, compared to the same period in 2016.
- **Rail customer on-time performance improved to 89%** for August 2017.
- **MyTripTime:** WMATA is the first transit property in the country to offer personalized travel time data for customers. Check it out by logging into your SmartTrip account at smartrip.wmata.com.

RAIL & BUS FLEET

- **Railcar reliability up more than 50%** in first seven months of 2017, compared to the same period in 2016.
- **Cooler railcars:** Nearly 60% fewer HVAC issues reported in July 2017, compared with July 2016.
- **50 new 7000-series trains** (400 railcars) in service.
- **100 new Metrobuses** each year replace the oldest, least reliable buses in the fleet.

FINANCIAL MANAGEMENT

- **Largest annual capital investment** – \$1.16 billion – recorded in Fiscal Year 2017.
- **Slashed more than \$100 million** in spending and ended Fiscal Year 2017 with a balanced budget.
- **Employee absenteeism down 10%** following policy changes.

SAFETY & SECURITY

- **Major crime on Metro down 20% in the first seven months of 2017**, including pickpocket thefts down 50%, bicycle thefts down 26%, and snatch thefts down 14%.
- **Fire & smoke incidents down 20%** this year, including an **11% drop in arcing incidents**, due to aggressive rail infrastructure rebuilding and preventive maintenance programs.

STATION IMPROVEMENTS

- **Escalators achieving 95% performance** for first seven months of the year, with 80 new and 153 fully rehabilitated escalators since 2011.

For more information visit wmata.com/back2good
Update Published: September 11, 2017



Marketing & Communications Efforts to Promote Ridership

- **Special Events promotions:** Marine Corps Marathon, Army 10-Miler, MLB All Star Game (July 2018)
- **Destination Marketing:** Destination DC, Smithsonian National Zoo, Sports Venues
- **SmartBenefits** Employer Prospects





How the Board and the Jurisdictions Can Help

- **Development:** Advocate for development proposals near stations/corridors
- **Access to Metrorail and Metrobus:** Ensure existing jobs and housing are connected to rail stations and bus stops by investing in sidewalks, curb ramps, bus shelters, etc.
- **Congestion Relief:** Advocate for on-street improvements to speed up buses, such as traffic signal prioritization and bus lanes