Board of Directors

Action Item IX-A

July 12, 2018

Increased Peak Period Red Line Service

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Washington Metropolitan Area Transit Authority
Board Action/Information Summary

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⊙ Action ○ Information	MEAD Number: 202002	Resolution: ⊙ Yes ○ No

TITLE:

Recommendation for Additional Service on Red Line

PRESENTATION SUMMARY:

Management will review the recently completed public participation process, seek board approval of the equity analysis report and recommend the implementation of the additional peak period service on the Red Line.

PURPOSE:

Management seeks approval of the equity analysis and approval to increase peak period service on the Red Line.

DESCRIPTION:

Key Highlights:

This is a follow-up to the March presentation to the Safety and Service Delivery Committee meeting.

- During April and May 2018 staff conducted public outreach to Red Line riders and the results of the survey showed that over 70% of the responders preferred the increased service.

- A Title VI analysis concluded that there is a disproportionate burden; however, no disparate impact. After mitigating impact with additional service between Silver Spring and Glenmont, the proposal complies with requirements of Title VI and Environmental Justice.

- It is recommended that the peak periods service on the Red Line be increased such that all service is scheduled to originate or terminate at Shady Grove station, eliminating the Grosvenor Turnback.

Background and History:

Begining December 1984, Red Line service was extended to Shady Grove, instituting the Grosvenor Turnback operating procedure.

In 2015 the Board directed staff to prepare a proposal for the elimination of the

Grosvenor Turnbacks, such that all trains will originate or terminate at Shady Grove station.

In April 2018, the Committee was informed of the alternatives under consideration for increased service on the Red Line and the steps that would be taken for the public participation and the equity analysis.

Discussion:

Currently the Red Line service operates every 8 minutes between Shady Grove and Glenmont (7.5 trips per hour) with additional service operating between Grosvenor and Silver Spring, providing a four-minute headway between these locations (15 trips per hour).

Service alternatives: The following three alternatives have been developed and were presented to the public for comment

- Alternative A: Full elimination of Grosvenor Turnback with 15 trains per hour at Shady Grove, Rockville, Twinbrook and White Flint.

- Alternative B: Partial elimination of Grosvenor Turnback to increase peak period service from 7.5 trains per hour to 12 trains per hour at Shady Grove, Rockville, Twinbrook, and White Flint stations.

- Alternative C: No change

Between April 30 and May 21, 2018 public outreach was conducted to Red Line riders to solicit reactions to the three proposed alternatives to add peak service to the Red Line. This effort included:

- The creation of webpages to inform riders of the proposals and how they could participate in a survey. A press release was distributed;

- Posters in English and Spanish were placed at all Red Line stations;

- Information was posted on social media; and

- All local, state jurisdictional and Congressional offices were notified.

Outreach was conducted at 16 rail stations over a two-week time period and 62,700 brochures were distributed encouraging riders to complete an on-line survey. This effort yielded 9,662 completed surveys, including six percent of respondents who were identified as Hispanic, 23 percent were minority groups and one percent reported an annual household income under $30,000.

The results of the survey clearly showed that the majority of the respondents preferred increasing the service.

A Title VI equity analysis concluded that there is no disparate impact on minorities, but a disproportionate burden on the low income population. Staff has taken efforts to mitigate this disproportionate burden, and the proposal complies with requirements of Title VI and Environmental Justice. Mitigation is in the form of a minor increase in service on the Red Line between Glenmont and Silver Spring as a result of extra trains pulling in and out of service during the shoulders of the afternoon peak periods.

As a result of concerns about maintaining good on-time performance with the increased service, staff conducted an operational assessment of Shady Grove terminal and yard operations. In response, added emphasis and oversight will be placed on train movements between the yard and terminal with additional dedicated supervision and yard operators.

Staff has initiated an engineering analysis of potential upgrades that could reduce the long-term risk to reliability from the increased service. The engineering analysis will investigate potential improvements of the Shady Grove interlocking, the track configuration around the terminal and vertical access improvements at Shady Grove station. This analysis will be completed by the end of FY19. Any recommended improvements would be incorporated into future capital programs.

FUNDING IMPACT:

The additional service for Alternative A on the Red Line has an estimated annual operating cost of $2.5 million. Because the service implementation date is December of 2018, the FY19 impact will be $1.25 million. The FY19 budget amendment for this service increase was approved by the Board in June 2018.	
Project Manager:	James Hughes
Project Department/Office:	Chief Operating Office/Operations Budget, Performance & Planning/Intermodal Planning

TIMELINE:

Previous Actions	Board Resolution 2015-37 directed staff to prepare a proposal for the elimination of the Grosvenor Turnbacks, such that all trains will originate or terminate at Shady Grove station. The Board Resolution 2018-23 amended the FY19 budget including $1.25 million for the additional Red Line service
Anticipated actions after presentation	It is anticipated that the additional service will start in December 2018. Before then staff will prepare for the initiation of the additional service by hiring and training staff, preparing and distributing of all informational

	material, and adding additional supervisory staff to manage the increased service. The Infrastructure Study will be completed by the end of fiscal year 2019.

RECOMMENDATION:

Board approval of:

1. the Title VI report

2. the increase in peak period service by eliminating the Grosvenor Turnback and having all trains serve Shady Grove station to begin in December 2018.

Washington Metropolitan Area Transit Authority
Public Outreach & Input Report

Additional Peak Period Service on the Red Line
July 2018

INTRODUCTION

Currently during rush hour, Red Line trains arrive every 8 minutes (7.5 trains per hour) between Shady Grove and Glenmont. Additional service operates between Grosvenor and Silver Spring, with trains arriving every 4 minutes (15 trains per hour) between those stations.

Metro is considering two service alternatives that would increase service at Shady Grove, Rockville, Twinbrook and White Flint. Service levels for the rest of the Red Line would not change in any of these alternatives.

- Alternative A: Full elimination of the Grosvenor "turn back," which would extend service to Shady Grove for all trains that currently turn back at Grosvenor. Trains would arrive every 4 minutes (15 trains per hour).

- Alternative B: Partial elimination of the Grosvenor "turn back," which would extend service to Shady Grove for approximately half of the trains that currently turn back at Grosvenor. Trains would arrive on average every 5 minutes (12 trains per hour).

- Alternative C: No change. Trains would continue to arrive every 8 minutes (7.5 trains per hour).

This report includes an overview of the public participation plan that was followed, as well as a summary of the feedback received from the public.

COMMUNICATIONS & OUTREACH TO THE PUBLIC

In order to encourage public feedback on the proposal, as well as to fulfill the Board-approved Public Participation Plan, Metro tailored a communications and outreach plan. This intensive effort was necessary for reaching riders most impacted by the proposal.

The majority of the communications and outreach effort was concentrated between April 30 and May 21, 2018. The final plan included the following efforts:

- Outreach events at stations
- Targeted marketing & media

In order to best manage resources in the allotted amount of time, the majority of outreach efforts focused on Red Line riders where the proposed changes would have the greatest impact. A demographic overview of the impacted customers can be viewed in Part I of the Title VI equity analysis report. Feedback was collected through an online survey in English and Spanish.

Outreach Events at Stations

Outreach street teams, comprised of Metro contractors, traveled to various Metrorail stations along the Red Line for a total of 32 shifts to pass out brochures about the proposal and encourage riders to take the online survey. Team members wore Metro aprons and those who were bilingual wore large pins that identified them as speaking another language. Half of all street teams were fluent in Spanish, and some teams also had Chinese speakers. Team members estimate that they had over 1,100 interactions with customers in Spanish during their outreach.

Over 62,700 brochures were distributed during the outreach. The brochures were in English and Spanish – view a copy on page 4.

Station Outreach By the Numbers	
# of outreach shifts	49
# of locations	47
# of outreach hours	194.5
Total # of brochures/fliers distributed	*62,700*

Metrorail Station Outreach Schedule		
Date	**Station**	**Shift Time**
Tuesday, May 1, 2018	Shady Grove	6:00-10:00 a.m.
	Rockville	
	Grosvenor-Strathmore	
	Twinbrook	
	Medical Center	
	White Flint	
Wednesday, May 2, 2018	Cleveland Park	6:00-10:00 a.m.
	Van Ness-UDC	
	Tenleytown-AU	
	Friendship Heights	
	Bethesda	
Thursday, May 3, 2018	Gallery Place	6:00-10:00 a.m.
	Metro Center	
	Farragut North	
	Dupont Circle	
	Woodley Park	
Tuesday, May 8, 2018	Cleveland Park	3:30-7:30 p.m.
	Van Ness-UDC	
	Tenleytown-AU	
	Friendship Heights	
	Bethesda	
Wednesday, May 9, 2018	Gallery Place	3:30-7:30 p.m.
	Metro Center	
	Farragut North	
	Dupont Circle	
	Woodley Park	
Thursday, May 10	Shady Grove	6:00-10:00 a.m.
	Rockville	
	Grosvenor-Strathmore	
	Twinbrook	
	Medical Center	
	White Flint	

RED LINE RIDERS:
We want to hear from you!

Metro is considering running more trains to Shady Grove during rush hour. This would limit the number of trains that "turn back" at Grosvenor-Strathmore.

What do you think? Get more information and fill out a survey to let us know how this would impact your ride.

Complete the survey online at wmata.com/redline before 5pm on Monday, May 21, 2018.

USUARIOS DE LA LÍNEA ROJA:
¡Metro quiere saber su opinión!

Metro está considerando opciones para aumentar el servicio en el número de trenes con dirección a Shady Grove durante las horas pico. Esto puede limitar el número de trenes que paran y regresan de la estación de Metrorail de Grosvenor-Strathmore.

¿Qué piensa sobre esta propuesta? Para obtener más información, compartir sus comentarios y decirnos la manera que estos cambios podrían afectar su viaje, **complete la encuesta en wmata.com/redline antes de las 5:00 p.m. del lunes, 21 de mayo de 2018.**

Brochure (English/Spanish)

Targeted Marketing & Media

Metro used targeted marketing and media strategies to increase awareness and encourage feedback on the proposal. Local stakeholders also helped spread the word and encouraged feedback from their constituents about the proposals.

- The creation of the webpages *wmata.com/redline* informed customers about the proposal and how customers could provide information and included the survey link and outreach locations. The page was also professionally translated into Spanish.

- English and Spanish signs were posted in all Metrorail stations along the Red Line. Information was also displayed on the station manager kiosk customer information display screens.

- A press release was published on Tuesday, May 1, 2018.

- Social media (Facebook, Twitter) was used to post information about the proposal.
    - Total Facebook views: over 1,020 people reached
    - Total Twitter impressions: over 37,750 reached across 3 tweets
    - Total Twitter engagements: over 610 across 3 tweets

- The Office of Government Relations provided information about the proposal to local, state jurisdictional and Congressional staff. Staff addressed follow up questions to the plan to ensure elected officials and their staff had a thorough understanding.

- Rail employees were notified of the proposal through *Station Manager DIRECT,* an internal notification online message board.

Public Input Results

Metro collected public input via an online survey – administered in English and in Spanish -- that was in field from April 30 until May 21, 2018.

The effort yielded 9,662 completed surveys. 6% of respondents identified as Hispanic, 23% belonged to minority groups, and 1% reported an annual household income under $30,000.

Respondents to the survey were reminded of how the Grosvenor "Turn-Back" currently operates during morning and evening rush hour periods before they submitted their feedback on the following three proposals:

- Alternative A: Full elimination of the Grosvenor "Turn-Back," which would extend service to Shady Grove for all trains that currently turn back at Grosvenor. Trains would arrive every 4 minutes (15 trains per hour).

- Alternative B: Partial elimination of the Grosvenor "turn back," which would extend service to Shady Grove for approximately half of the trains that currently turn back at Grosvenor. Trains would arrive on average every 5 minutes (12 trains per hour).

- Alternative C: No change. Trains would continue to arrive every 8 minutes (7.5 trains per hour).

General Survey Results

- 59% of respondents are in favor of Alternative A, 32% are not in favor, and 9% are not sure.
- 39% of respondents are in favor of Alternative B, 46% are not in favor, and 15% are not sure.
- 29% of respondents are in favor of Alternative C (not making any changes to current operations), 62% are not in favor, and 8% are not sure.

Figure 1: Responses to Alternatives A, B, and C
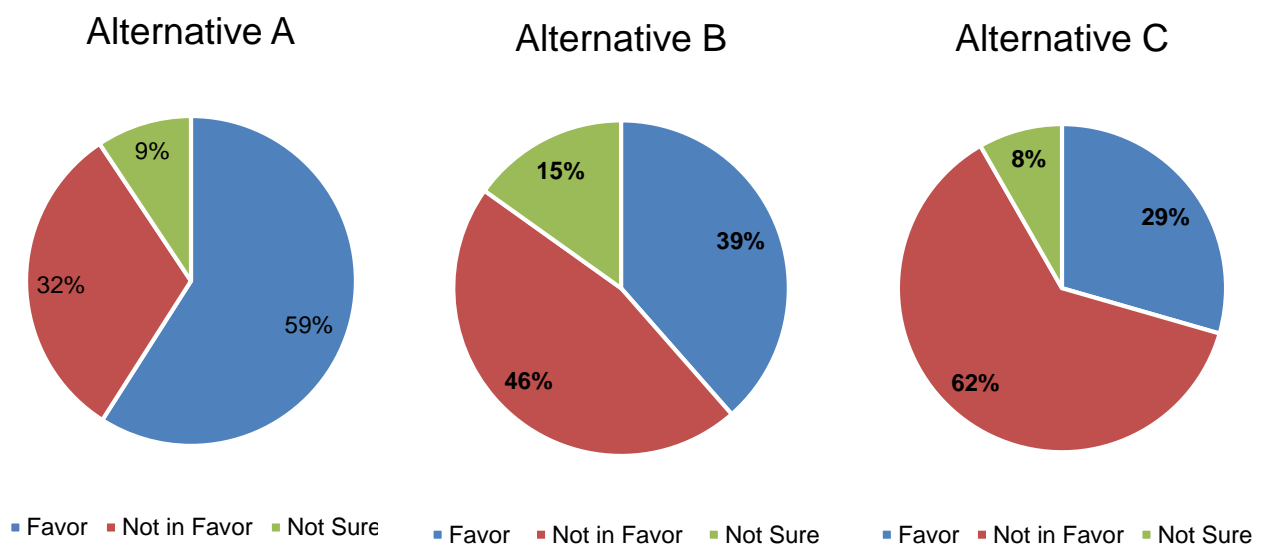
Survey Results By Hispanic Origin, Minority Status, and Income

The percentage of minority respondents in favor of Alternative A (56%) is lower than the percentage of non-minority – i.e., White and not Hispanic -- respondents in favor of that proposal (61%). That difference is statistically significant.

Figure 2: Percentage of Respondents in Favor of Alternative A by Ethnicity and Race

|	All (N=1014)	Hispanic (N=577)	Non-Hispanic (N=7215)	Minority (N=2,325)	Non-Minority (N=5,717)	Under $30,000 (N=137)	Above $30,000 (N=6945)
In Favor	59%	60%	63%	56%	61%	63%	61%
Not in Favor	32%	31%	27%	36%	29%	24%	30%
Not Sure	9%	9%	10%	8%	10%	13%	10%

Increase in Peak Period Red Line Rail Service

Joseph Leader
July 12, 2018

Purpose

- Follow-up to March presentation
- Approval of Title VI Report
- Approval to add peak period service on the Red Line
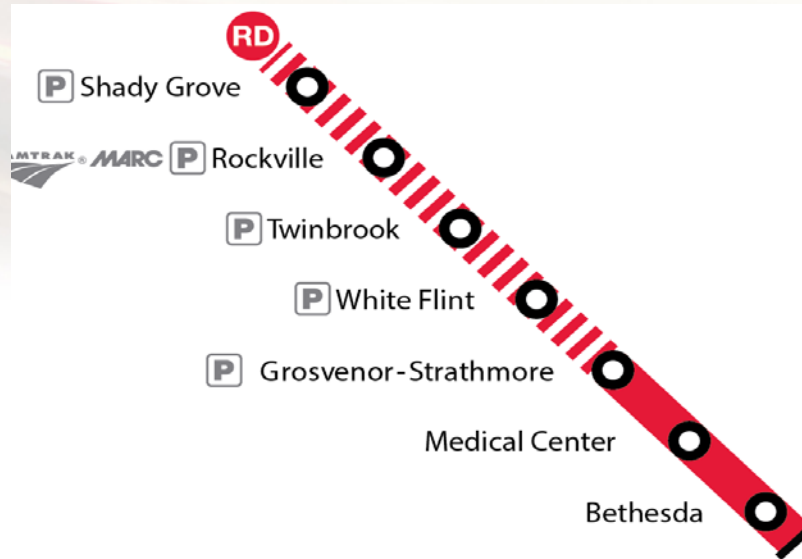
Follow up to March Presentation

Staff committed to return to the Board in July with results on:

- The Public Participation Process
- Title VI Analysis
- Operational analysis to maintain reliability
- Initiate a infrastructure improvement analysis

Service Alternatives
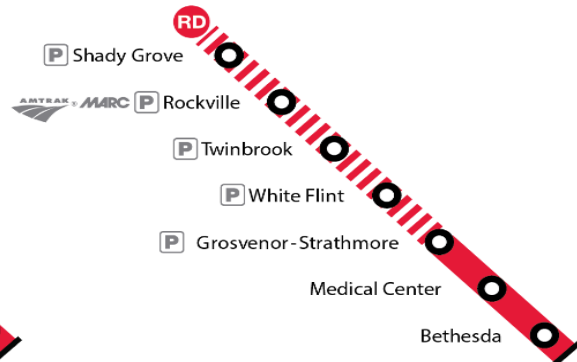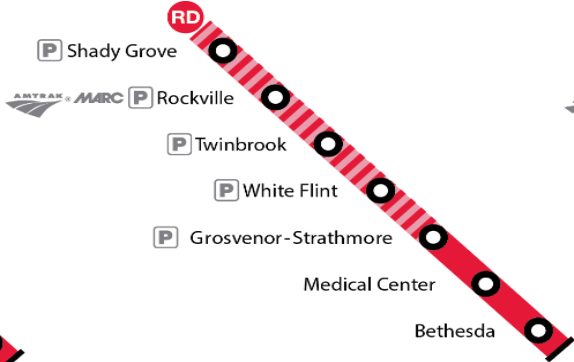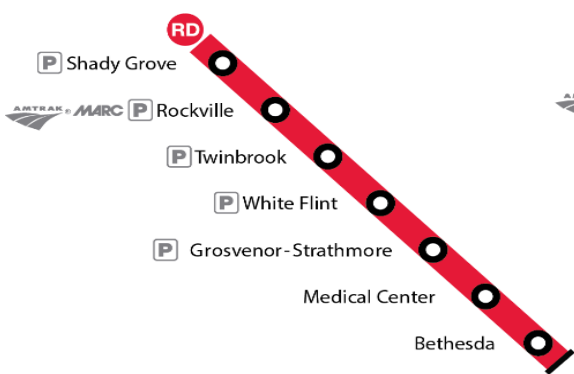
Three options were proposed for public comments:

	A	B	C
	Full Elimination of the Grosvenor Turnback	**Partial Elimination of the Turnback**	**No Change**

Service Change	Increase to 15 trips per hour		Increase to 12 trips per hour		7.5 trips per hour	
	Peak Hour	Peak 2 Hours	Peak Hour	Peak 2 Hours	Peak Hour	Peak 2 Hours
Passengers Boarding north of Grosvenor	2,975	5,623	2,975	5,623	2,975	5,623
Passenger Per Car (PCC)	30	25	45	34	60	50
Cost Impact	$2.50M Ann.	$1.25 FY19	$1.25M Ann.	$0.625 FY19	No Impact	No Impact

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Public Participation

- Community outreach was conducted in April and May including:
  - 49 outreach events at 16 stations
  - Distribution of 62,700 brochures
  - Targeted promotion

- Survey Results:
  - 9,662 surveys completed
  - Majority favor additional service
  - 30% favored no change to the service

Title VI Analysis

- Title VI Analysis concluded no disparate impact on minority customers
- Initial analysis showed slight disproportionate burden pertaining to low income residents
  - Staff identified mitigation to comply with requirements of Title VI and Environmental Justice
  - Slight changes in the afternoon staging of trains for the peak
- Adoption of equity analysis does not violate Title VI of Environmental Justice

Operational Analysis

- In response to staff's concern about maintaining on-time performance with the increased service:
  - Discussed best practices with other agencies
  - Conducted comprehensive review of Shady Grove operation, both terminal and yard
- Recommended improvements:
  - Emphasis for train movements between yard and station
  - Additional supervision for both yard and station operation
- Improvements can be made within the original budget estimate

Infrastructure Analysis

- Engineering analysis to reduce risk to reliability from added service
  - Shady Grove interlockings
  - Track reconfiguration
  - Vertical access and platform improvements

- Completed by the end of FY19 with any recommended improvements for future capital programs

Recommendations

Board approval of:

- The Title VI Report

- Increased peak period service by eliminating the Grosvenor turnback and having all trains serve Shady Grove station beginning December 2018

Next Steps

In preparation for a December start of increased service:

- Hire and train additional operating personnel

- Prepare and distribute informational material

- Increase supervisory staff and develop procedures to manage increased service

- Complete Infrastructure Analysis by end of FY19

SUBJECT: APPROVAL OF INCREASE IN PEAK SERVICE ON THE RED LINE AND TITLE VI REPORT

2018-26

RESOLUTION
OF THE
BOARD OF DIRECTORS
OF THE
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

WHEREAS, The Federal Transit Administration (FTA) requires the Washington Metropolitan Area Transit Authority (WMATA) to conduct a Title VI equity analysis to determine if a major service change will result in a disparate impact (DI) on minority riders or a disproportionate burden (DB) on low-income riders and the WMATA Board of Directors to approve the analysis; and

WHEREAS, In Resolution 2015-37, the Board of Directors directed staff to "prepare for the Board's consideration a proposal for the elimination of the Grosvenor Turnback, such that all peak period rush hour trains will originate or terminate at Shady Grove station, that includes a planned implementation date prior to the beginning of Fiscal Year 2019," which would constitute a major service change for Title VI purposes; and

WHEREAS, Eliminating the Grosvenor Turnback complies with Title VI and Environmental Justice because: (1) it does not result in any reduction or elimination of benefits or service to Metro customers because adding this service does not reduce service on other routes; (2) the additional service does not result in a DI on minority populations; and (3) although adding service between Grosvenor and Shady Grove stations resulted in a DB on low-income populations, WMATA will mitigate the DB by increasing service between Silver Spring and Glenmont; NOW, THEREFORE, be it

RESOLVED, That the Board of Directors approves the attached Title VI equity analysis, and be it further

RESOLVED, That the Board of Directors approves adding the additional peak service on the Red Line to commence in December 2018; and be it further

Motioned by Mr. Evans, seconded by Mr. Goldman
Ayes: 8 – Mr. Evans, Mr. Crawford, Mr. Corcoran, Mr. McMillin, Mr. Price, Mr. Goldman, Mr. Dorsey and Mr. Horner

RESOLVED, That the Board of Directors directs the General Manager to report to the Safety and Operations Committee on a quarterly basis, beginning in CY2019, Metro's service results after eliminating the Grosvenor Turnback and the performance of increased peak period Red Line service in order to allow the Safety and Operations Committee to examine ridership, revenue, efforts to align services with demand, impacts to system operations, and crowding, and in conjunction with the Finance and Capital Committee, determine whether increased peak period Red Line service is needed beyond FY2019 to ensure safe, reliable, and equitable rail service; and be it further

RESOLVED, That the Board of Directors directs the General Manager to provide a comprehensive report of increased peak period Red Line service to the full Board no later than May 2019, and that the continuation of additional peak period Red Line service after FY2019 requires affirmation by the Board of Directors; and be it finally

RESOLVED, That this Resolution shall be effective 30 days after adoption in accordance with § 8(b) of the WMATA Compact.

Reviewed as to form and legal sufficiency,

Patricia Y. Lee
General Counsel

WMATA File Structure No.:
20.5.1 Rail Scheduling

2

M E M O R A N D U M

SUBJECT: Increase in Peak Period Red Line Service - Title VI Equity Analysis

DATE: July 6, 2018

FROM: FAIR – Franklin C. Jones

THRU: IBOP – John T. Kuo

TO: GM/CEO – Paul J. Wiedefeld

This memorandum documents the methodology and findings of the Title VI equity analysis required for the proposed increase in peak period Red Line service.

I.   Conclusion

Metro staff recommends the acceptance of the Title VI equity analysis for the proposed increase in peak period Red Line service.   The Federal Transit Administration (FTA) requires an equity analysis of all major service changes (including new service) to ensure that benefits are distributed equitably with regard to minority and low-income customers.

The analysis showed that the proportion of minority ridership expected to use the new service, although lower than the system average, does not present a disparate impact (DI) on minority customers. Low-income ridership expected to use the new service will also be less than the corresponding system average, and would trigger a disproportionate burden (DB) on low-income populations. In accordance with the FTA Title VI Circular (FTA C 4702.1B), staff took action to modify the proposal.

The revised proposal does not present a disparate impact (DI) on minority populations. There is still a DB on low-income populations; however, in accordance with the FTA Circular, it has been significantly mitigated. Adoption of the equity analysis does not violate Title VI or Environmental Justice (EJ) because: (1) the revised proposal does not result in any reduction or elimination of benefits to Metro customers, as implementing this service does not come at the expense of reductions of service; (2) the revised proposal does not result in a disparate impact on minority populations; and (3) the disproportionate burden has already been mitigated as much as practically possible.

II.   Service Change Proposals

In 2015, the Board directed staff to prepare a proposal to eliminate the "Grosvenor Turnback." Instead of terminating at Grosvenor, more Red Line trains would originate and terminate at Shady Grove.

Currently, trains are scheduled to operate every eight minutes (7.5 trains per hour)

between Grosvenor and Shady Grove during peak periods. More trains come into service at Grosvenor, creating a four minute headway (15 trains per hour) between Grosvenor and Silver Spring. As outlined in the Board Action/Information Summary (BAIS), the service proposal consists of two options to add service in the section between Grosvenor and Shady Grove: Alternative A: shortening the headway to four minutes (15 trains per hour); or Alternative B: shortening the headway to five/six minutes (with 12 trains per hour). Both alternatives would benefit customers who enter or exit in the segment north of Grosvenor during peak periods.

In accordance with the Title VI Circular, staff conducted public outreach on the proposed service change. The full Public Outreach report is attached to the BAIS.

III. Title VI Analysis

When a transit agency proposes a permanent fare change or a major service change (including additional service), the FTA, in its Title VI Circular 4702.1B, requires that the transit agency conduct an equity analysis to determine whether the change will result in a DI on minority riders or a DB on low-income riders.

In conducting the equity analysis, Metro used the following survey and operations data to determine which populations would be affected by the proposal:

- 2016 Travel Trends Rail Passenger Survey (spring, 2016);
- Rail ridership and revenue data (recent weekdays)

Metro calculated the number of minority and low-income benefiting customers as a percentage of all benefiting customers. Because the proposed service change affects rail customers, Metro then compared that percentage to the system-wide profile for Metrorail (44.91 percent minority; 12.67 percent low-income) as shown in Table One.

Table One: Metrorail Demographic Profile[1]

	Annual Ridership (FY 2017)	% Minority Ridership	% Low-Income Ridership	Annual Minority Trips	Annual Low-Income Trips
Metrorail	172,828,600	44.91%	12.67%	77,619,900	21,905,400

To determine whether or not the proposed service change would result in a DI on minority populations or a DB on low-income populations, staff applied the Board adopted DI/DB thresholds (Resolution 2013-27) that correspond to the number of daily impacted riders. (See Table Two). The average daily ridership affected by the service change is estimated to be approximately 25,000 customers. Thus, the DI/DB threshold of six percent was used for the analysis.

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[1] Based on 2016 Travel Trends Survey of Metrorail Customers

Table Two: DI/DB Thresholds

Total Daily Riders Impacted	Threshold for Significant Disparity
Up to 10,000	8%
10,001 to 20,000	7%
20,001 to 40,000	6%
Over 40,000	5%

According to the survey and operations data used in the analysis, 39.11 percent of the Red Line riders benefiting from the additional service are minority and 6.50 percent are low-income. As shown in Table Three, as initially proposed, the proportion of minority customers is 5.8 percent lower than the system average (39.11 percent compared to 44.91 percent), and the proportion of low-income customers is 6.18 percent lower than the system average (6.50 percent compared to 12.67 percent). With a threshold of 6.0 percent, the initial proposal does not result in a DI on minority customers but does result in a DB on low-income customers.

Table Three – Demographic Summary, Initial Proposal

	Minority Impacted Trips	Low-Income Impacted Trips
Impacted Ratio	39.11%	6.50%
System Average	44.91%	12.67%
Difference	**-5.80%**	**-6.18%**

In accordance with the Title VI and Environmental Justice Circulars, staff began to identify ways to mitigate the DB. After review of ridership, existing service levels, and demographics of other rail service by segment and time of day, staff recommends the following revision to the original proposal:

- Add additional rail service between Silver Spring and Glenmont from 7:00 PM to 8:00 PM

In addition to the original proposal, the service package analyzed now includes additional service between Silver Spring and Glenmont. This addition would lead to a more "balanced" service proposal in that it would benefit a higher ratio of minority and low-income customers.

As show in Table Four, this revised proposal benefits minority riders at a rate 5.64 percent lower than the system average (39.27 percent compared to 44.91 percent), and low-income riders at a rate 6.08 percent lower than the system average (6.59 percent compared to 12.67 percent). Thus, the revised proposal results in a higher ratio of minority customers benefiting than the original proposal,

and does not present a DI to minority customers. The revised proposal also improves the ratio of low-income customers benefiting relative to the original proposal; however, there is still a DB to low-income customers (by 0.08 percent).

Table Four – Revised Proposal

	Minority Impacted Trips	Low-Income Impacted Trips
Impacted Ratio	39.27%	6.59%
System Average	44.91%	12.67%
Difference	**-5.64%**	**-6.08%**
Threshold	-6.0%	-6.0%
Exceeds Threshold	**No**	**Yes**

IV.   Title VI and EJ Circular Requirements

Although the revised proposal exceeds the Board adopted DB threshold for low-income populations, implementing this service change does not violate Title VI or EJ. Under Title VI and EJ, Metro may approve an equity analysis that will result in a DB on low-income populations if Metro implements practicable mitigation measures. When determining whether mitigation measures are practicable, Metro must consider the social, economic (including cost), and environmental effects of mitigating the adverse effects on low-income populations. See Pg. 5 of the FTA EJ Circular 4703.1.

Metro has met the criteria for a "practical" mitigation, specifically:

1. **The proposed mitigation (adding service on the east side of the Red Line between 7:00 and 8:00 PM) benefits low-income customers at a rate higher than that of the original proposal.** Using survey and ridership data, staff estimates that the new service will benefit approximately 1,100 additional customers on a typical weekday. Ridership during this time period at these stations is comprised of a customer base that is 8.84 percent low-income, much higher than the 6.50 percent of low-income customers benefiting under the original proposal.

2. **Separate from the proposed mitigation listed above, Metro has recently added service between Glenmont and Silver Spring.** As part of service modifications associated with the June rail pick, Metro extended some train trips that used to start or end service at Silver Spring to originate or terminate at Glenmont. This resulted in six westbound trips that enter service at Glenmont from 6:30 AM to 7:15 AM, and four eastbound trips between 6:30 PM and 7:45 PM that terminate at Glenmont. The proposed

mitigation will add four additional trips terminating at Glenmont between 7:00 and 8:00 PM.

Given these enhanced service levels, additional service in this segment is not practical. Therefore, any additional service to further mitigate the proposal would have to come in the form of full-length trips between Glenmont and Shady Grove during off-peak periods. Such full-length trips would have limited customer utility while adding significantly to operating requirements and cost, and are therefore not practical as a mitigation.

3. **There is no adverse impact to mitigate.** The proposal would not result in a reduction or elimination of benefits or service elsewhere in the system, as its adoption is not tied another service decision.

4. **Metro has already added rail service to address peak levels of crowding.** The adoption of the eight minute headway in June 2017 resulted in a 50 percent reduction in service for some segments of the Yellow and Green Lines. Metro has taken action to address potential crowding, by allocating 100 percent eight car trains on these two lines starting in March of 2018. Metro will be required to report to FTA on passenger loading as it relates to equity during peak (and off peak periods) as part of its next Triennial Title VI submission. Reducing load factors on these lines reduces the risk of non-compliance with these service monitoring requirements.

5. **Metro has also taken steps to improve access to fare media for Metrobus customers.** In May 2018, Metro begin selling the Seven-Day Regional Bus Pass in Metrorail stations. This action greatly improved access to this important and well-used fare product. Metrobus customers are more than 81 percent minority and 52 percent low-income.

MEMORANDUM

June 4, 2018

TO: Michael Goldman, WMATA Board Member
                    Kathy Porter, WMATA Board Member

FROM: Gary Erenrich, Special Assistant to the Director, MCDOT

SUBJECT: Ridership and Passenger Loading Analysis of the Grosvenor Turnback

WMATA Board materials regarding the operation and fiscal impact of the elimination of the peak period Red Line turnback at the Grosvenor Station are both incomplete and mistaken. The current passenger car crowding level of the peak hour morning ridership is over 100 passengers per car and over 75 passengers per car over the entire morning peak period according to WMATA data provided by staff to MDOT for Monday April 30, 2018. Data for midweek ridership is expected to show additional crowding. This analysis clearly illustrates the ridership concerns of overcrowding north of Grosvenor Station that would be alleviated with all trains traveling to Shady Grove.

The second concern raised in WMATA Board materials is that ridership increase and additional fare revenue would be minimal. WMATA materials do not calculate these changes. Using the WMATA Planning models for documenting approved development within ½ mile of Metrorail stations and a ridership estimating model using this development data, it is expected that the approved development north of Grosvenor near the Metrorail stations will generate over 7,000 new daily Metrorail trips and increase fare revenue by about $25,000 per day. This very small change in Metrorail operations, less than $2.5 million annually in operating costs, will generate a 1% increase in Metrorail systemwide ridership and $6.25 million in new revenue.

Below please find more details from this analysis, again using WMATA planning models and data.

1. **Monday April 30, 2018 Metrorail Time-Space Diagram**

Every train leaving Shady Grove Station between 7:47 am and 8:47 am has over 100 passengers per car by the time it reaches Grosvenor Station. For the entire morning peak period every seat is occupied by the time the train leaves White Flint station. The crowding worsens on the Shady Grove trains when compared to trains that originate at Grosvenor. The result is an uneven passenger loading and longer station dwell times, and poorer customer experience. If all the trains started at Shady Grove, then there would not be an uneven passenger loading, improved on-time performance, and a better customer experience. (Cleveland Park to Farragut North). It is likely that this crowding would be greater on a mid-week travel day versus a Monday (April 30, 2018) but this is the only data provided for this analysis.

Metrorail Time-Space Diagram (Trace Model)

Shady Grove   Grosvenor
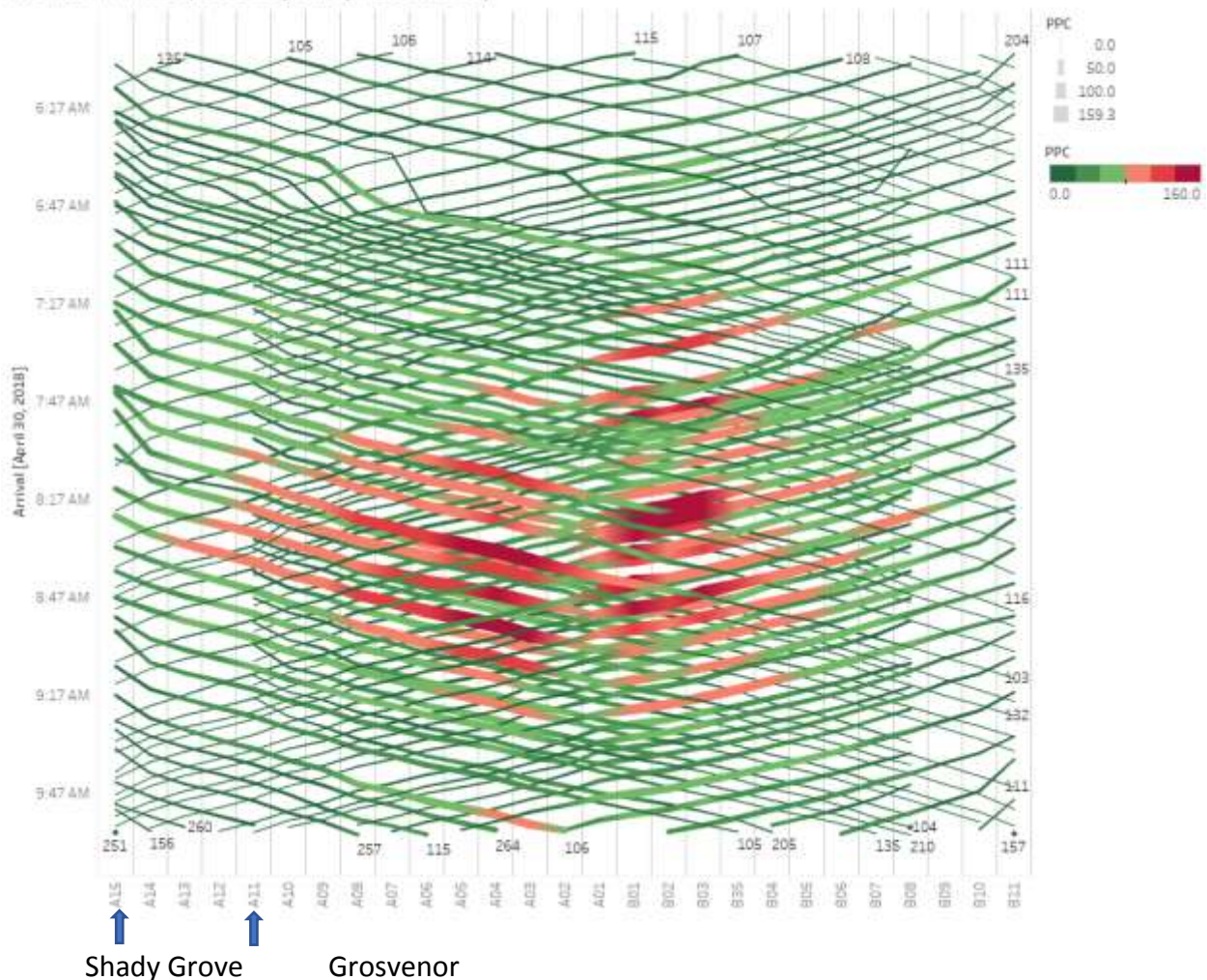
2. Ridership Growth Projected with Metro's SWARM Land Use Ridership Model

WMATA has two ridership and revenue estimating models that illustrate the potential rail ridership and resultant fares generated from residential and non-residential developments near the Metrorail Stations. These are spreadsheet models using observed travel patterns. This analysis uses the Metro listing of all approved development projects in the pipeline from White Flint to Shady Grove Metrorail Stations as of 2015. These projects have approved plans and are either in construction or should be in construction over the next several years. This translates into 17,853 new households and 17,039 employees. The Metro models estimate almost 7,000 new daily Metrorail trips to/from the Red Line north of Grosvenor and new farebox revenue of almost $25,000 per day. This translate into a 1% total system ridership increase and over $6.25 million of new Metrorail annual farebox revenue.

Washington Suburban Transit Commission

4351 Garden City Drive, Suite 305, Hyattsville, MD 20785 ▪ Phone 301-577-2063 ▪ Fax 301-577-2193

Memorandum

To: Michael Goldman
            WMATA MD Board Member

From: Christine Wells
            WSTC Transit Analyst

Date: July 5, 2018

Attached you will find information for consideration in discussions concerning the elimination of the Grosvenor turn back. In response to my request to WMATA for information on Red Line performance, I received the attached report. This report documents train frequency, number of rail cars per train, and number of rider entries and exits for Tuesday, May 8, 2018 and Tuesday, June 12, 2018. The data for May 8th was presented as a typical weekday while June 12th was the day of Washington Capitals' victory parade.

The report offered the following key points regarding June 12th Metrorail operations:

- Ridership at stations north of Grosvenor, measured by entries, was 37% higher for the full day on June 12th than a regular weekday.

- AM/PM peak train frequency to Shady Grove operated close to the current standard weekday frequency.

- During the midday period, WMATA operated between 13-16 trains per hour to and from Shady Grove.

- 50 of the 88 trains (57%) departing Shady Grove during the midday period were 8-car trains.

- Midday ridership for the stations north of Grosvenor was up by 94% on June 12th, while ridership on the Red Line overall during the same period was 71% higher than a normal weekday.

- The only significant delay on the Red Line on June 12th was the result of a southbound train at Rockville striking a deer just before 11:00 PM. This incident required the offloading of all passengers and resulted in a 23-minute delay.

Mr. Michael Goldman
Page Two

In addition to the information provided in the attached report, WMATA reported that total Red Line on-time performance for all periods on June 12th was 95.9%. On-time performance during the heaviest volume period that day (midday) was 99.0%.

If you have any additional questions, please don't hesitate to contact me at 301-577-2063 or via e-mail at cwells1@mta.maryland.gov.

Cc:
Clarence Crawford, WMATA MD Board Member
Malcolm Augustine, WMATA MD Board Member
Kathy Porter, WMATA MD Board Member
Pat Pscherer, Director, Washington Area Transit Office, MDOT TSO

Red Line Operation on June 12, 2018

6/12 Tue. Metrorail operates rush-hour service levels throughout the day Tuesday to accommodate fans for the Capitals' victory parade in Downtown DC.

Summary

1. On 6/12/2018, systemwide rail ridership was 844,709. Red Line ridership was about 282,030, representing about 33.4% of the total ridership. On a regular weekday in May (5/8/2018), systemwide rail ridership was 637,361. Red Line ridership was 229,528, representing about 36% of the total ridership. Compared these two days, systemwide ridership went up about 33%, while Red Line ridership went up about 23% on Capitals' Victory Parade Day.

2. On 6/12, ridership (entry) for the 4 stations north of Grosvenor was about 31k, 37% up from a regular weekday in May (5/8: 23k).

3. Compared to a regular weekday, the largest increase of service was during the midday period. On 6/12, between 9 AM and 3 PM, average number of trains departing from Shady Grove ranged from 13 -16 every hour, about 47% more than a regular weekday.

4. Trains departing from Grosvenor remained the same level.

5. No major incident on the Red Line through the day on 6/12/2018 (see the list below). There was an incident of deer struck by train at 22:58, causing a 23-min delay at Rockville.

Capitals' Victory Parade Day

Tuesday, June 12, 2018	AM Peak	Midday	PM Peak	Evening	TOTAL
Systemwide Rail Ridership	270,935	234,663	266,493	72,618	844,709
Red Line Ridership*	90,242	69,628	95,103	27,057	282,030
% of Red Line Ridership	33.3%	29.7%	35.7%	37.3%	33.4%

A Normal Weekday

Tuesday, May 8, 2018	AM Peak	Midday	PM Peak	Evening	TOTAL
Systemwide Rail Ridership	225,167	110,629	239,613	61,952	637,361
Red Line Ridership*	78,100	40,685	86,970	23,774	229,528
% of Red Line Ridership	34.7%	36.8%	36.3%	38.4%	36.0%

% Difference: 6/12 vs. 5/8

6/12 vs. 5/8	AM Peak	Midday	PM Peak	Evening	TOTAL
Systemwide Rail Ridership	20%	112%	11%	17%	33%
Red Line Ridership*	16%	71%	9%	14%	23%

*Note: Red Line Ridership is estimated based on the number of entries at each mezzanine. For each mezzanine, a weight is assigned to estimate the % of entries at this mezzanine board Red Line. Weight: Metro Center: 60%; Gallery Place: 50%; Fort Totten: 70%. All other Red Line stations: 100%.

Incidents on Red Line on 6/12/2018

8:22 a.m. A Grosvenor-bound Red Line train at Judiciary Square was offloaded due to a door problem. Passengers experienced an 8-minute delay.

8:23 a.m. A Silver Spring-bound Red Line train at Farragut North was delayed 5 minutes due to a medical emergency.

9:28 a.m. A Shady Grove-bound Red Line train at Glenmont was delayed 4 minutes due to {DISP//Arrived late, departed late.}.

10:58 p.m. A Glenmont-bound Red Line train at Rockville was offloaded due to striking a deer. Passengers experienced a 23-minute delay.

Station Ridership (North of Grosvenor) on 6/12/2018 and 5/8/2018

Station Entry/Exit	Capitals' Victory Parade Day					A Normal Weekday				
ENTRY	Tuesday, June 12, 2018					Tuesday, May 8, 2018				
Stations Name	AM Peak	Midday	PM Peak	Evening	TOTAL	AM Peak	Midday	PM Peak	Evening	TOTAL
Grosvenor	4,441	1,419	681	135	6,676	3,541	698	680	108	5,027
Rockville	2,682	1,444	842	255	5,223	2,036	783	829	273	3,921
Shady Grove	11,727	3,720	1,025	262	16,734	8,449	1,658	990	222	11,319
Twinbrook	2,521	1,073	927	229	4,750	2,089	669	894	189	3,841
White Flint	1,923	1,037	1,178	279	4,417	1,653	636	1,106	212	3,607
Total-4 Stations north of Grosvenor	**18,853**	**7,274**	**3,972**	**1,025**	**31,124**	**14,227**	**3,746**	**3,819**	**896**	**22,688**
EXIT	Tuesday, June 12, 2018					Tuesday, May 8, 2018				
Stations Name	AM Peak	Midday	PM Peak	Evening	TOTAL	AM Peak	Midday	PM Peak	Evening	TOTAL
Grosvenor	342	1,470	3,270	1,255	6,337	363	405	3,035	1,087	4,890
Rockville	676	1,202	2,482	824	5,184	647	574	2,020	694	3,935
Shady Grove	653	3,537	9,103	2,725	16,018	630	1,026	7,009	2,472	11,137
Twinbrook	713	929	2,402	894	4,938	716	489	2,116	828	4,149
White Flint	961	900	1,707	731	4,299	940	502	1,521	638	3,601
Total-4 Stations north of Grosvenor	**3,003**	**6,568**	**15,694**	**5,174**	**30,439**	**2,933**	**2,591**	**12,666**	**4,632**	**22,822**

Station Ridership (North of Grosvenor) on 6/12/2018 and 5/8/2018: % Difference

Station Entry/Exit	% Diff				
ENTRY	6/12 vs. 5/8				
Stations Name	AM Peak	Midday	PM Peak	Evening	TOTAL
Grosvenor	25%	103%	0%	25%	33%
Rockville	32%	84%	2%	-7%	33%
Shady Grove	39%	124%	4%	18%	48%
Twinbrook	21%	60%	4%	21%	24%
White Flint	16%	63%	7%	32%	22%
Total-4 Stations north of Grosvenor	**33%**	**94%**	**4%**	**14%**	**37%**
EXIT	6/12 vs. 5/8				
Stations Name	AM Peak	Midday	PM Peak	Evening	TOTAL
Grosvenor	-6%	263%	8%	15%	30%
Rockville	4%	109%	23%	19%	32%
Shady Grove	4%	245%	30%	10%	44%
Twinbrook	0%	90%	14%	8%	19%
White Flint	2%	79%	12%	15%	19%
Total-4 Stations north of Grosvenor	**2%**	**153%**	**24%**	**12%**	**33%**

Trains Departing from Shady Grove

Capitals' Victory Parade Day Tuesday, June 12, 2018						A Normal Weekday Tuesday, May 8, 2018						Total # of trains: % Diff by Hour
Service Hour	Number of Trains			Number of Cars			Service Hour	Number of Trains			Number of Cars		
	6-car train	8-car train	Total	6-car train	8-car train	Total		6-car train	8-car train	Total	6-car train	8-car train	Total	
5	3	5	8	18	40	58	5	1	7	8	6	56	62	0%
6	5	8	13	30	64	94	6	8	5	13	48	40	88	0%
7	3	5	8	18	40	58	7	0	8	8	0	64	64	0%
8	3	4	7	18	32	50	8	2	6	8	12	48	60	-13%
9	5	8	13	30	64	94	9	2	7	9	12	56	68	44%
10	7	8	15	42	64	106	10	2	8	10	12	64	76	50%
11	5	10	15	30	80	110	11	4	7	11	24	56	80	36%
12	8	8	16	48	64	112	12	2	8	10	12	64	76	60%
13	5	9	14	30	72	102	13	5	5	10	30	40	70	40%
14	8	7	15	48	56	104	14	2	8	10	12	64	76	50%
15	7	5	12	42	40	82	15	1	8	9	6	64	70	33%
16	2	5	7	12	40	52	16	2	5	7	12	40	52	0%
17	4	4	8	24	32	56	17	3	5	8	18	40	58	0%
18	4	2	6	24	16	40	18	2	4	6	12	32	44	0%
19	1	4	5	6	32	38	19	2	3	5	12	24	36	0%
20	2	3	5	12	24	36	20	0	5	5	0	40	40	0%
21	2	2	4	12	16	28	21	0	4	4	0	32	32	0%
22	1	1	2	6	8	14	22	2	1	3	12	8	20	-33%
Total	**75**	**98**	**173**	**450**	**784**	**1,234**	**Total**	**40**	**104**	**144**	**240**	**832**	**1,072**	**20%**

Number of trains departing from Shady Grove by hour - 6/12/2018
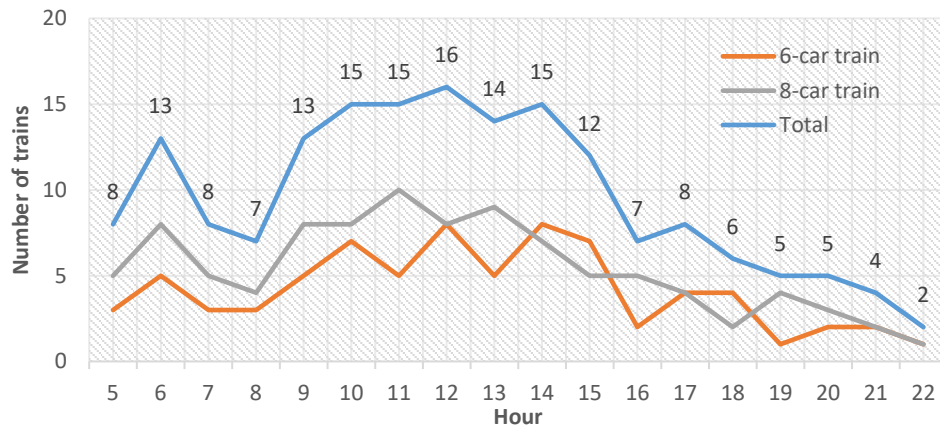
Number of trains departing from Shady Grove by hour - 5/8/2018
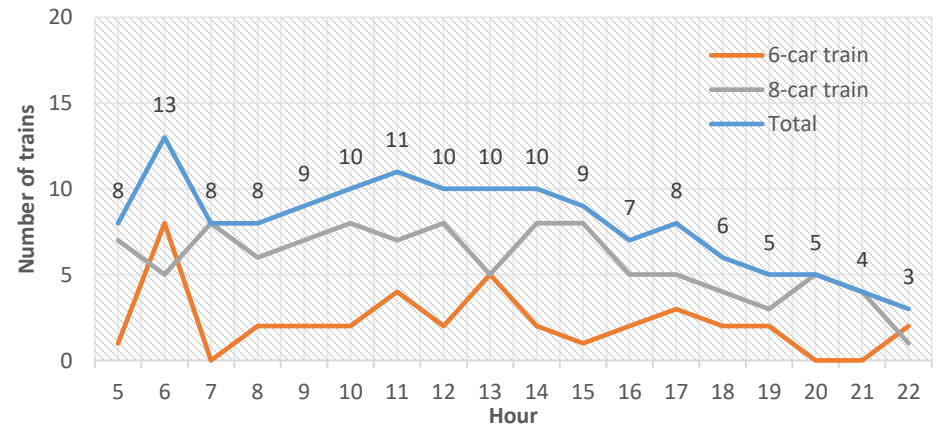
Trains Departing from Grosvenor

| Capitals' Victory Parade Day Tuesday, June 12, 2018						A Normal Weekday Tuesday, May 8, 2018						Total # of trains: % Diff by Hour
Service Hour	Number of Trains			Number of Cars			Service Hour	Number of Trains			Number of Cars		
	6-car train	8-car train	Total	6-car train	8-car train	Total		6-car train	8-car train	Total	6-car train	8-car train	Total	
5	0	0	0	0	0	0	5	0	0	0	0	0	0	0%
6	0	0	0	0	0	0	6	0	0	0	0	0	0	0%
7	5	2	7	30	16	46	7	3	4	7	18	32	50	0%
8	3	3	6	18	24	42	8	4	2	6	24	16	40	0%
9	3	0	3	18	0	18	9	2	1	3	12	8	20	0%
10	0	0	0	0	0	0	10	0	0	0	0	0	0	0%
11	0	0	0	0	0	0	11	0	0	0	0	0	0	0%
12	0	0	0	0	0	0	12	0	0	0	0	0	0	0%
13	0	0	0	0	0	0	13	0	0	0	0	0	0	0%
14	0	0	0	0	0	0	14	0	0	0	0	0	0	0%
15	0	3	3	0	24	24	15	3	0	3	18	0	18	0%
16	4	3	7	24	24	48	16	2	5	7	12	40	52	0%
17	3	5	8	18	40	58	17	3	5	8	18	40	58	0%
18	3	3	6	18	24	42	18	1	5	6	6	40	46	0%
19	1	0	1	6	0	6	19	1	1	2	6	8	14	-50%
20	0	0	0	0	0	0	20	0	0	0	0	0	0	0%
21	0	0	0	0	0	0	21	0	0	0	0	0	0	0%
22	0	0	0	0	0	0	22	0	0	0	0	0	0	0%
23	0	2	2	0	16	16	23	0	0	0	0	0	0	0%
Total	22	21	43	132	168	300	Total	19	23	42	114	184	298	2%

Number of trains departing from Grosvenor by hour - 6/12/2018
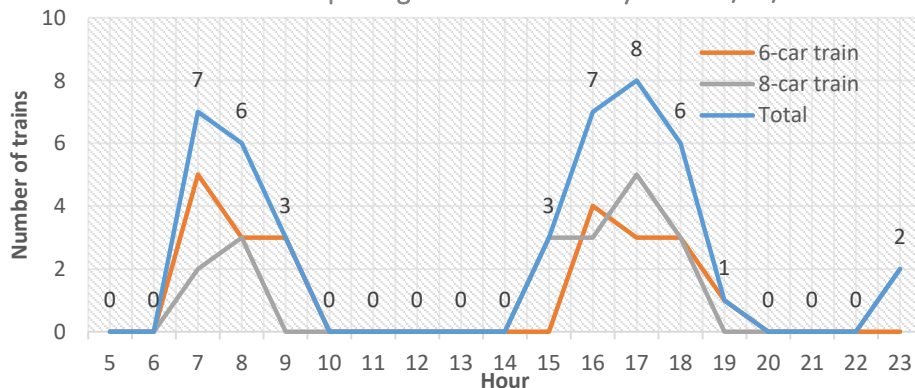
Number of trains departing from Grosvenor by hour - 5/8/2018
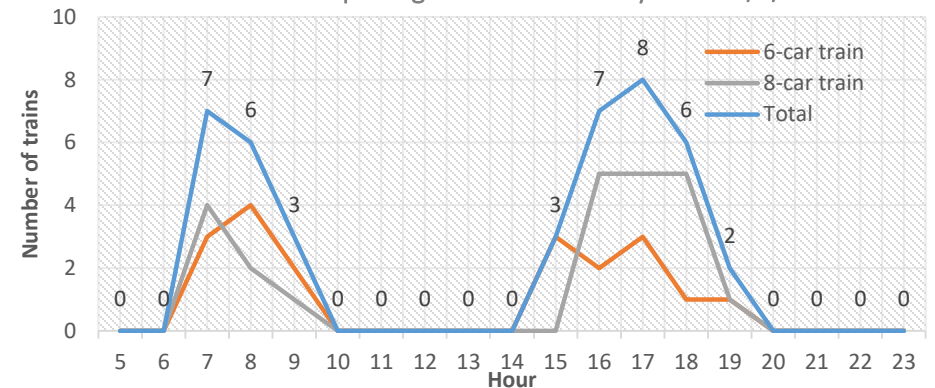
Grosvenor Turnback
Elimination Capability Report

Version 1.0

June 25, 2018

Overview

This report intends to address the feasibility of Metro operating Red Line trains to its Shady Grove terminal on a full-time basis during rush hour at a four-minute headway without major capital infrastructure improvements.

Red Line trains currently operate at eight-minute headways during rush hours at Shady Grove, Rockville, Twinbrook, and White Flint. Fifty percent of Red Line trains terminate at Grosvenor during rush hour, which results in trains coming every four minutes at stations between and including Grosvenor and Silver Spring.

Metro has created and is evaluating alternatives to potentially increase service between Grosvenor and Shady Grove, providing more trains for riders at four stations in Montgomery County, Maryland.

Background

WMATA operates Metrorail Red Line trains in two distinct service patterns. Trains run between Shady Grove and Glenmont, the terminal stations on either end of the Red Line, every eight minutes during morning and evening rush hours. These trains are dispatched with a 100-based ID. In addition, short-turning trains run between Grosvenor and Silver Spring every eight minutes with 200-based IDs. Trains from these two service patterns are sequenced in alternation by the Rail Operations Control Center (ROCC).

Trains which turn around at Grosvenor and Silver Spring utilize the 'pocket track' at either station. When in the pocket track, the ROCC can continue to route train traffic on both the inbound and outbound tracks at either station without severely disrupting the flow of trains.

Trains entering either the Silver Spring or the Grosvenor pocket track use a 'dropback operator' to turn around and prepare for service back towards the other pocket track. This sequence is detailed below:

- An in-service train with a 200 ID arrives at Grosvenor or Silver Spring on the outbound platform and opens its doors to let passengers off the train. The train at this point is now out of service, and the operator is required to make announcements telling passengers not to board the train.
- While the doors are open at the station, a second operator—the dropback operator—enters the train and prepares to take over operation of the train from the trailing end.
- The primary operator closes the train's doors and, with correct rail alignment, takes the train into the pocket track. This allows for the next train behind, which should be a train with a 100 ID running the full Red Line service pattern (Shady Grove to Glenmont), to berth at the station and pick up passengers who may need to transfer from the train which just offloaded.
- Once in the pocket track, the primary operator keys down and turns off the train. The dropback operator then keys up and turns on the train from the trailing end.
- With permission from the ROCC, the dropback operator takes the train from the pocket track and routes it to the inbound platform, opening the doors. The train is now in service to carry passengers towards the other end of the line, i.e. to either Grosvenor or Silver Spring.

Red Line trains with a 100 ID are currently scheduled to depart from Shady Grove and Glenmont every eight minutes; trains with a 200 ID are scheduled to depart from Grosvenor and Silver Spring every eight minutes. This service pattern means that all stations between and including Grosvenor and Silver Spring see a Red Line train in either direction every four minutes.

Alternative Service Proposals

The "Additional Red Line Service Options" proposal presented to the Safety and Service Delivery Committee on March 8, 2018 made note of three service alternatives for consideration:
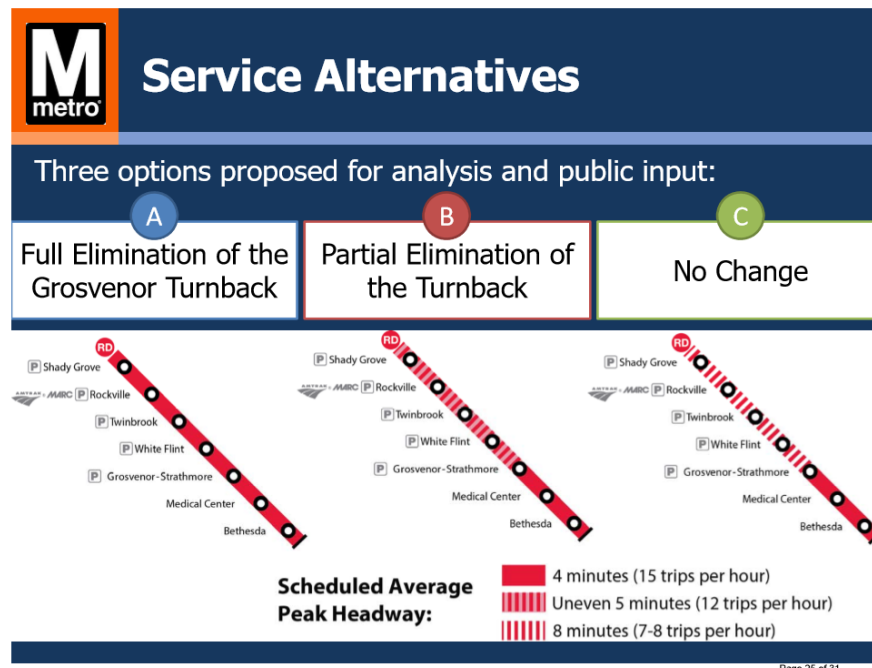
➢ Alternative A: Full elimination of the Grosvenor turn back, meaning service at White Flint, Twinbrook, Rockville, and Shady Grove effectively doubles from trains every eight minutes to trains every four minutes.

➢ Alternative B: Partial elimination of the Grosvenor turnback, increasing service to Shady Grove from the existing 7.5 trains per hour to 12 trains per hour. Trains would arrive and depart every five minutes. An additional 3 trains per hour would turn back at Grosvenor, preserving the 15 trains per hour frequency on the interior portion of the line.

➢ Alternative C: No change, keeping the existing Grosvenor turnback and service levels as-is.

Problem Analysis

History of Service Levels and Performance

Timeframe	Headway/# of Trains per Hour		Performance
	Shady Grove to White Flint	Grosvenor to downtown	
Opening (1984) to 2004	6 min/10 trains	3 min/20 trains	On par with system
April 2004 - June 2010	5 min/12 trains	2.5 min/24 trains	Delays and congestion
June 2010 - June 2017	6 min/10 trains	3 min/20 trains	Delays for multiple reasons*
June 2017 - present	8 min/7.5 trains	4 min/15 trains	Improved performance

* During this period not operating ATO, SafeTrack and other operational issues

As noted in the slide above, presented to the Board in March 2018, Red Line performance was degraded due to various factors during a period from April 2004 through June 2017.

A primary factor that contributed to the delays was the Grosvenor turnback itself. As trains offload passengers at Grosvenor, the following train closes distance, and as the offloaded train enters the center pocket track to turn around, it must travel at a reduced speed—on average, around 16-20 MPH—which adds to the delay encountered by the following train. These delays eventually result in a snowball effect, which can result in trains being held by the ROCC at stations earlier down the line. Similar effects could be observed at Silver Spring and Mt. Vernon Square stations on the Green and Yellow Lines when using the pocket track versus using the crossover inbound of the station.

Note: While ATO, among other things, increases efficiency in operations, the lack of its use impedes midline turn backs, such as at Grosvenor, Silver Spring, and Mt. Vernon Square, especially with 8-car trains.

Shady Grove Infrastructure Concerns

Shady Grove currently has a double crossover located inbound of the station platform, as is typical for most of the terminal stations in the Metrorail system. A second double crossover is located just outbound of the platform that can be utilized if needed, a benefit not available at all terminal stations.

Observations made at Shady Grove suggest that the current vertical transportation is adequate to clear a full train within 4 minutes, when the next one might arrive under complete elimination of the Grosvenor turnback; given current ridership levels, no physical infrastructure improvements at Grosvenor station appear to be necessary.

Largo Town Center Terminal Operations

Largo Town Center serves as one of the terminal stations of both the Blue and Silver Lines, which currently operate at 8-minute headways, resulting in a combined 4-minute headway and 15 trains per hour capacity at Largo Town Center during the peak of rush hour service with minimal to no impact to rail service.

With Largo Town Center, an existing terminal station configured similarly to Shady Grove, operating at the same capacity the Grosvenor turnback elimination would bring to Shady Grove, Metro staff can study the lessons learned while operating Largo Town Center at 15 trains per hour and apply these lessons operating Shady Grove at 15 trains per hour to ensure the changes work well for employees and Red Line riders alike.

Washington Capitals Special Event

On Tuesday, June 12, 2018, in celebration of the Washington Capitals winning the Stanley Cup, a parade was held on the National Mall. In response, WMATA operated Metrorail at rush hour service levels during much of the day; Red Line trains operated at near 4-minute headway frequencies across the entire route from Shady Grove to Grosvenor. As a result, from the 10 AM through 1PM hours, WMATA successfully operated Red Line trains at or exceeding 15 trains per hour from Shady Grove.

In Figure 3A on the next page, Red Line train departures per hour from Shady Grove are shown using two typical Tuesdays (May 8 and May 29) as comparison to this special event service for the parade. The following Figure 3B shows the same train departure data for the same times of day, but for the Blue and Silver Lines from Largo Town Center, a station that is already scheduled to operate at 15 trains per hour during rush hours and whose existing track configuration is like that of Shady Grove, though not technically identical, but effectively similar.
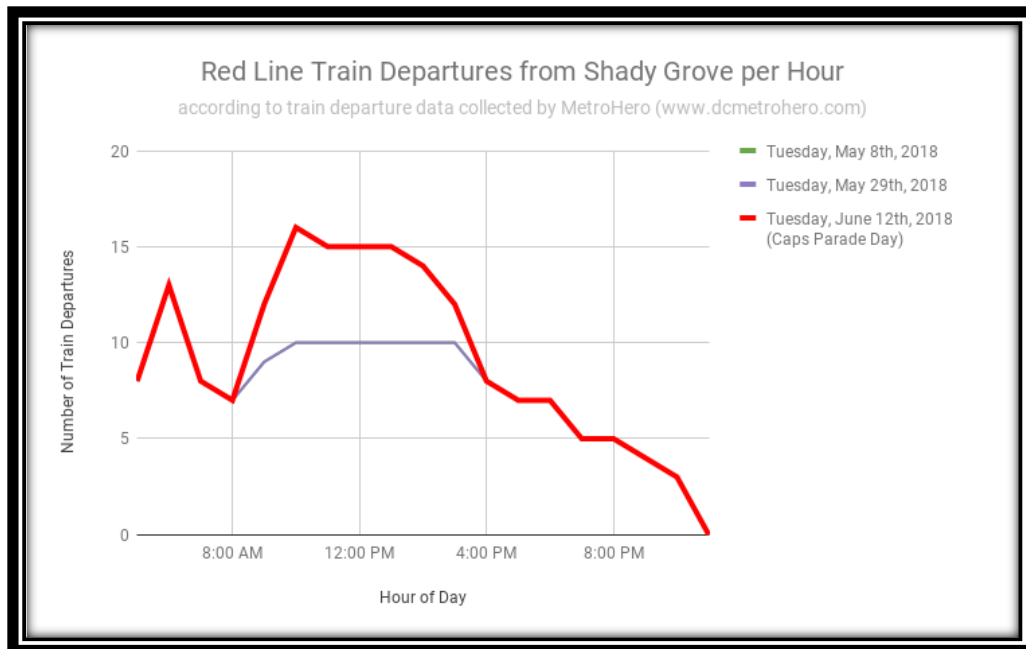
Figure 3A (above): A line chart of Red Line train departures from Shady Grove per hour from 5am (weekday Metrorail opening) through midnight (regular system closing is at 11:30pm). Note that Shady Grove achieved 15 trains per hour for several hours from 10AM though 1PM on Caps Parade Day, highlighted in red in the chart. (May 8 and May 29 operated at effectively identical service levels from Shady Grove, which is why it appears only May 29 and June 12 are represented in the chart; the entirety of the purple line representing May 29 completely overlaps that of the green line representing May 8.)
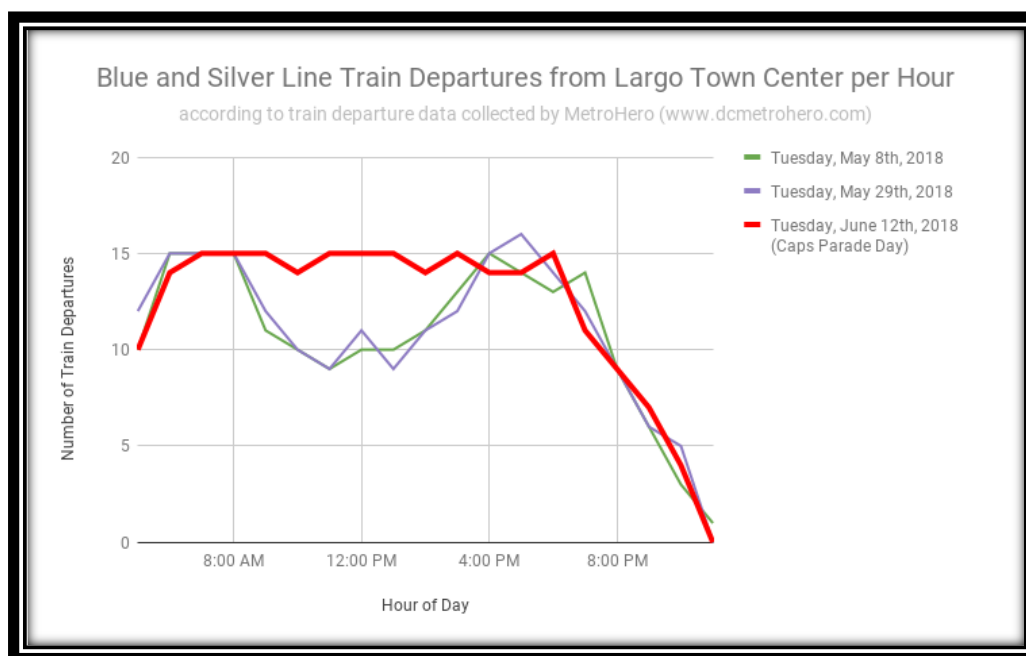

Figure 3B (above): A line chart of the number of Blue and Silver Line train departures from Largo Town Center per hour from 5am (weekday Metrorail opening) through midnight (regular system closing is at 11:30pm). Note that Largo Town Center already operates at 15 trains per hour during peak periods, and did so for longer on Caps Parade Day, highlighted in red in the chart. This station's existing track configuration is like that of Shady Grove, though not technically identical, but effectively similar.

Recommendation

Our recommendation is for the Board to select Option A and have WMATA operate Red Line service to Shady Grove 100% of the time, discontinuing scheduled use of the Grosvenor turnback. We recommend this for the following reasons:

➢ Provides passengers a single-seat ride on every train towards Shady Grove without the need to transfer at Grosvenor
➢ Reduces passengers per car (PCC) loads
➢ Further incentivizes passenger parking and train boarding at White Flint, Twinbrook, Rockville, and Shady Grove during rush hours
➢ Likely improves operational headway adherence by not holding trains approaching Grosvenor
➢ Shady Grove is effectively capable of handling 15 trains per hour with no costly infrastructure improvements, as is currently the status quo on weekdays during rush hour at Largo Town Center, a terminal station whose existing infrastructure is like that of Shady Grove
➢ There are enough active in-service rail cars—approximately 1130 in total—to handle the approximately 5 extra trains required to extend service (this alone does not address the requirement for more Red Line train operators, which would need to be addressed)
➢ The Grosvenor pocket track will be freed up, allowing it to be utilized for a gap train to be stored during the AM rush on weekdays in the event of a train malfunction or other service incident that would otherwise result in fewer in-service Red Line trains