



MARYLAND DEPARTMENT
OF TRANSPORTATION

MARYLAND TRANSIT
ADMINISTRATION

BaltimoreLink Committee Meeting

Kevin Quinn, Administrator

12/14/17



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Agenda

- February 2018 Service Changes
- Headway Management & Bus Service Performance
- Capital Project Updates
- Questions/Comments/Discussion



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February 2018 Service Changes

Route Proposals



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February 2018 – Service Change Proposal

- New Service
- Service Adjustments

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MARYLAND TRANSIT ADMINISTRATION (MDOT MTA)

NOTICE OF PUBLIC HEARINGS

MDOT MTA gives notice of 10 public hearings to provide interested persons the opportunity to comment on proposed service changes to CityLink, Locallink, and Express BusLink routes. The proposed changes would become effective on or about Sunday, February 4, 2018.

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Where you want to go

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Winter 2018 Service Changes
Summary of Proposals

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New Service: Sparrows Point



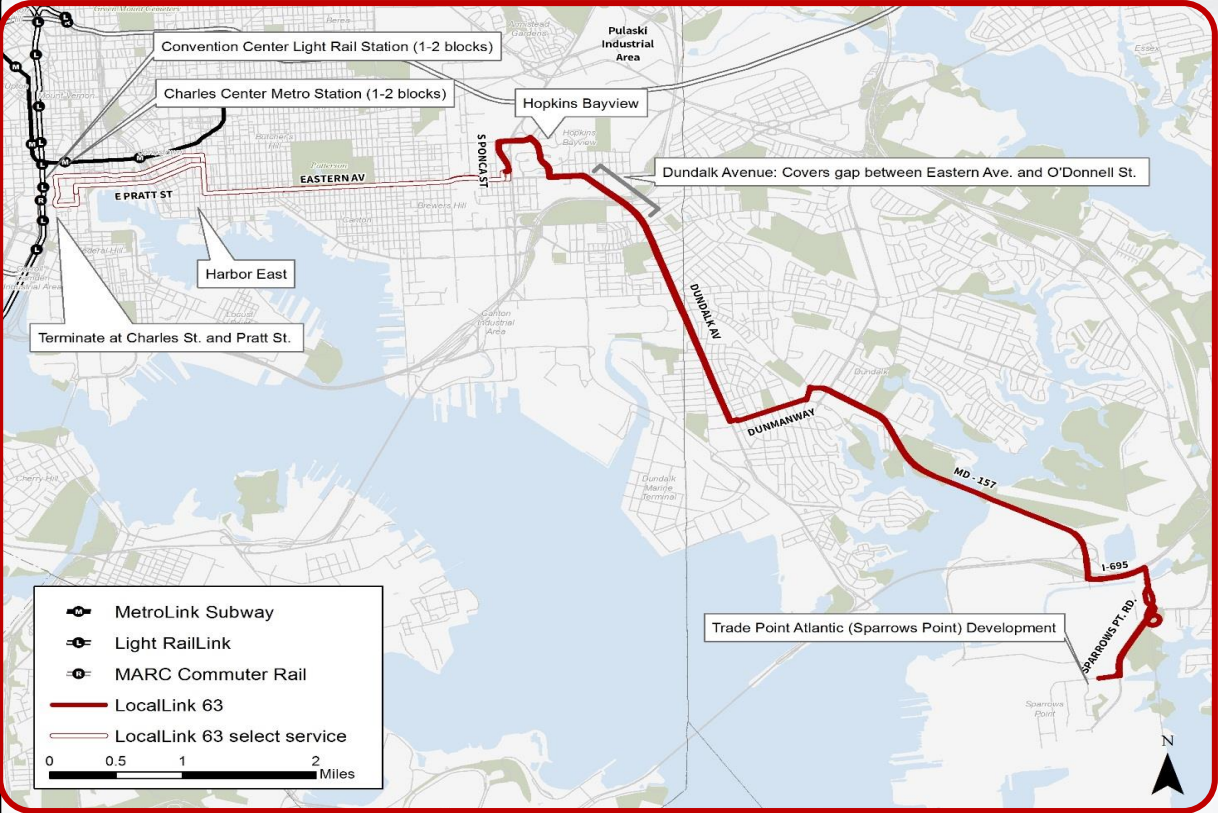
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New Route – LocalLink 63

Route 63 – Alternative 1				
Select Trips			All Trips	
From	DOWNTOWN			HOPKINS BAYVIEW
To	SPARROWS POINT VIA EASTERN			SPARROWS POINT
Span	Weekday	6:30am-12:00am		6:30am-12:00am
	Saturday	6:30am-12:00am		6:30am-12:00am
	Sunday	6:30am-12:00am		6:30am-12:00am
Frequency (Minutes)*	Weekday	Early	60	30
		AM Peak	30	15
		Midday	60	30
		PM Peak	30	15
		Evening	60	30
		Late Night	60	30
	Sat	Day	60	30
		Other Times	60	30
	Sun	Day	60	30
		Other Times	60	30

*Frequencies are tentative based on shift schedules at Tradepoint Atlantic

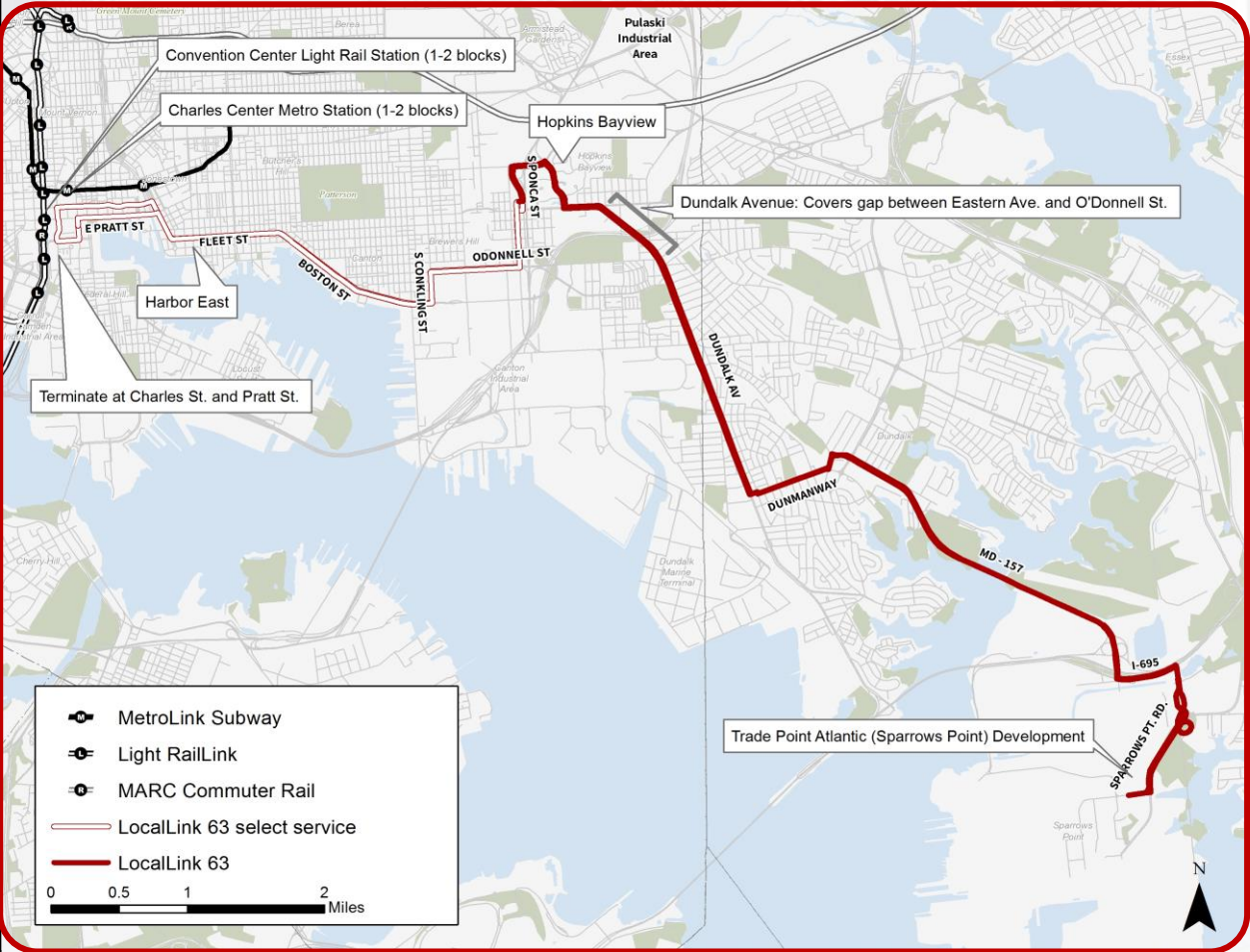


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New Route – LocalLink 63 (Alternative 2)

Route	63 – Alternative 2			
	Select Trips		All Trips	
From	DOWNTOWN		HOPKINS BAYVIEW	
To	SPARROWS POINT VIA BOSTON & O'DONNELL		SPARROWS POINT	
Span	Weekday	6:30am-7:30pm	6:30am-12:00am	
	Saturday	6:30am-7:30pm	6:30am-12:00am	
	Sunday	6:30am-7:30pm	6:30am-12:00am	
Frequency (Minutes)*	Weekday	Early	60	30
		AM Peak	30	15
		Midday	60	30
		PM Peak	30	15
		Evening	60	30
		Late Night	60	30
	Sat	Day	60	30
		Other Times	60	30
	Sun	Day	60	30
		Other Times	60	30



Service Adjustments and Extensions



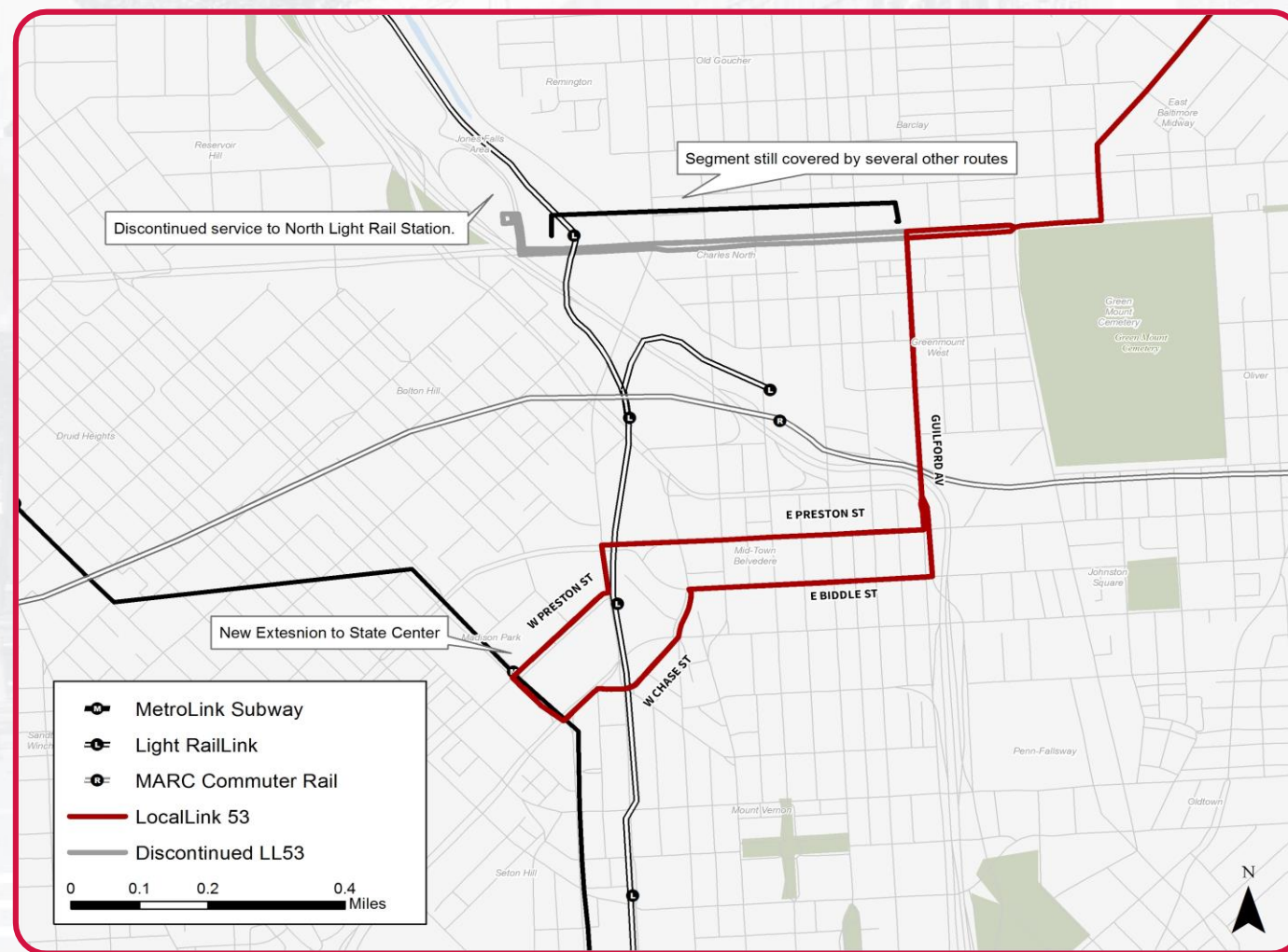
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LocalLink 53

- Rerouting from North Avenue Light Rail to State Center
- New alignment eliminates service gap between North Avenue and Preston Street



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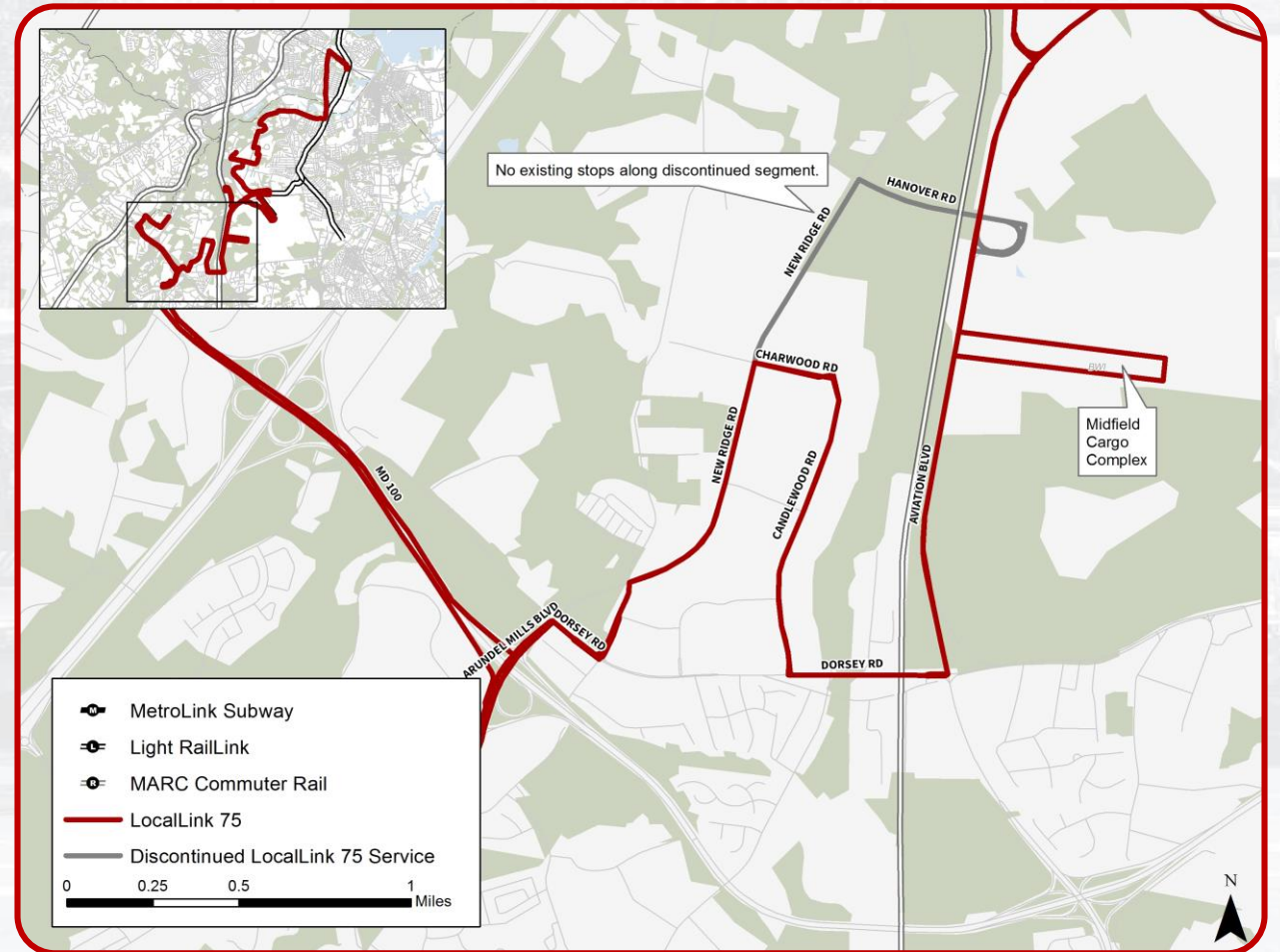
LocalLink 75

Concerns for Investigation and Community Feedback:

- Request for additional service from local stakeholders

Additional Considerations

- Reinstatement of bus stops along Candlewood and Charwood Rds



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CityLink Green & LocalLink 78

CityLink Green

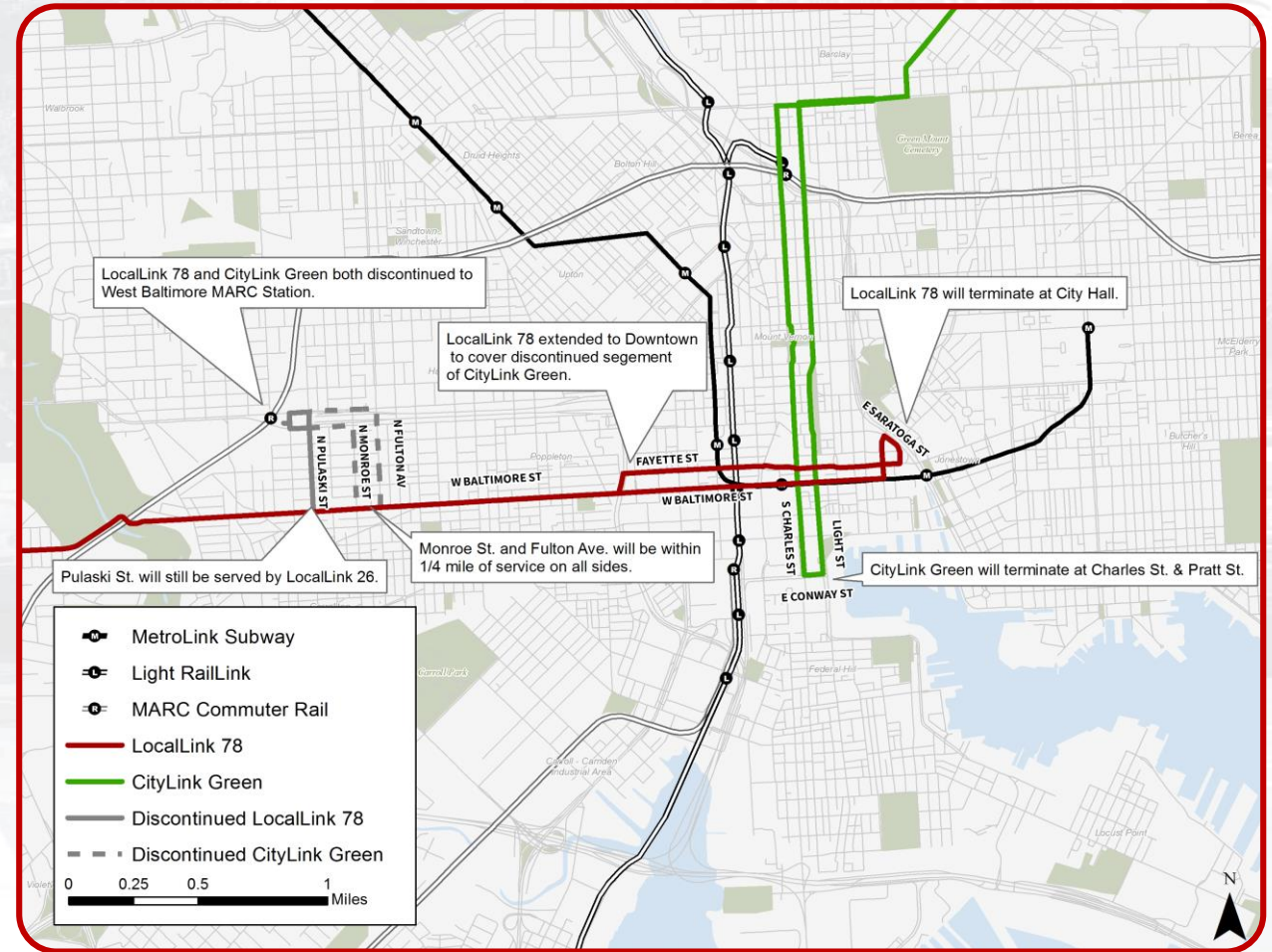
- Terminate downtown instead of West Baltimore hub

LocalLink 78

- Extend to City Hall

Benefits

- Assist with overcrowding on CityLink Blue



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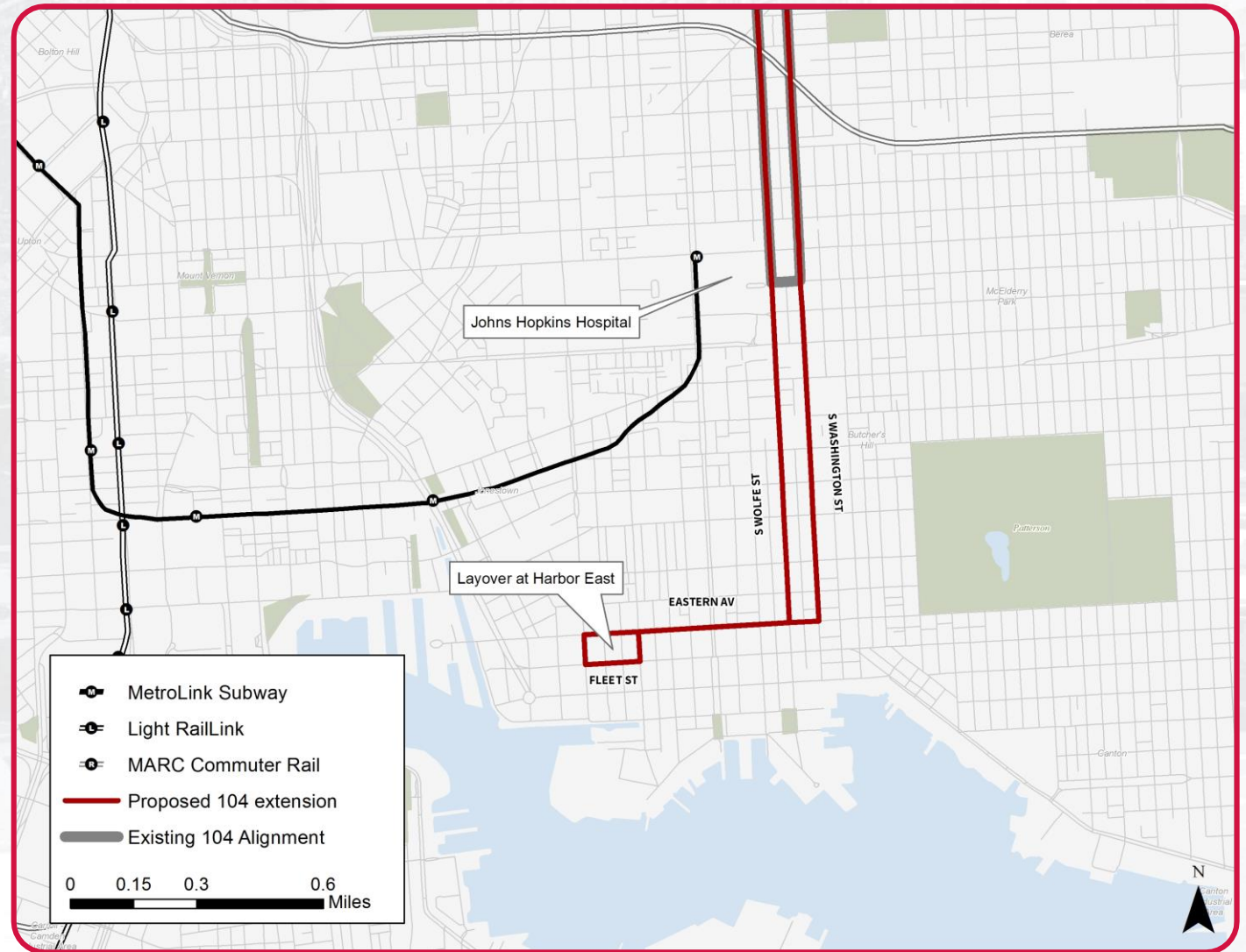
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Express BusLink 104

Harbor Point/Exelon HQ

- Lack of productive trip generators on the Express BusLink 104.
- Requests from elected officials and community for service to help ease congestion around new Exelon headquarters / in Harbor East.

Solution: Extend the Express BusLink 104 to also serve the Harbor East area.

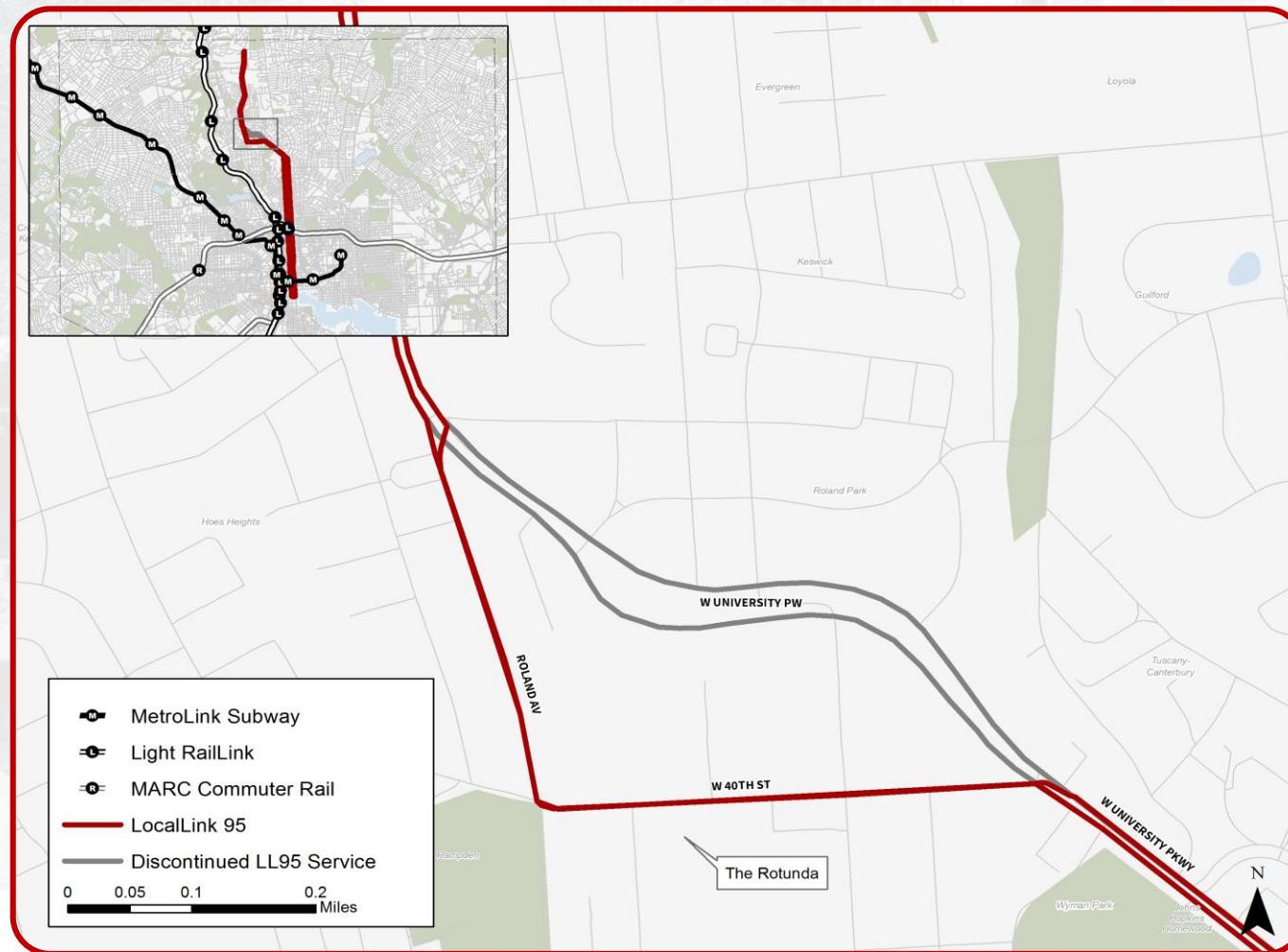


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LocalLink 95

- Reroute down Roland Avenue to provide service to the Rotunda Shopping Center and connections to senior apartment buildings



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Service Eliminations



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Sheppard Pratt - White Marsh PNR

Express BusLink 102

Reasons underperforming:

- Trip/connection can be made using other services
- Limited number of trips

Alternative Services:

- LocalLink 53; CityLink Brown

**Ranks
64th out
of 67
routes**



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Sheppard Pratt - Owings Mills

Express BusLink 106

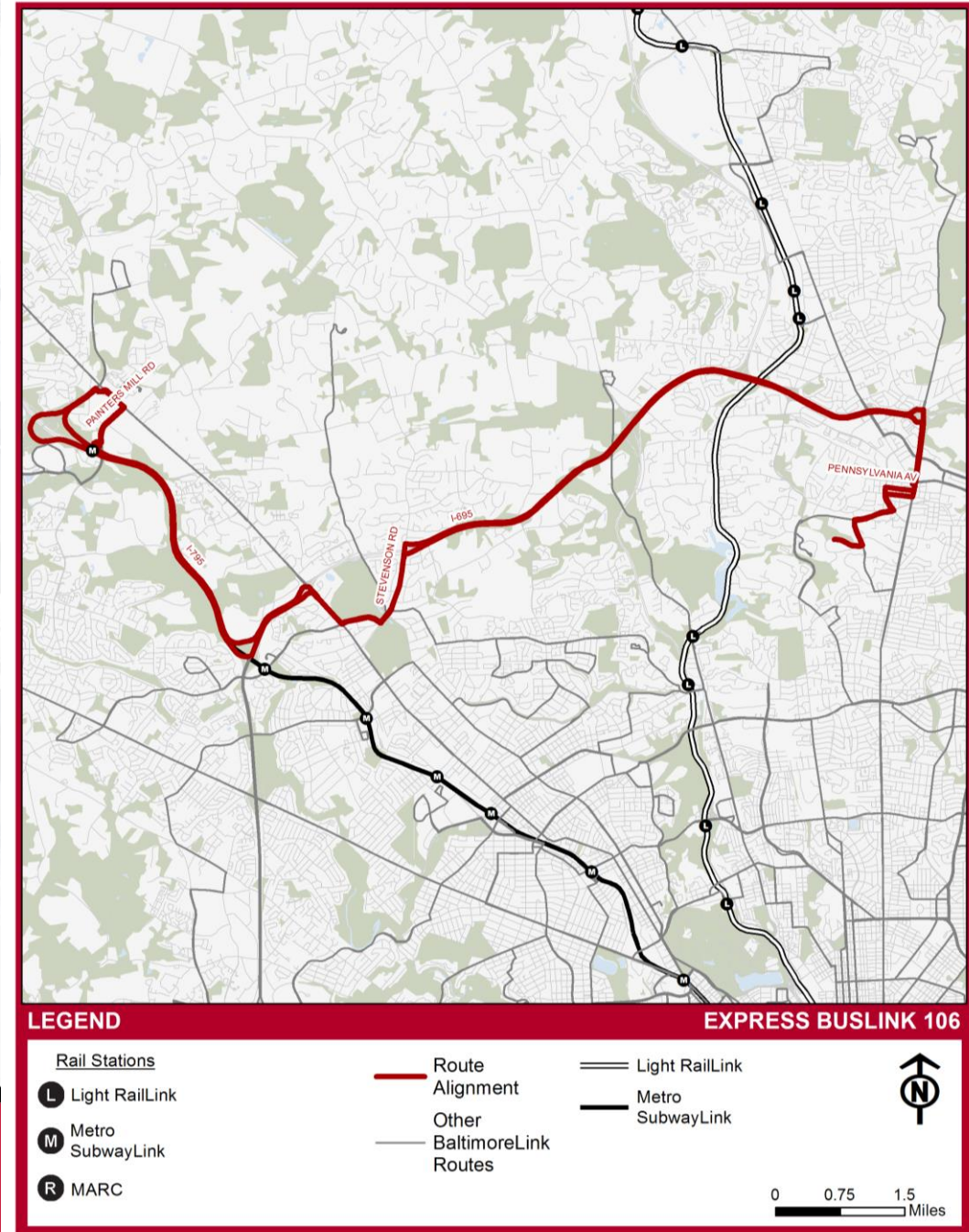
Reasons underperforming:

- Trip/connection can be made using other services
- Limited number of trips

Alternative Services:

- Metro SubwayLink; various crosstowns; CityLink Red

**Ranks
66th out
of 67
routes**



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BWI Airport - Old Court Metro Express BusLink 107

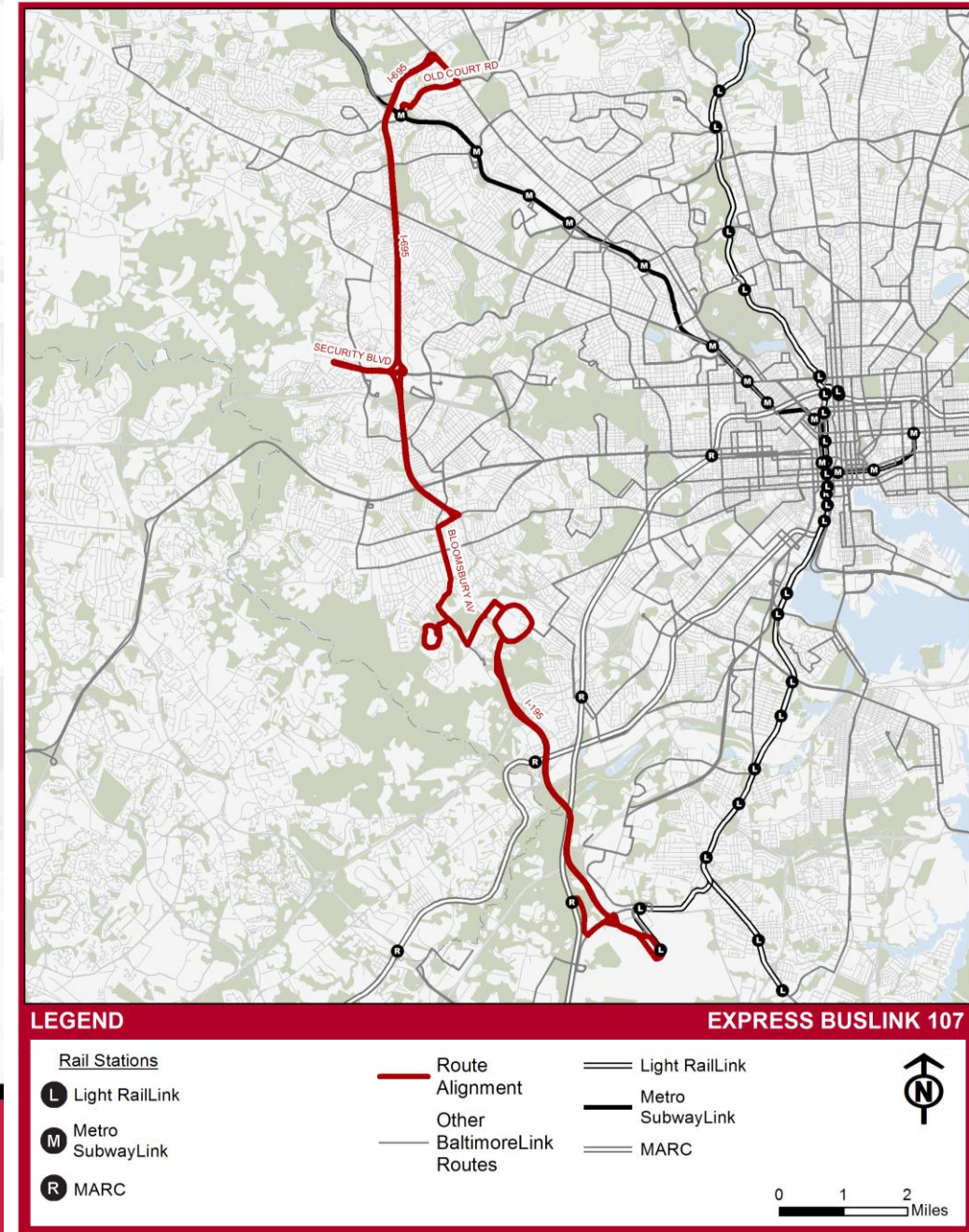
Reasons underperforming:

- Trip/connection can be made using other services
- Long cycle-time
- Limited number of trips
- Few trip generators served

Alternative Services:

- Depending on origin/destination, all locations are access via other service, but would require a transfer.

**Ranks
67th out
of 67
routes**



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Headway Management



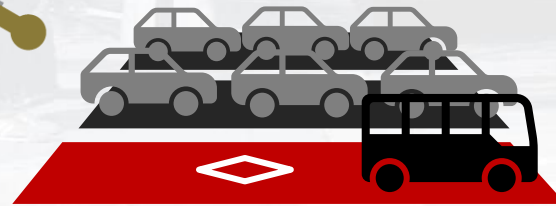
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BaltimoreLink set the groundwork to improve reliability with capital improvements and service changes.



**BUS
ONLY
LANES**



**TRANSIT
SIGNAL
PRIORITY**



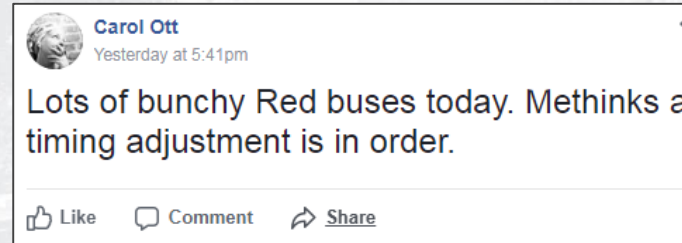
**BUS
STOP
OPTIMIZATION**



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Our new CityLink routes were still bunching and gapping.

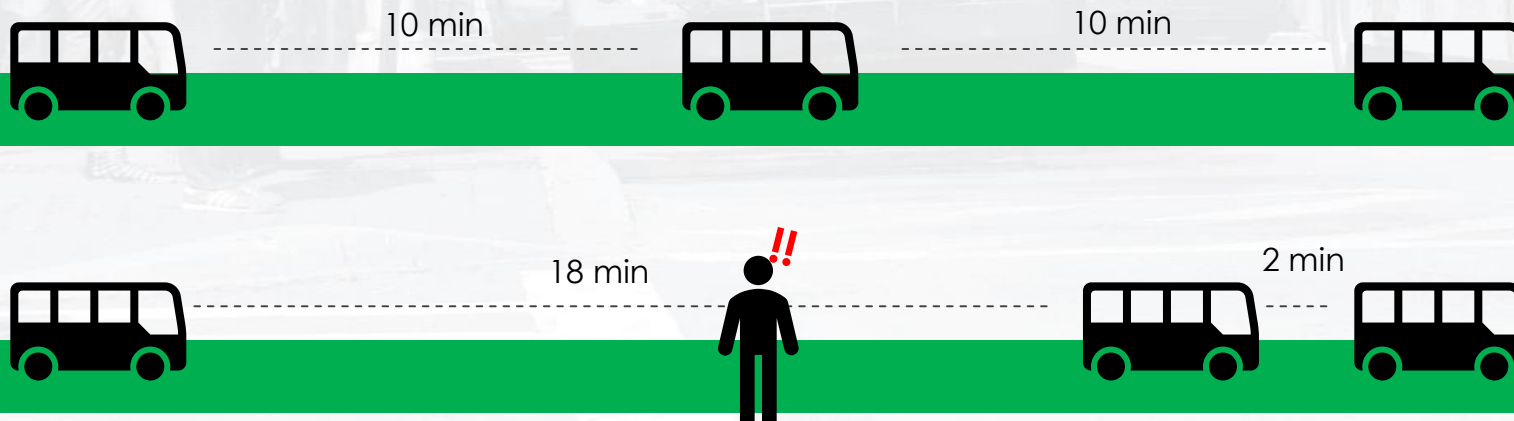


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What are we doing about it?

1. **Research of peer agencies and documentation of internal practices**
2. **Support scenarios with BOCC and Field Supervision**
3. **Conclusion: Putting it all together**

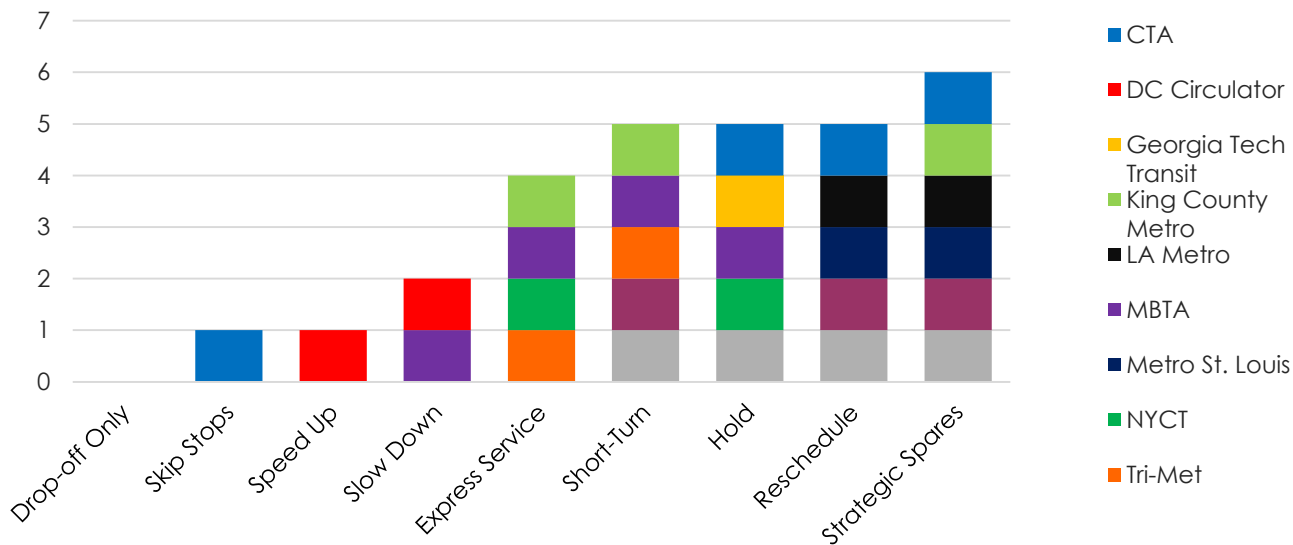


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1. What did the research tell us?

How to Manage



Main takeaways from peer agencies:

- Emphasize strong coordination and accountability in operations
- Provide real-time information and regular communication with customers
- Share data and expectations with bus operators, be receptive of their criticism and feedback

How to Measure

Empirical Analysis of Bus Bunching Characteristics Using Bus AVL/APC Data

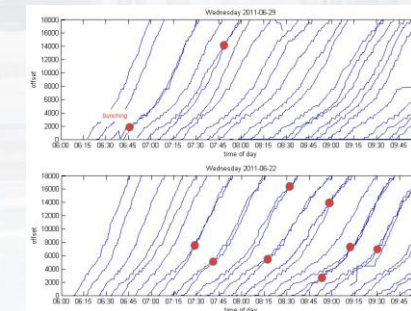
Wei Feng
Chicago Transit Authority

Miguel Figliozzi
Portland State University

94th TRB Annual Meeting
January 14, 2015



Paper #: 15-5138



Instances of 'bus bunching'

Bus service	SBS/SMRT	Tower Transit
941	13.2%	0.4%
947	10.6%	0.3%
335	5.3%	0.9%
97	8.0%	1.9%
79	6.2%	3.1%
189	4.4%	5.0%
98	13.4%	16.8%
282	0.8%	1.1%
285	4.6%	5.7%

■ Improved ■ Worsened
SUNDAY TIMES GRAPHICS



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2. Support Scenarios - Timeline

	Monday	Tuesday	Wednesday	Thursday	Friday
Baseline Week (no change)	9/25	9/26	9/27	9/28	9/29
				Data	Preliminary Results Debriefing
Remote Management Only	10/2	10/3	10/4	10/5	10/6
				Data	Preliminary Results Debriefing
				BOCC	
Remote and Moderate Field Management	10/9	10/10	10/11	10/12	10/13
				Data	Preliminary Results Debriefing
				BOCC	
				Field x2	
Remote and Intense Field Management (plus strategic buses)	10/16	10/17	10/18	10/19	10/20
				Data	Preliminary Results Debriefing
				BOCC	
				Field x3	
				Strategic Buses	



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Staffing Overview

Towson

North Ave.
& St. Paul

West Balt.
MARC

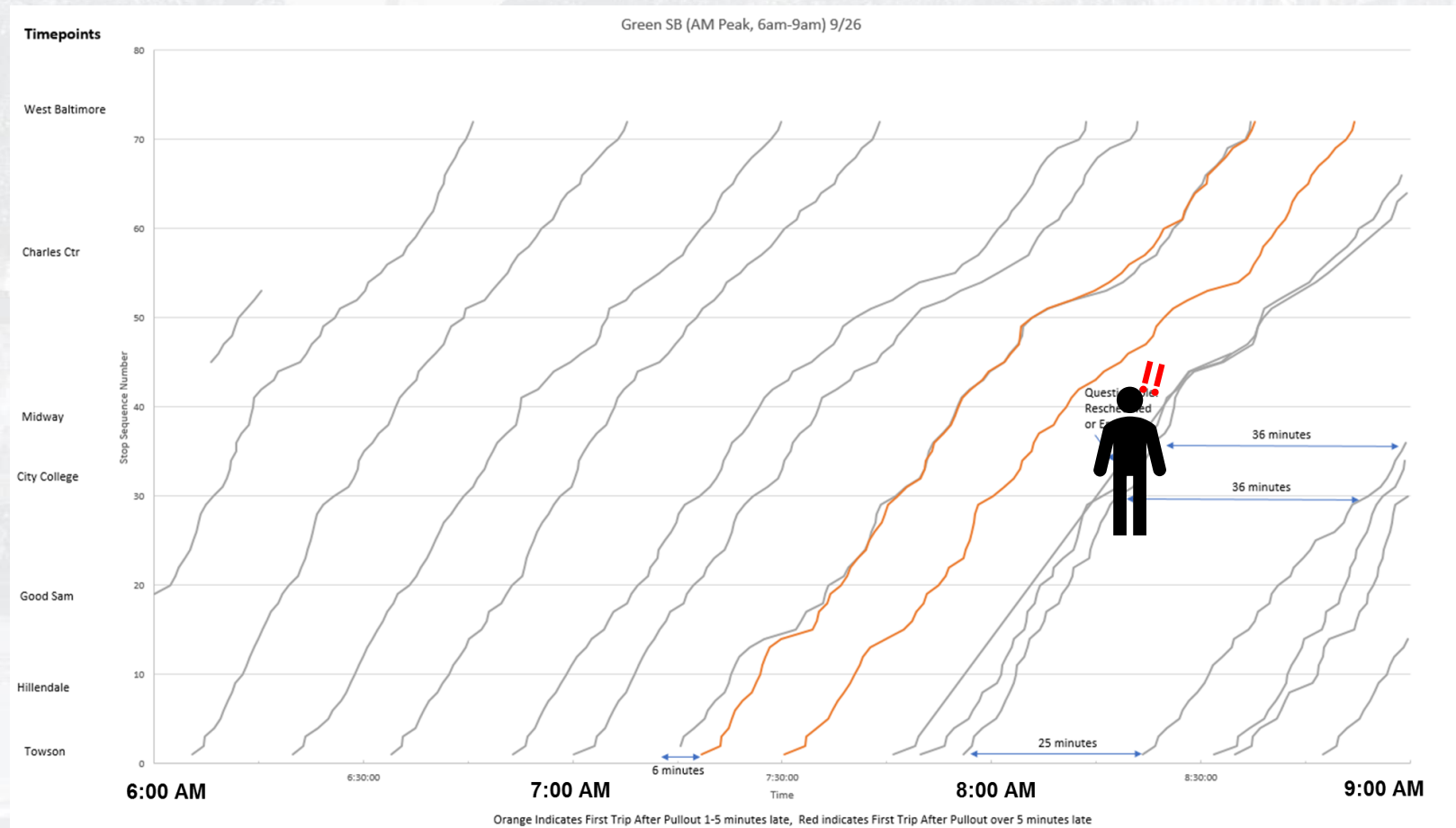
- One dedicated controller per shift managing the CityLink Green:
 - 4:00 AM to noon
 - Noon to 8:00 PM
 - Consultant support to monitor Swiftly real-time data and fill event log
- Field Supervision assigned to 2-3 points along the route
 - 4:00 AM to noon
 - Noon to 8:00 PM
 - Consultant staff assigned to collect field data
- Rescheduling or holding at the termini, brief holds in the middle, inserting strategic spares
- Ride Alongs at least twice per week to monitor environmental, road conditions



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Visualizing Bunching and Gapping



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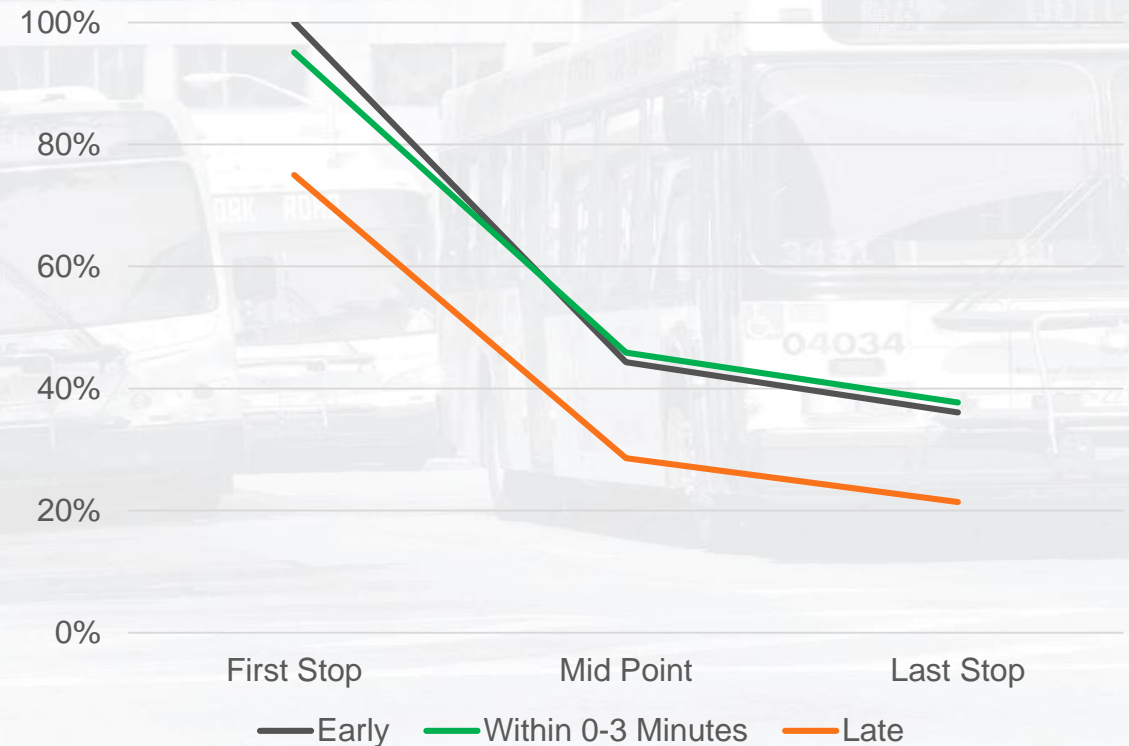
Performance from Gate to Terminus

Impact of late pull out on performance at the beginning, middle, and end of route

AM Peak

Pull-Out Performance	First Stop	Mid Point	Last Stop
40.7% Early	100%	44.3%	36.1%
40.7% Within 0-3 Minutes	95.1%	45.9%	37.7%
18.7% Late	75%	28.6%	21.4%

On-Time Performance



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3. Conclusions – Putting it all together

- Strengthen coordination of staff and resources
- Establish headway management *and* on-time performance policy and training
- Communicate policy and practices with riders and operators
 - Collect feedback
- Continue analysis and monitoring of performance



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Capital Project Updates

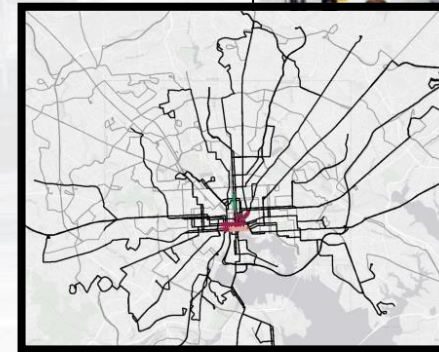


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Dedicated Bus Lanes – Complete!

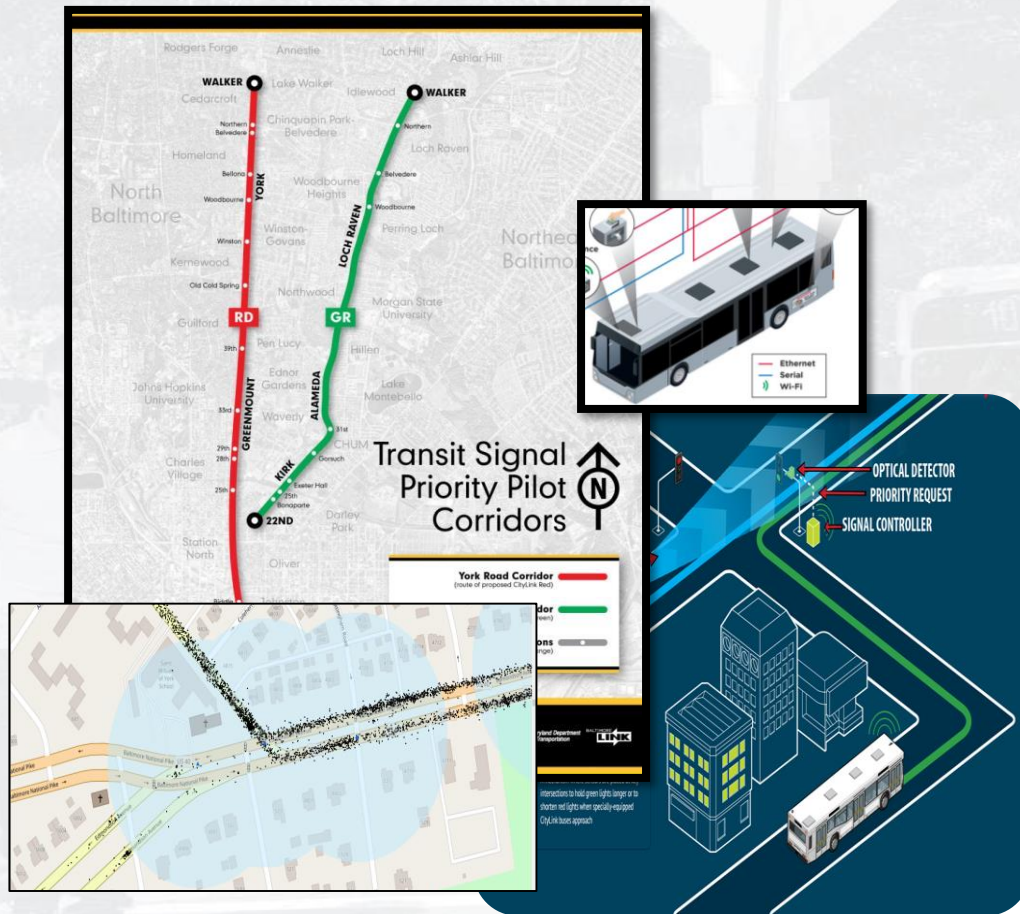
- Implemented roughly 5 ½ miles of dedicated bus lanes
- Up to 25% time savings on Pratt and Lombard
- Evaluating multiple CityLink route corridors, traffic analysis, and the number of buses per hour for benefits
- Benefits report expected Spring 2018



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Transit Signal Priority



- Screened 700 traffic signals around the region for TSP piloting
- TSP bus equipment procured and installed on 250 buses (all CityLink wrapped buses)
- Up to 22% time savings in AM Peak
- Currently identifying additional corridors and intersections:
 - GPS location data
 - Overall delay time
 - Boarding times
 - Other routes served

Metro Railcar Replacement

- \$400+ million contract
- New fleet and Communication Based Train Control (CBTC) system
- Revenue service in 2021



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Light Rail Mid-Life Overhaul

- \$162 million overhaul program for 53-car LRV fleet
- Comprehensive Safety and Security Certification
- Improved amenities
 - Upgraded Operator's seat and cab console
 - GPS triggered (geo-fence) exterior light flashing system
 - On-board CCTV display in Cab



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MARC Locomotives

- \$58.1 million for eight new EPA Tier 4 diesel electric locomotives
 - Highest and cleanest emissions standard in rail industry
- Capable of speeds up to 125 mph
 - Fastest commuter rail in country
- First three have been delivered to Riverside
 - Revenue service in mid-2018
- State-of-the-art technology
 - Fault monitoring
 - Self-diagnosing features to improve reliability and prevent failures



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Bus Shelters

- Installation of approximately 200 bus shelters throughout system
 - Looking into added amenities, including wayfinding inserts, signs, pylons, and real-time information
- Phase 1 will include 50 shelter locations
 - Construction to begin Spring 2018
- Part of continuing rollout of BaltimoreLink



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Existing Cantilevered Shelter with New Roof

This concept builds off the existing cantilevered shelters (the structure would remain the same), except the current translucent roofs would be replaced with new roofs containing enameled patterns (precise patterns to be determined later).

One of the side walls would be removed from the shelter (to permit more people to casually stand under it) and in its place a bus stop identification sign would be hung. The ad panel would be repurposed for wayfinding inserts.

The large rendering depicts the **unpowered version** of the shelter; in the powered version below, the ad panel and bus stop sign would be backlit, and LED net lights would be installed between the cantilevers underneath the roof.



Powered Version

Same dimensions as unpowered shelter; ad panel and sign are backlit



Double-Length Version

24' long (26' of roof coverage); ad panel and sign are backlit





Existing Four-Post Shelter with New Roof

This concept builds off the existing four-post shelters (the structure would remain the same), except the current translucent roofs would be replaced with new roofs containing enameled patterns (precise patterns to be determined later).

One of the side walls would be removed from the shelter (to permit more people to casually stand under it) and in its place a bus stop identification sign would be hung. The ad panel would be repurposed for wayfinding inserts.

The large rendering depicts the **unpowered version** of the shelter; in the powered version below, the ad panel and bus stop sign would be backlit, and LED net lights would be installed between the supports underneath the roof.



Powered Version

Same dimensions as unpowered shelter; ad panel and sign are backlit

Double-Length Version

24' long (26' of roof coverage); ad panel and sign are backlit





New Double-Sided Shelter

This concept is a hybrid of the current cantilevered and four-post shelters in which the back wall is pushed in to the center of the structure to permit seating on both sides of the partition (or, alternatively, to accommodate a lean bar on the back side of the partition).

The structure would continue to contain an ad panel repurposed for wayfinding, and there would be no side wall on the other side. Rather, as in the other concepts, a bus stop identification sign would be fitted around and hang from the cantilever.

The large rendering depicts the **unpowered version** of the shelter; in the powered version below, the ad panel and bus stop sign would be backlit, and LED net lights would be installed between the supports underneath the roof.



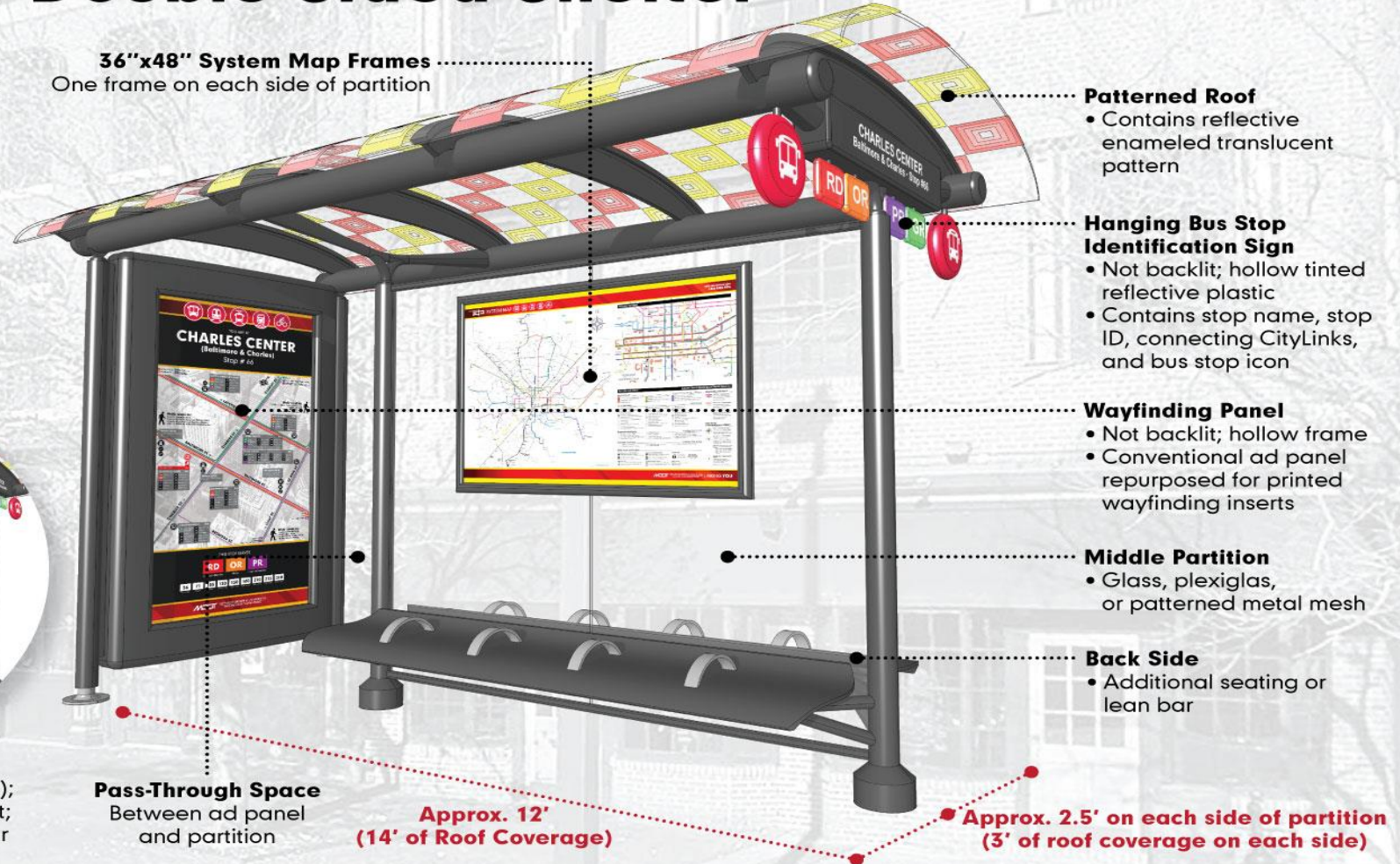
Powered Version

Same dimensions as unpowered shelter; ad panel and sign are backlit



Double-Length Version

24' long (26' of roof coverage); ad panel and sign are backlit; concept depicts rear lean bar





New Cantilevered Shelter

This concept diverges from the design of the existing shelters and seeks to serve as more of a landmark in downtown Baltimore. The structure would consist of single-piece columns and cantilevers, with molded roof panels bent along their contours. Roof and back wall panels would contain reflective enameled red-and-yellow dots for flair.

Apart from the ad panel (used for wayfinding inserts), there would be no side panel on the other side; a hanging bus stop identification sign would take its place.

The large rendering depicts the **unpowered version** of the shelter; in the powered version below the ad panel and bus stop sign would be backlit, and LED net lights would be installed between the cantilevers underneath the roof.



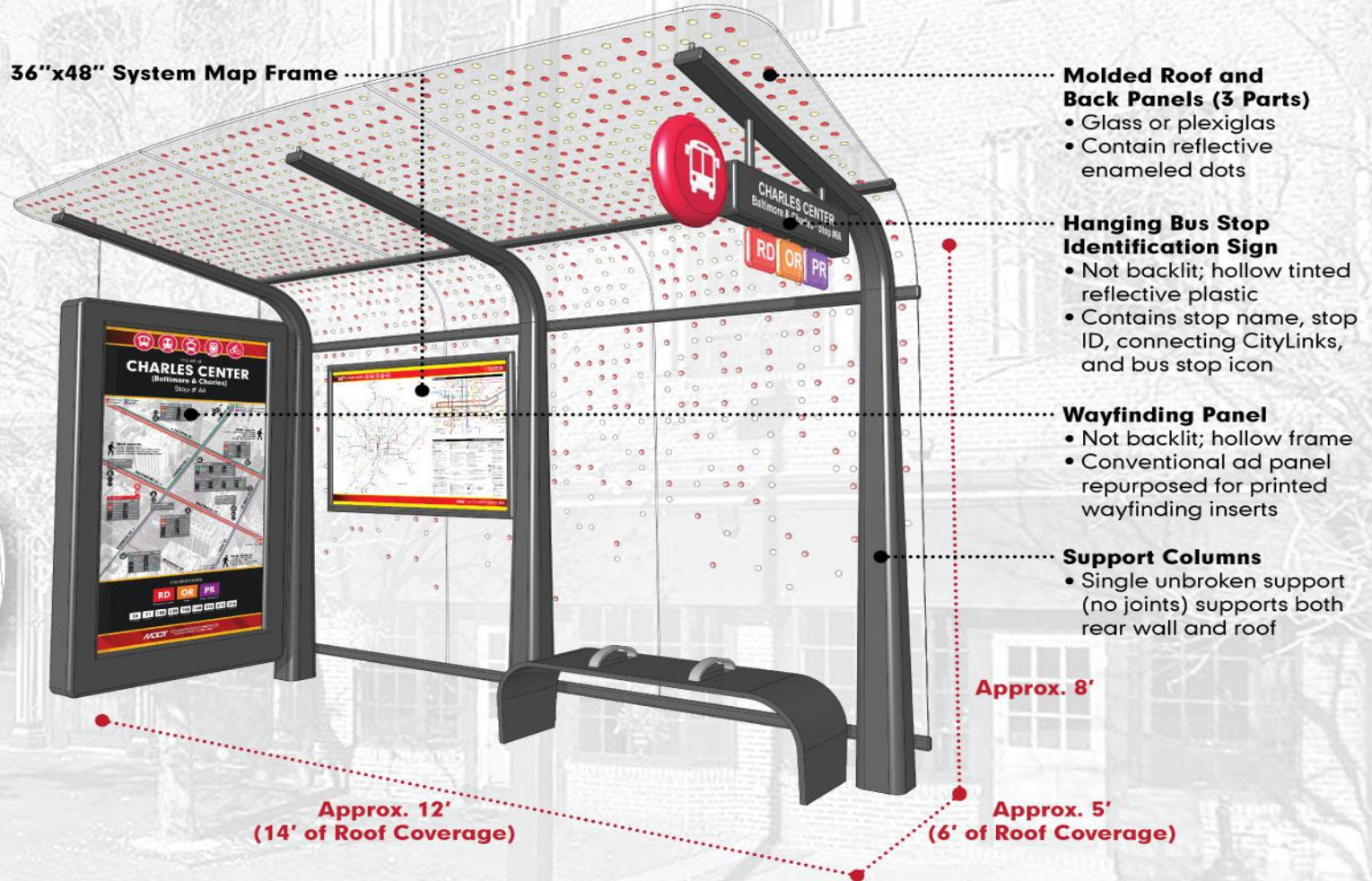
Powered Version

Same dimensions as unpowered shelter; ad panel and sign are backlit

Double-Length Version

21' long (23' of roof coverage); ad panel and sign are backlit; potential lean bar between seats

36"x48" System Map Frame



Molded Roof and Back Panels (3 Parts)

- Glass or plexiglas
- Contain reflective enameled dots

Hanging Bus Stop Identification Sign

- Not backlit; hollow tinted reflective plastic
- Contains stop name, stop ID, connecting CityLinks, and bus stop icon

Wayfinding Panel

- Not backlit; hollow frame
- Conventional ad panel repurposed for printed wayfinding inserts

Support Columns

- Single unbroken support (no joints) supports both rear wall and roof



Bus Shelter Addons

To improve the wayfinding experience in downtown Baltimore, and to make its bus stops - which primarily serve frequent, 24-hour CityLink routes - feel more "metrolike," we would like to investigate the cost of adding one or more of the five addons below to each of the four concepts.

The pylons and strip maps would need to be available in two versions - powered and unpowered - so they could be flexibly applied to a variety of shelters that have and don't have power and data connections.

There are several options for the ad panels: the previous pages specified either unpowered or powered (backlit) ad panels in which paper wayfinding posters would be inserted. But for maximum wayfinding capabilities, including the display of real-time transit information, it would be nice to replace one or both sides of the ad panels with weatherproof and vandalism-resistant LCD screens!



1
Ad Panel with LCD Screen on Inside
Outside contains conventional backlit wayfinding panel



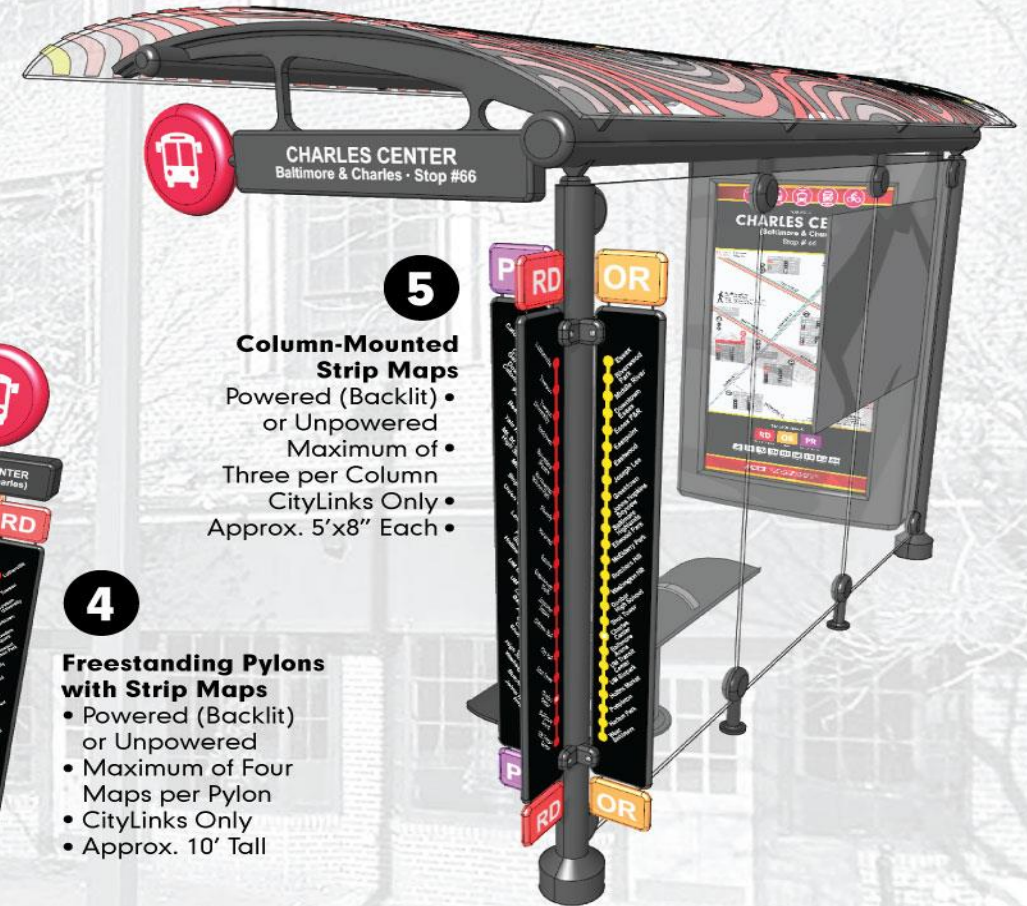
2
Ad Panel with LCD Screen on Both Sides
Real-time arrivals and digital maps would be displayed



3
Ad Panel with Built-In Weatherproof Compartment for Conventional Widescreen TV



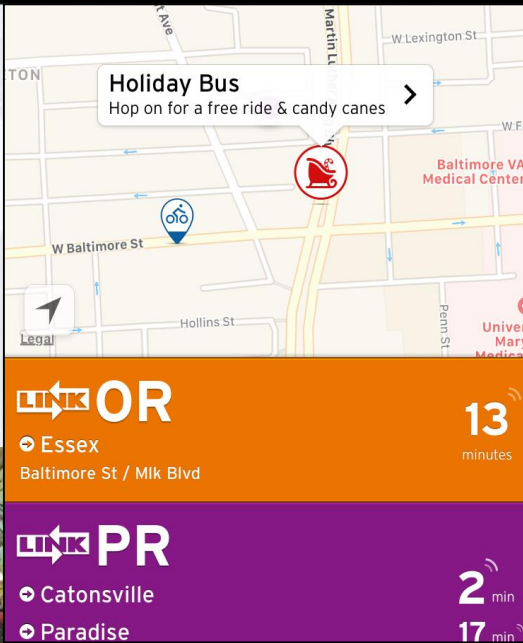
4
Freestanding Pylons with Strip Maps
• Powered (Backlit) or Unpowered
• Maximum of Four Maps per Pylon
• CityLinks Only
• Approx. 10' Tall



5
Column-Mounted Strip Maps
Powered (Backlit) or Unpowered
Maximum of Three per Column
CityLinks Only
Approx. 5'x8" Each

Other Initiatives

- SewLab Partnership
- Holiday Bus



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