

Zero-Emission Bus Transition Plan

Riders' Advisory Council

July 6, 2022



Agenda

- | | |
|---------------------------------------|--------|
| 1. Team Introductions | 2 min |
| 2. Purpose and Goals | 2 min |
| 3. Project Background | 8 min |
| 4. Risk Identification and Discussion | 15 min |
| 5. Next Steps | 3 min |

Team Introductions

- Attendees
 - Maya Alunkal, WMATA
 - Heather Martin, WSP
 - Chris Wenz, WSP
 - Charles T. Brown, Equitable Cities
 - Sandy Brennan, Foursquare ITP

Purpose & Goals of Today's Meeting

- Purpose:

- Identify potential risks and impacts related to ZEB transition from a rider perspective.
- Discuss potential ways to reduce these risks.

- Goals:

- Develop a list of potential risks or challenges (Part 1)
- Develop a list of potential mitigations to risks (Part 2)

Project Background

- Metro will:
 - Transition to a 100% zero-emission bus fleet by 2045.
 - By end of 2030, all new bus purchases will be zero-emission buses (ZEBs).
- Over the next 20+ years, Metro will procure and utilize ZEBs. We want to deploy these buses in a manner that benefits communities.
- The ZEB Transition Plan will build on the work already started and review how Metro can strategically meet these goals.

Zero-Emission Buses

- Propulsion system that eliminates tailpipe emissions
- Two available options in today's market: battery-electric (BEB) and hydrogen fuel cell buses (HFCB)
- Both propulsion systems have pros & cons, and they both require substantial infrastructure investment to support energy needs
- Approx. 3,500 ZEBs in service (approx. 2-3% of U.S. transit fleet)



Battery-Electric Buses (BEB)

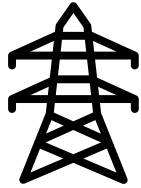
- Majority of ZEBs in U.S. transit service are BEBs
 - More widely available than HFCB
 - Compatible with majority of existing service
- Range: Approx. 150 miles
- Approx. 3,300+ BEBs in U.S. transit service



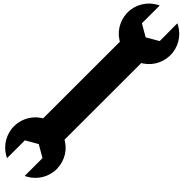
Not Just About Vehicles



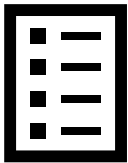
Charging & Utility Infrastructure



Maintenance



Planning & Scheduling



Workforce & Training



What does it mean for riders and communities?

- Cleaner air (lower asthma and respiratory disease rates)
- Quieter (less stress and annoyance)
- New technology (potential for service disruptions)
- Increased reliance on electric grid (potential for service disruption)

Identifying Risks and Challenges

Risk: the likelihood of or exposure to failure.

Challenge: an intricate or difficult problem.

Question: Based on your experience as a rider and community member, what are the potential risks and impacts of ZEB implementation?

The following slides will help frame this conversation around these topic areas:

- Service disruptions to riders
- Community impacts from service outages
- Facilities construction
- Charging infrastructure construction and maintenance

Discussion: Risk Identification

Service Disruptions to Riders

- [risk/impact]

Service Disruptions to Communities

- [risk/impact]

En-route Charging?

- [risk/impact]

Construction Impacts

- [risk/impact]

Others?

- [risk/impact]

Discussion: Risk Mitigation

Service Disruptions to Riders

- [risk/impact]

Service Disruptions to Communities

- [risk/impact]

En-route Charging?

- [risk/impact]

Construction Impacts

- [risk/impact]

Others?

- [risk/impact]

Next Steps

- Consultant team will integrate this into:
 - Equity reviews: methodology / prioritization / mitigation
 - Workforce development: Training needs
 - Facility Assessments: Facility needs / physical improvements
- WMATA will report back to the RAC:
 - How feedback was incorporated into final ZEB Transition Plan

ZEB in the Transit Industry

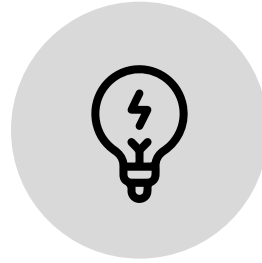


Rapid growth of ZEB

Approx. 3,500 battery electric and 200 hydrogen fuel cell buses manufactured for U.S. usage to date

Most are pilots; only a handful of 25+ vehicle deployments

Bloomberg predicts 70% of bus procurements will be battery electric by 2030



Challenges with ZEB deployments

SEPTA's fleet of 25 electric buses out of service for 6+ months

NY MTA facing electric grid, electric rate, and bus depot resiliency challenges

MBTA range dropped to 60 miles in cold temps



Federal support

“Provide every American city with 100,000 or more residents with high-quality, zero-emissions public transportation options through flexible federal investments with strong labor protections”

IIJA funding will expedite fleet transition

Equity Work to Date

Metro's Objective: prioritize equitable ZEB deployment

- Two workshops with WMATA staff: Equity Workshop & upcoming Risk Workshop
- Today's discussion with RAC
- Equity analysis work to identify the bus divisions and routes where riders and communities would benefit most from ZEBs