WMATA's Response to Covid-19

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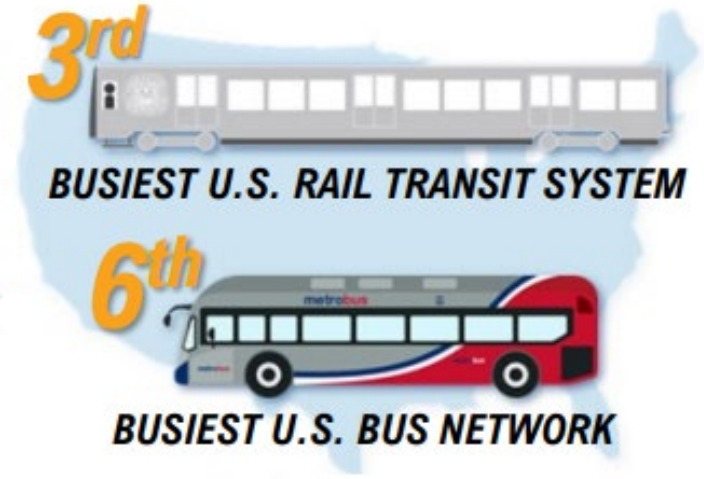
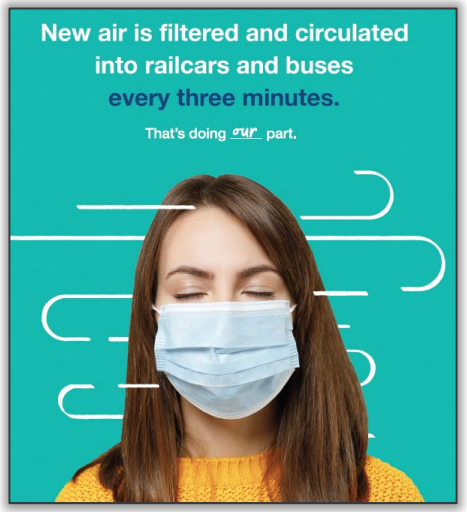
About Metro

- Washington Metropolitan Area Transit Authority – also known as Metro – operates **one of America's highest ridership transit systems**
- Supported approximately **350 million annual passenger trips** pre-pandemic
- Approximately **1,600 buses** and **1,300 railcars**
- **11,000 bus stops** and **98 rail stations** throughout District of Columbia, Maryland, and Virginia



Initial Agency Response to Pandemic

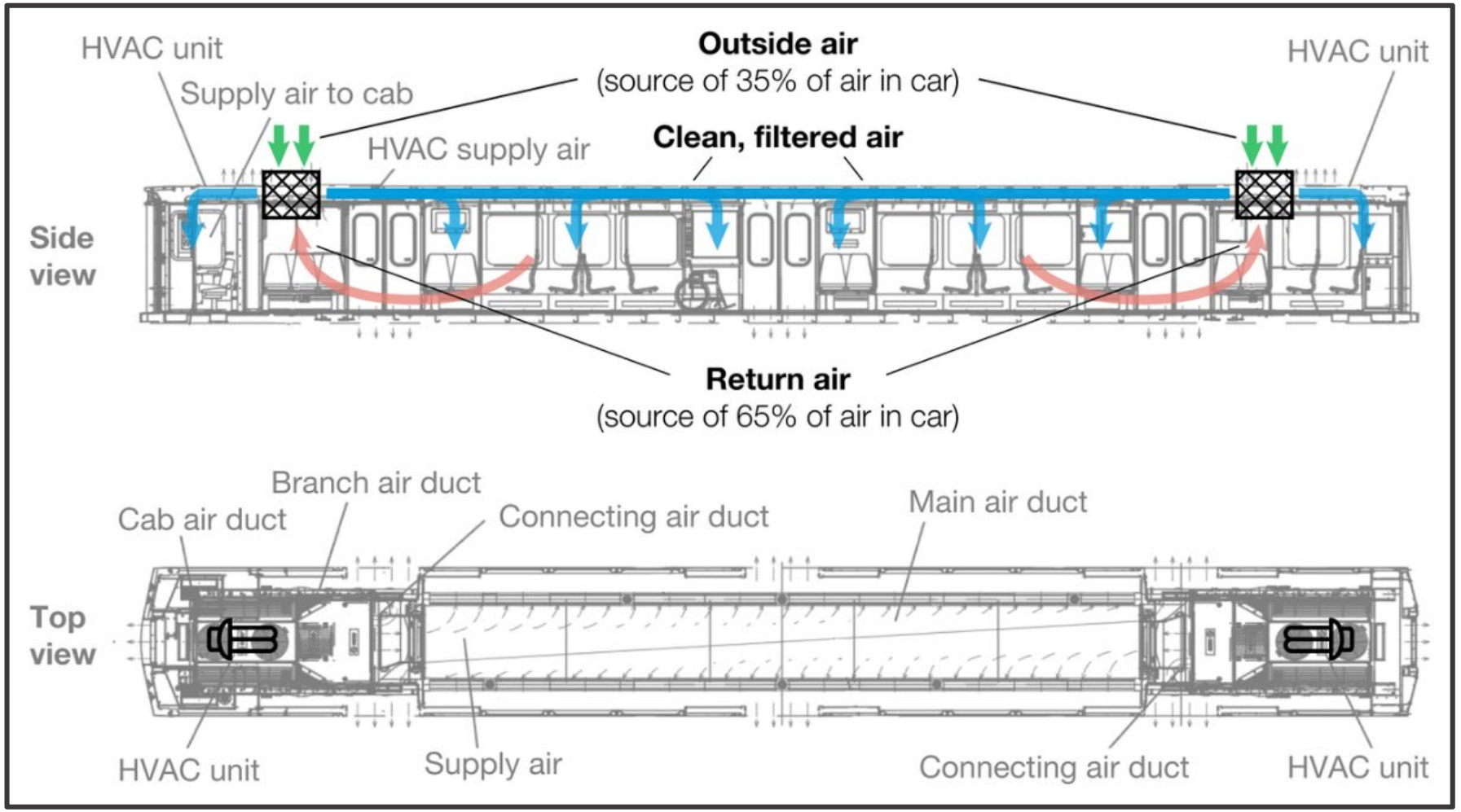


- Covid-19 pandemic drastically **impacted ridership** as region adapted and **remote work arrangements increased**
- Initial focus on surface cleaning shifted to **reducing airborne transmission** – mask requirements, awareness of crowding, air changes and filtration in vehicles and stations

Getting Smarter about Air Quality

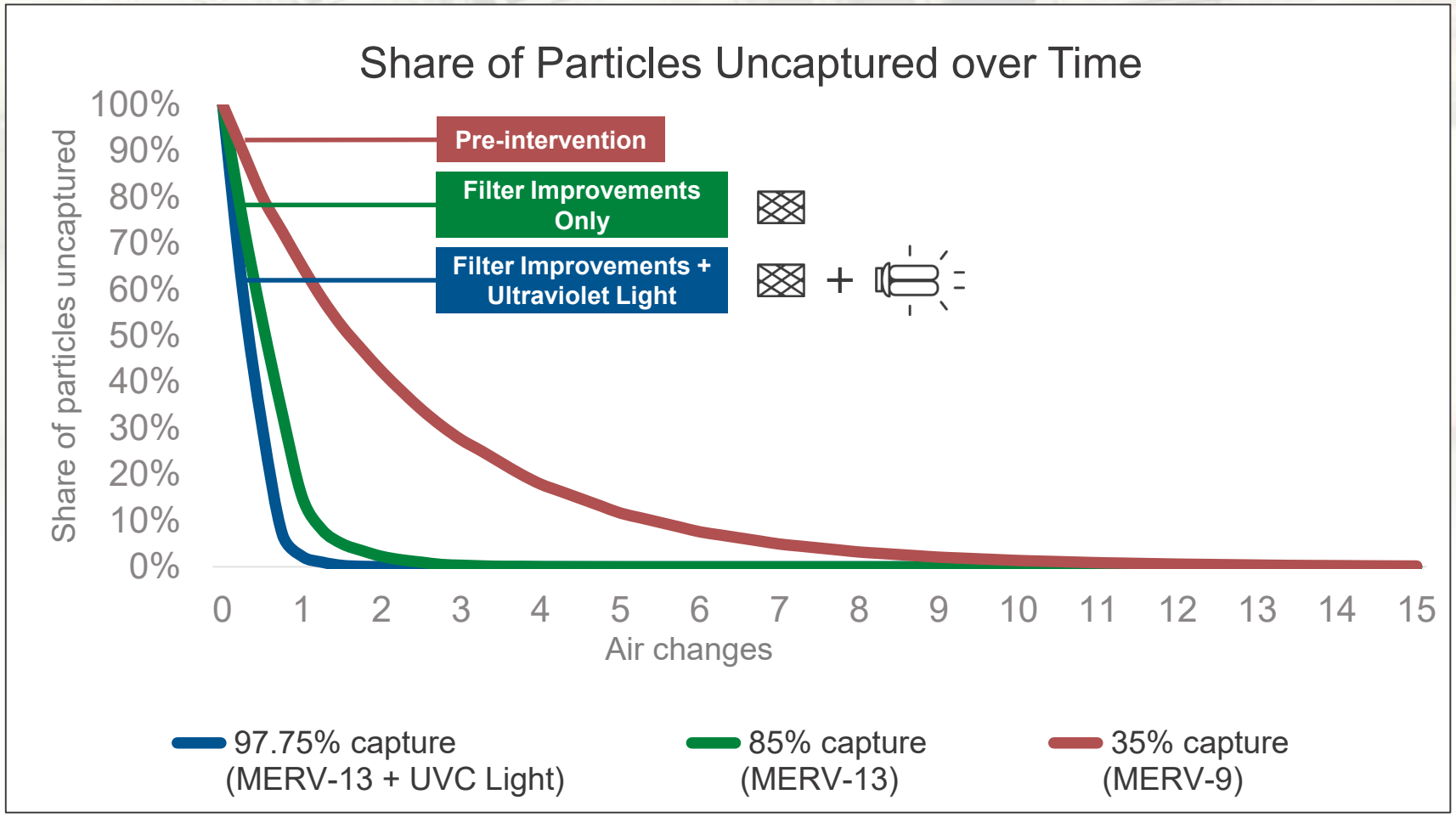
- As research continued to demonstrate nature of virus' airborne transmission, **Metro increased focus on air quality**
- Applied for and received Federal Transit Administration (FTA) grant to support research project to **test efficacy of higher-grade filters and ultraviolet light** alone and in tandem on Metro railcars
- Notably, Metro railcars already had relatively **high air changes per hour (~15-20)**

Railcar Air Quality Project Approach



- Opportunity to reduce transmission risk of Covid-19, other illnesses, improve overall air quality
- Evaluating higher-grade filters and ultraviolet light separately and in tandem
- Applying findings to other existing railcar vehicles, future fleet procurements
- Finalizing approvals for fleet-wide upgrade to MERV-13 filters

Theoretical Covid-19 Particle Concentrations



Typical Metro railcar performs ~15-20 air changes per hour.

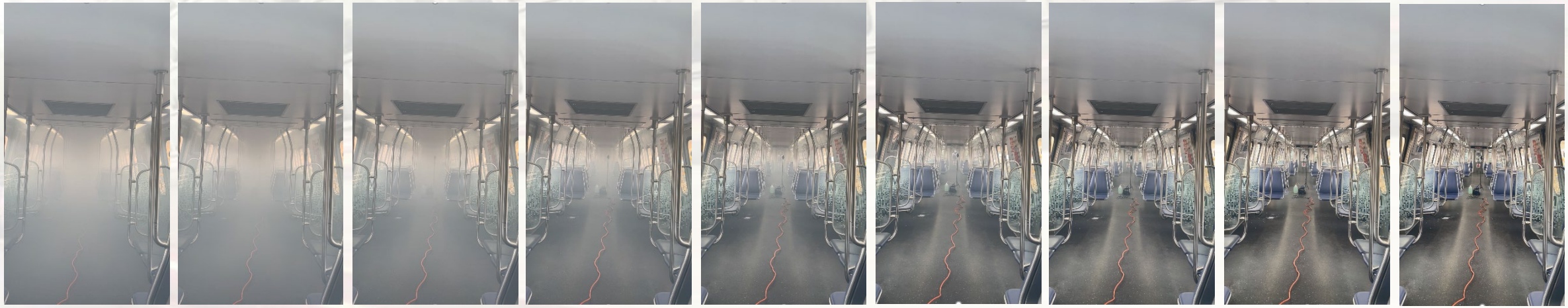
Meaningful improvements gained through higher-grade filters.

Assumes additional particles are not introduced

Smoke Removal Test

MERV-9 vs. MERV-13

MERV-9



MERV-13

Comparison shows removal rate of particles introduced by vapor machine

MERV-13 filters clear railcar air more rapidly

1 minute | 2 minutes | 3 minutes | 4 minutes | 5 minutes | 6 minutes | 7 minutes | 8 minutes | 9 minutes

Time Elapsed

Lessons Learned, Ongoing Efforts and Next Steps

Lessons Learned

Focus on proven technology and test efficacy in relevant circumstances; talk to peers and trusted sources. Be prepared to adjust to new information.

Establish confidence in baseline circumstances to help prioritize improvements (e.g., filter rating, air changes per hour).

Trust and empower operations staff – theoretical concepts are only as valuable as their real-life implementation.

Ongoing Efforts and Next Steps

Finalizing research findings report with academic partner to summarize demonstration outcomes.

Further implementation of identified improvements in current Metro railcars and future procurements.

Knowledge sharing with transit industry peers and others.