



# Light Rail or BRT?

*The Traffic Group Inc.*®

## *The emergence of BRT in the U.S.*

- Today at least 13 cities have implemented 13 BRT Corridors
- Dozens are under construction or being planned

U.S. cities are grappling with complex challenges including impacts from the climate crisis, affordability, economic growth, road fatalities and now, COVID.

- High quality BRT Corridors provide faster more reliable service
- New riders are drawn to BRT routes

BRT infrastructure is designed to  
reduce common causes of bus delays

## *BRT offers distinct advantages over rail*

- Capital costs are lower than rail
- Planning and construction phases are shorter and less complex

*Bus ridership between 2010 and 2017 was down*

**EVEN PRE-COVID:**

- Baltimore down almost 24%
- Washington, DC down almost 8%
- 20 largest bus systems in the United States were down almost 12%

A BRT lane can move up to 15,000  
persons per hour – with High  
Density – occurs in Central America



## *Baltimore Light Rail*

- Average Weekday Ridership in 2018 was 23,330 persons
- 30 Mile system
- 33 stations, 1 /mile
- 3 lines
- Operating 4:45 AM to 12:40 AM weekday

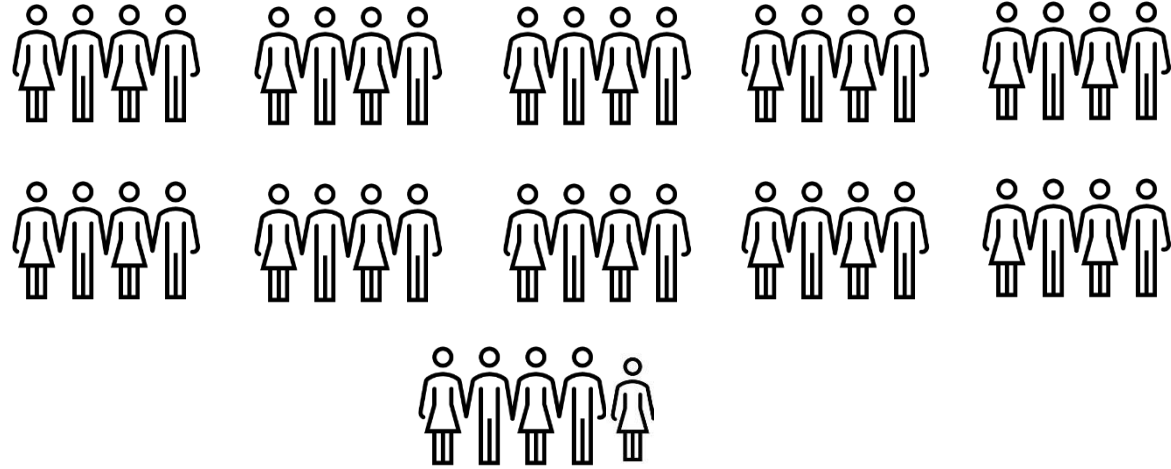
# Required Density

# Acre Requirement

## SUBWAY



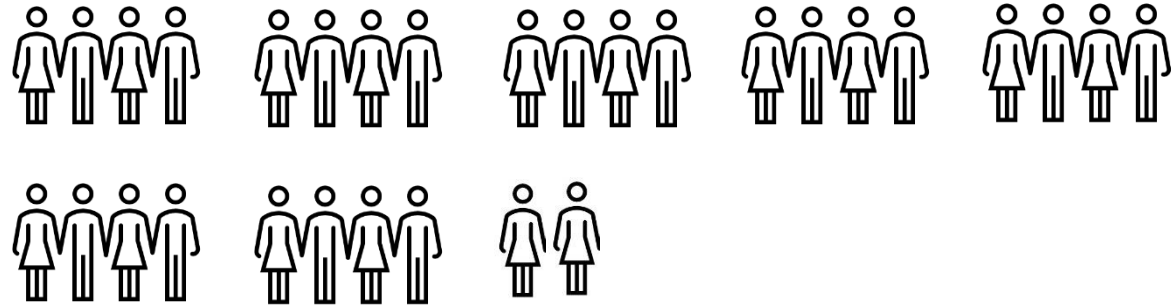
## 45 People per Acre



## LIGHT RAIL



## 30 People per Acre

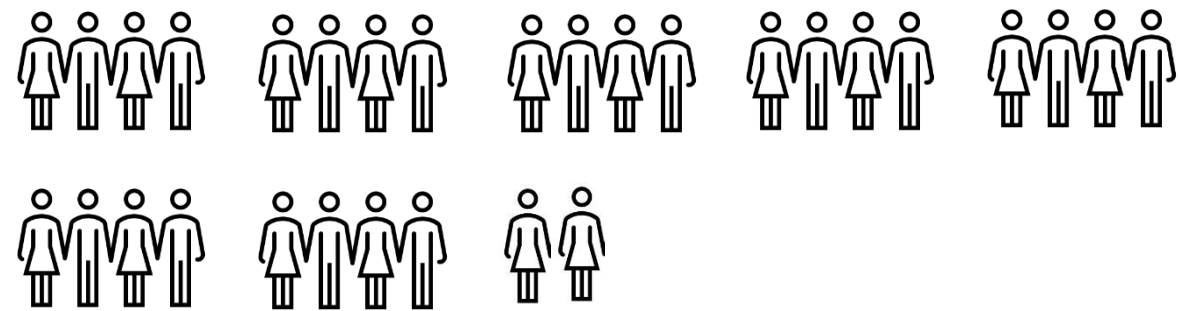


# In Perspective

## LIGHT RAIL



## 30 People per Acre



## Baltimore City

## only 10 People per Acre

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Approximately 593,490 people on 58,800 acres



# Cost to Build



# Cost Comparison

Light  
Rail



\$150/\$250 M  
per mile



Purple  
Line



\$345 M  
per mile

16 Miles = \$5.6 Billion



RED  
Line



\$205 M per Mile

14 Miles = \$2.9 Billion



BRT

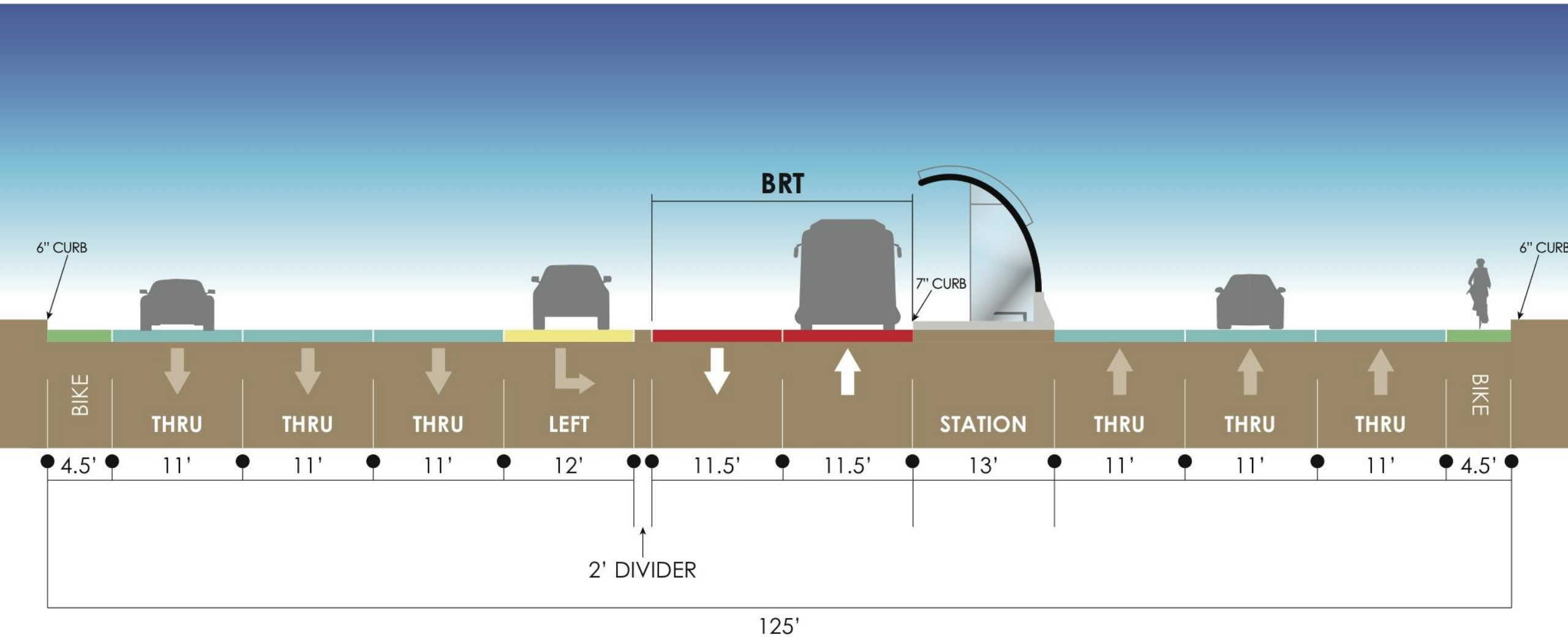


\$20-\$50 M  
per Mile

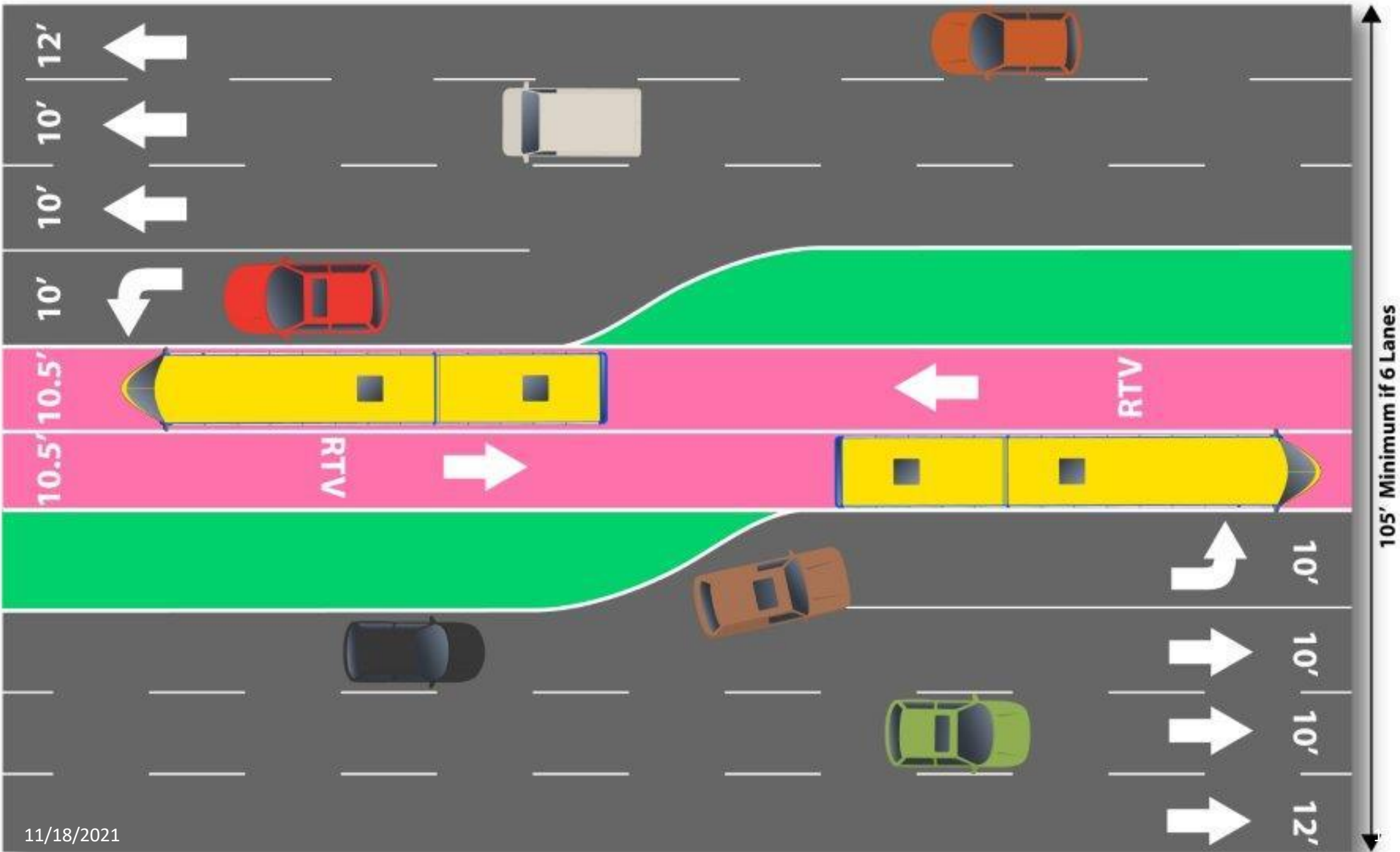


# Required Median Space

# " - 2 BRT LANES / WITH BIKE LANES









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18

(c) <http://www.cityof...>





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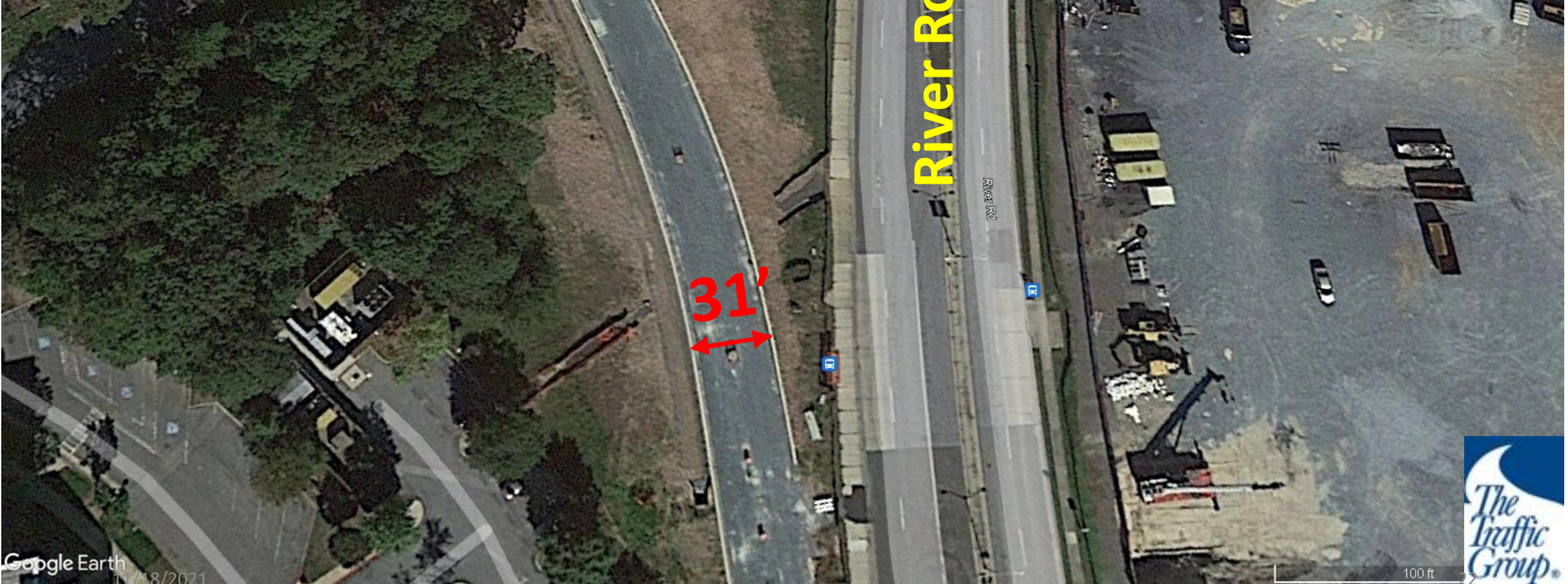








# Purple Line – Prince George's County, Maryland





Metroway in Alexandria and Arlington, VA opened in September 2014 as the Washington, DC, region's first BRT line.





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# Operating Cost & Average Light Rail Systems

## *Now for more Math- Operating Costs*

- Operating cost of one Light Rail Vehicle/hour = **\$124- \$451**
- Operating cost of one Bus/hour = **\$85-\$164**
- Light Rail costs **1.5 to 4.5 X** more to operate

## *Utilization of LRT Vehicles- Based on Top 10 LRT*

- **AVERAGES:**
- Trip Length = 5.42 miles
- People/Vehicle = 25
- LRT Vehicle Capacity = 184
- Average Occupancy = 14 %

# *The Economics of Urban Light Rail-May 2020*

- CONCLUSIONS:

- Any Corridor without enough ridership to fill a bus every few minutes should not be a light rail line

- Source : *The economics of urban light rail : a guide for planners and citizens* by Connor Harris May 2020
- The Manhattan Institute

# *The Traffic Group Inc.*<sup>®</sup>

[www.trafficgroup.com](http://www.trafficgroup.com)



[wguckert@trafficgroup.com](mailto:wguckert@trafficgroup.com)



@Wes\_Guckert

Wes Guckert, PTP  
[wguckert@trafficgroup.com](mailto:wguckert@trafficgroup.com)  
O- 410-931-6600  
C-410-440-9227

