

EMBARQ

# BRT / Busways and Traffic Safety

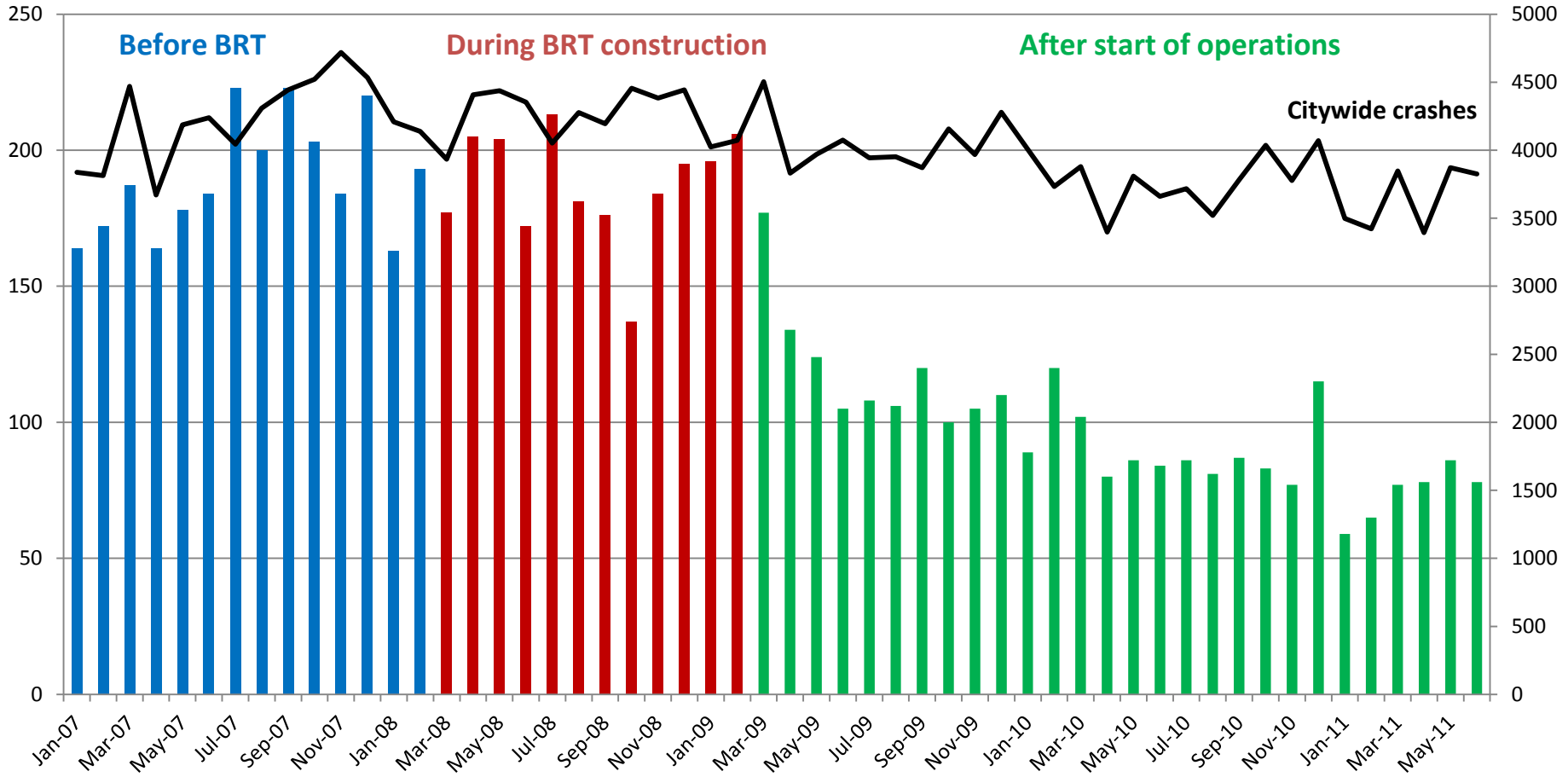
Nicolae Duduta, Claudia Adriazola, Dario Hidalgo, Luis Antonio Lindau, Rebecca Jaffe





Main findings: Overall safety impact of a BRT

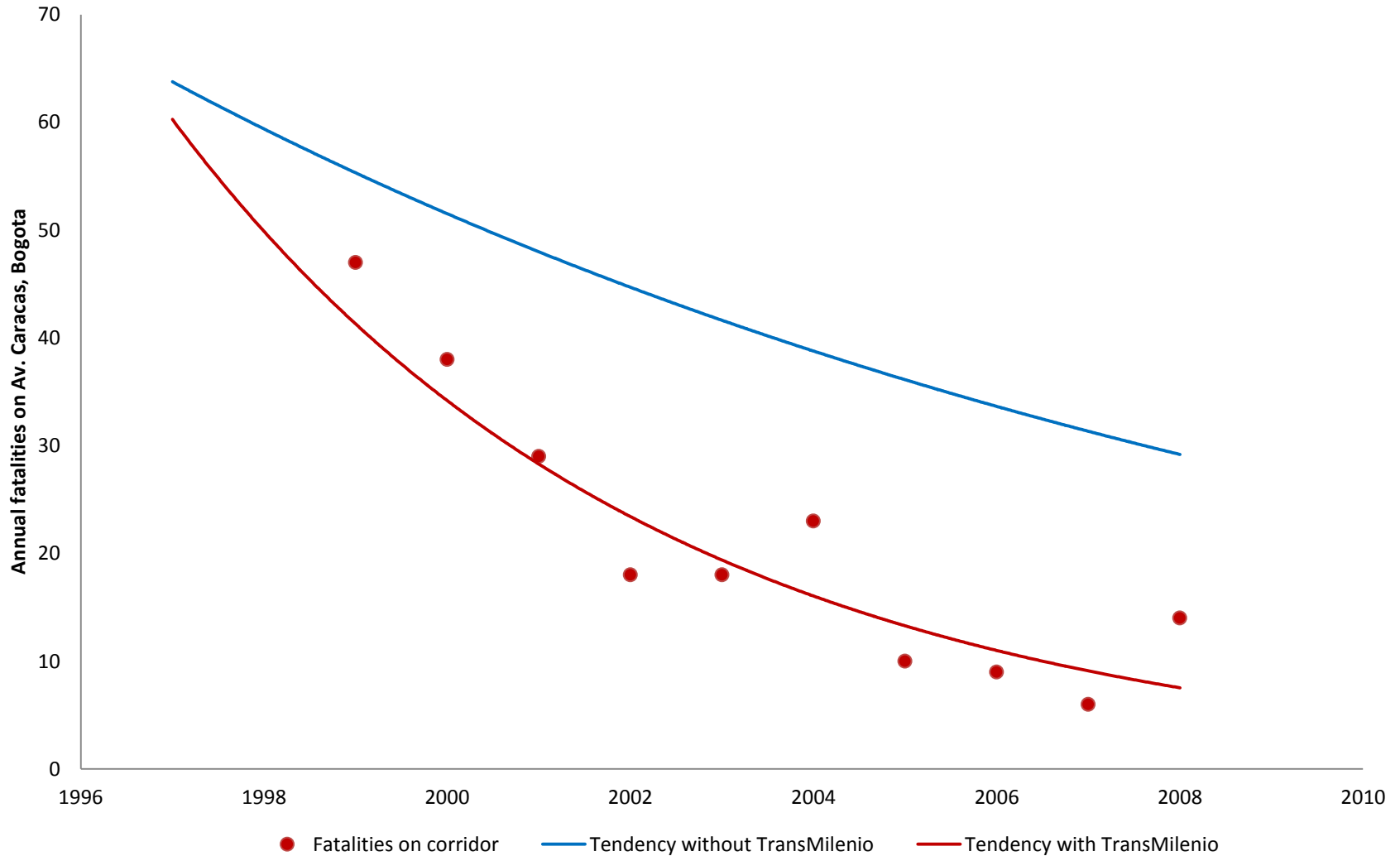
# Macrobús, Guadalajara





Main findings: Overall safety impact of a BRT

# Av. Caracas, TransMilenio



## Main findings: Overall safety impact of a BRT / Busway Not all systems have had a positive impact on safety



### Cristiano Machado Busway, Belo Horizonte

- Corridor with the highest crash frequency citywide



### BRTS, Delhi

- Initial increase in fatalities after the implementation of the bus system

## Pedestrians crossing in mid-block



Av. Caracas, TransMilenio



Metrobus Line 2, Mexico City

»» Vehicle speeds

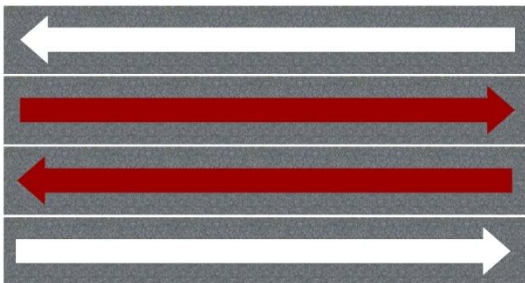
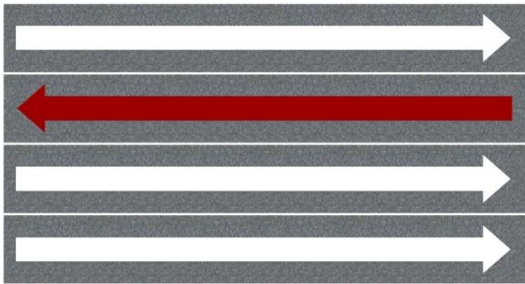
»» Road width

»» Pedestrian infrastructure



Factors influencing crash frequencies

# Counterflow



Counterflow lanes were strongly correlated with higher crash frequencies across all our models ( $p < 0.001$ )



## Factors influencing crash frequencies

# Location of bus lanes

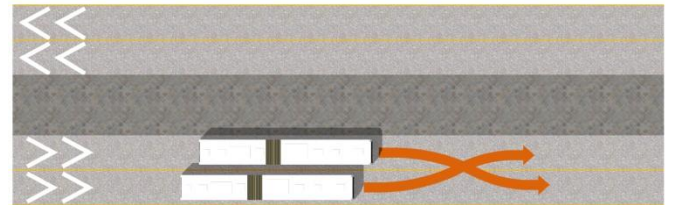
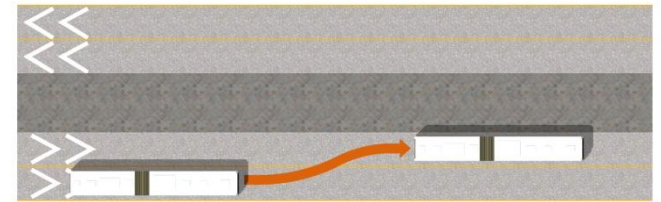
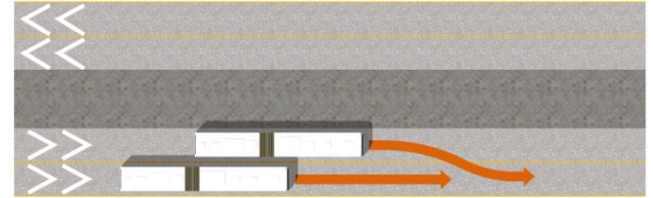
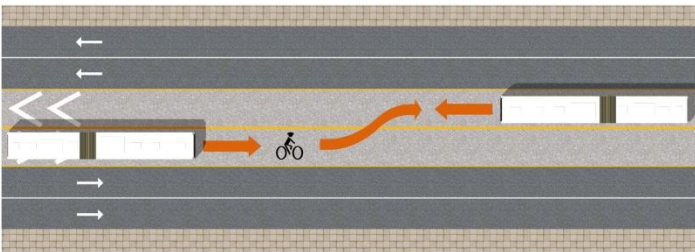
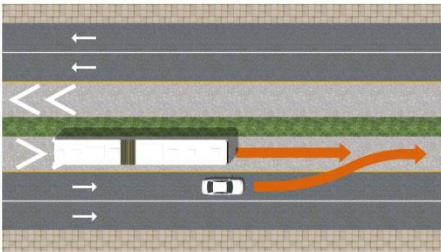
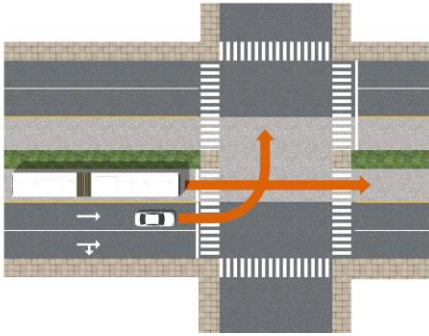


- Central median
- Shorter pedestrian crossings
- Fewer mixed traffic lanes
- Some 4-way intersections turned into T junctions



## Main safety issues on BRT and Busway corridors

# Common crash types



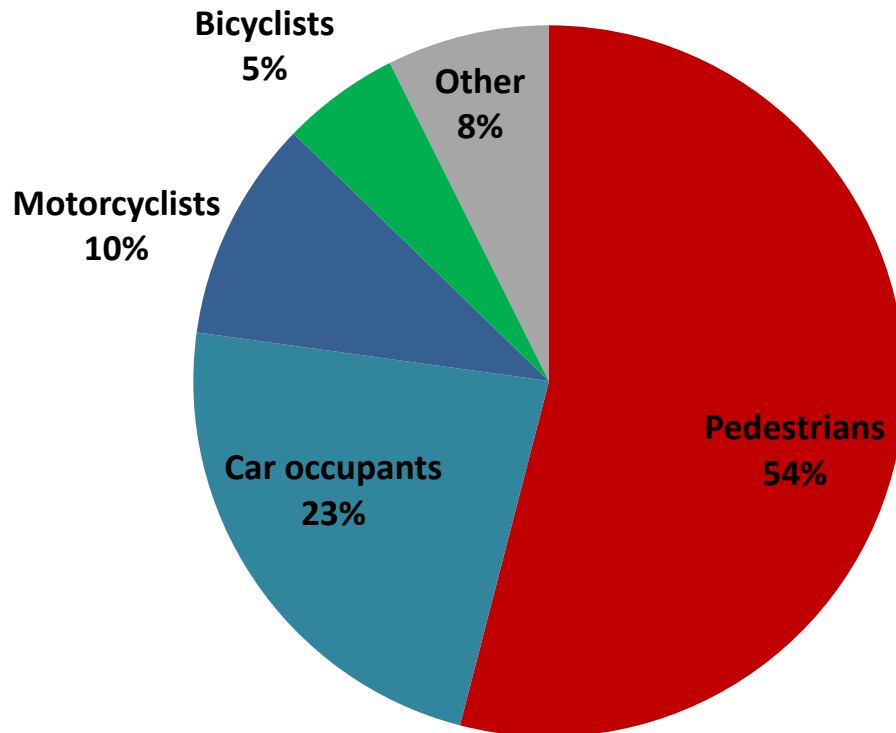




## The global picture of safety on BRT and Busways

### Fatalities by road user type

- The safest place to be on a bus corridor is inside the bus
- The most dangerous: walking to the bus station





## Main findings

### Factors influencing crash frequencies on bus corridors

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#### »» Speed

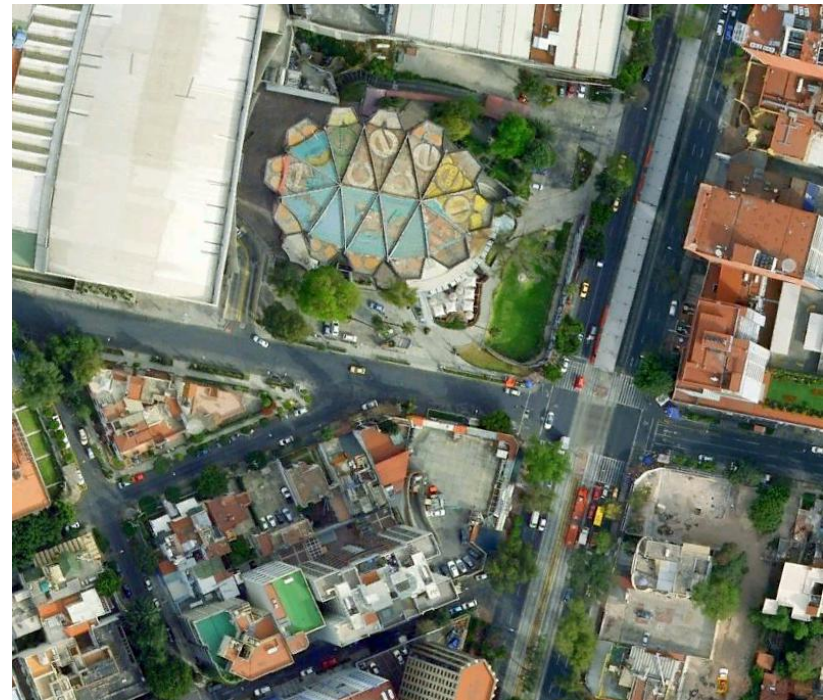
»» Speeding was the most common contributing factor listed in police crash reports for the Metrobus system in Mexico City



Factors influencing crash frequencies

# Street width and intersection size and complexity

- Road width and complexity of intersections were the most important predictors of crash frequencies.



Metrobus Line 1, Mexico City



Safety issues on curbside bus corridors

# Pedestrians walking in the bus lanes





Safety issues on curbside bus corridors

# Right turns across the bus lanes





# Conclusions

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The main issues to consider when designing a BRT are:

- Pedestrians crossing in mid-block
- Left or right turns across the bus lanes
- Avoiding counterflow
- Designing simple, narrow intersections



Next steps:

# BRT / Busway safety guidelines



Thank you

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