

# Methods to Measure & Monitor Pedestrian Travel

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# Challenges

- Less confined to fixed paths
- Unpredictable movements
- Travel in closely spaced groups
- Limited automated equipment



# The walk ahead of us...



**Now**

**Soon**

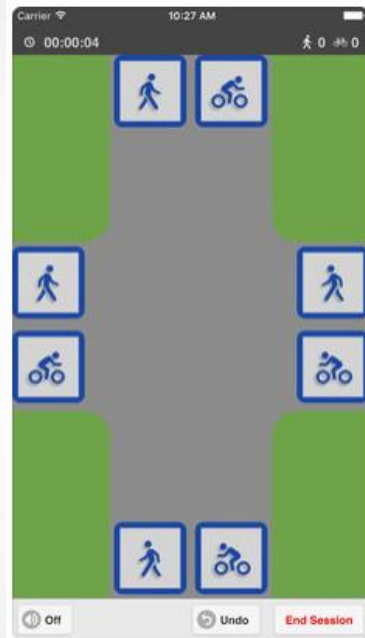
**Later?**



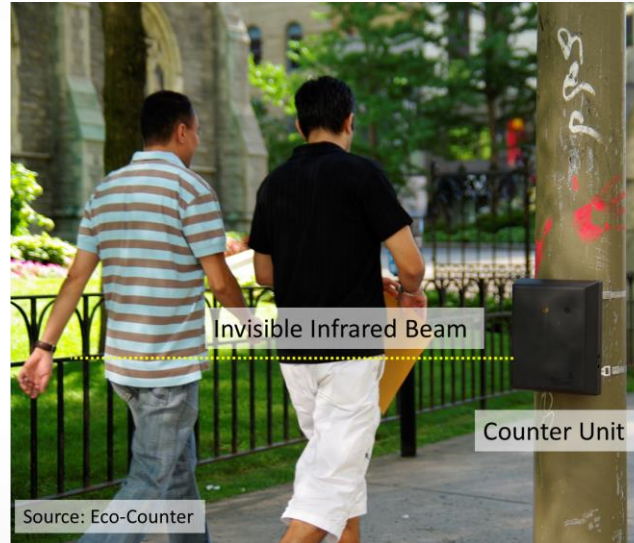
# Now



Clipboard and paper



Smartphone/tablet  
counter

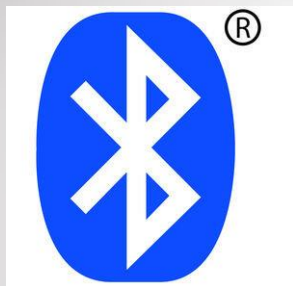


Infrared sensor

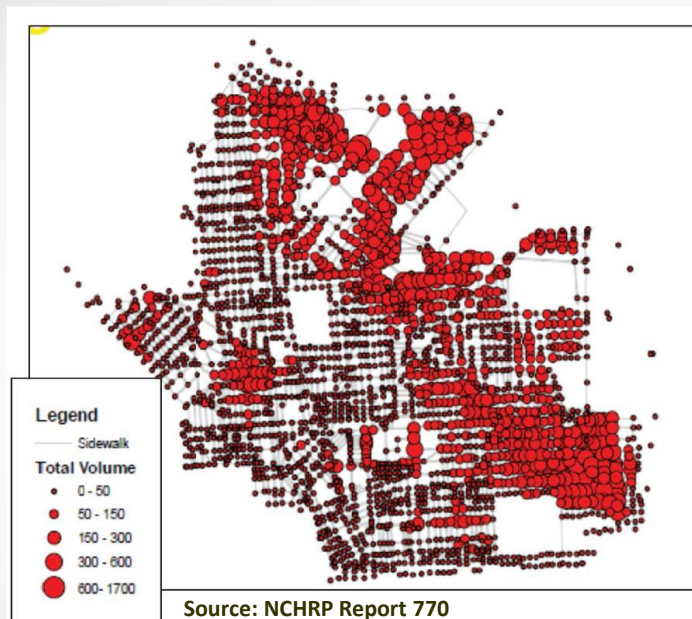


Video

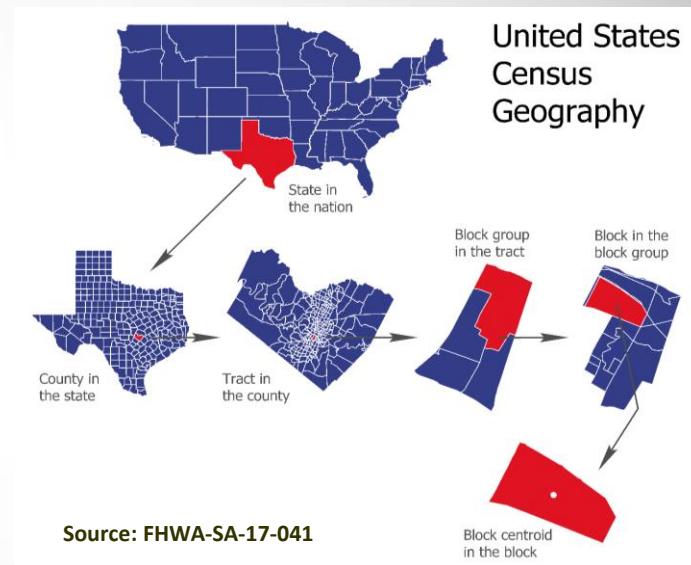
# Now



Bluetooth/WiFi  
sampling



Regional demand model  
from limited counts



National travel surveys:  
ACS & NHTS

# Soon



**Video analytics (counting) from  
intersection control systems**

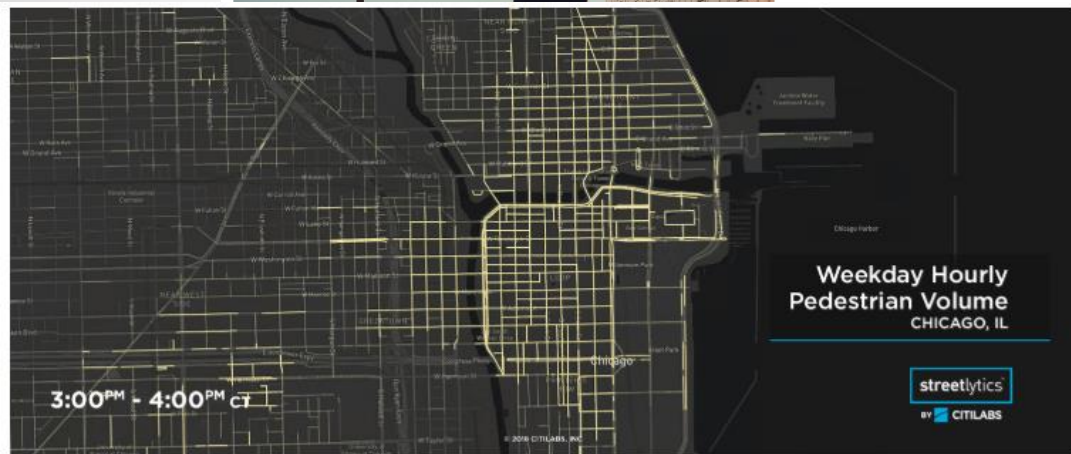


**Video analytics: safety surrogate measures  
(conflicts, near misses, post-encroachment time)**



# Later?

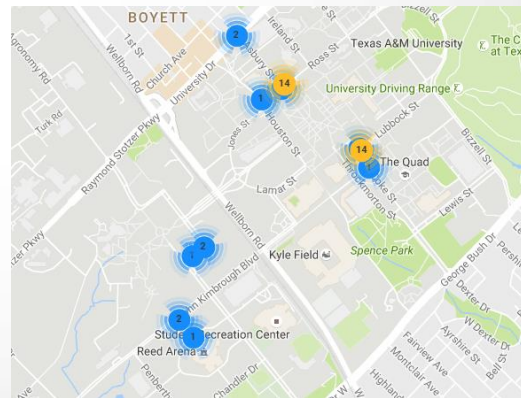
Google's Urban Experiment in Toronto: A Q&A with Sidewalk Labs' Rit Aggarwala



Passive monitoring of smartphones and other connected devices



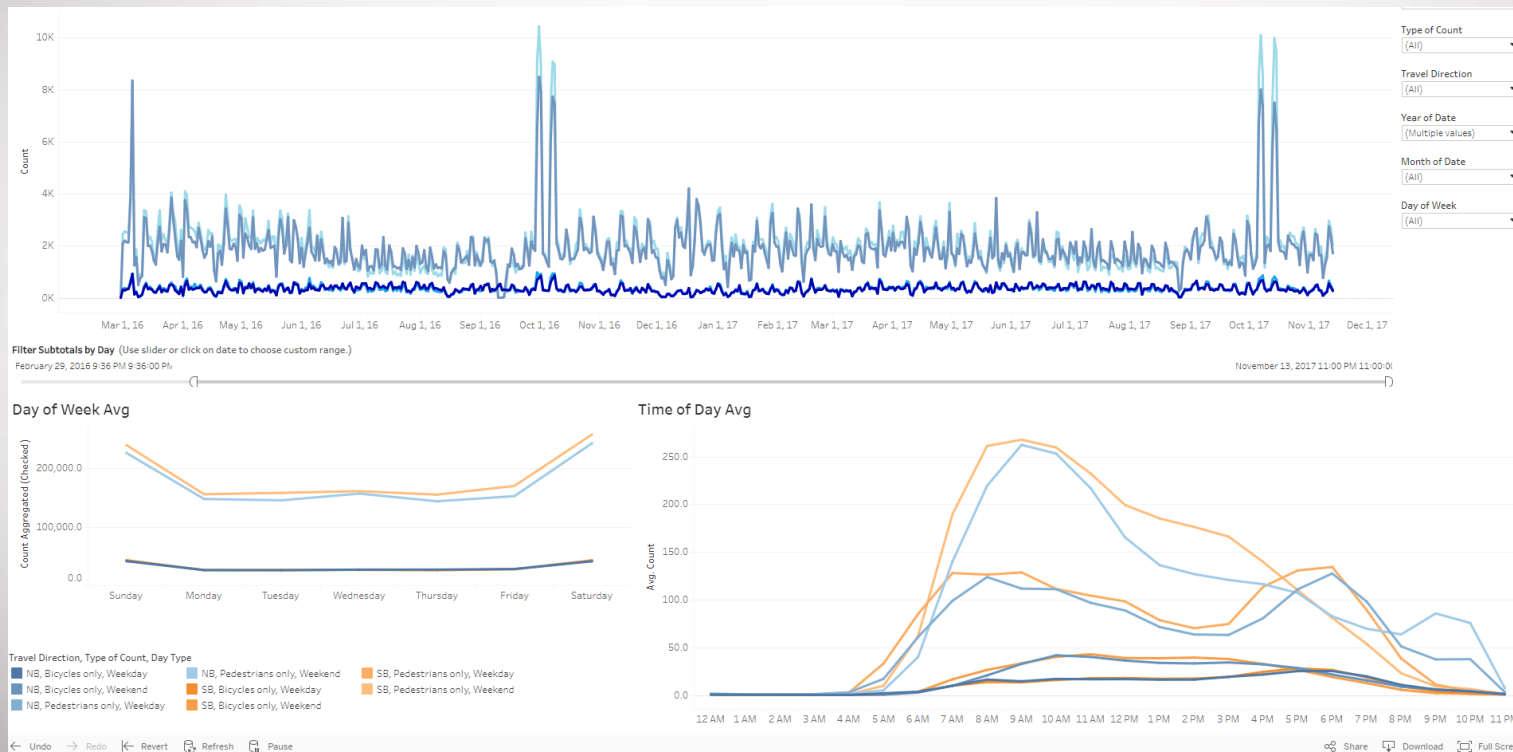
2017 Hyundai Elantra | Automatic Emergency Braking with Pedestrian Detection. Woodbridge VA dealer.



Pedestrian collision warning systems with crowdsourced hot spot maps

# Resources: Programs

- TxDOT statewide non-motorized count database





# Resources: Programs

- TxDOT and MPO counter equipment loan programs



# Resources: Programs

- TxDOT/TTI 402 Program pedestrian counts at high-crash locations (475 signalized intersections!)

Houston San Antonio Dallas-Ft. Austin 2 Houston Houston 2017-18: 34 mid-block locations



# Resources: Key Reports/Guides

- FHWA Traffic Monitoring Guide, 2016
- FHWA-HPL-16-026, *Exploring Pedestrian Counting Procedures...*, 2016
- FHWA-HEP-17-012, *FHWA Bicycle-Pedestrian Count Technology Pilot Project - Summary Report*, 2016
- NCHRP Report 797, *Guidebook on Pedestrian and Bicycle Volume Data Collection*, 2014
- TxDOT Research Report 6927 (Fall 2018)