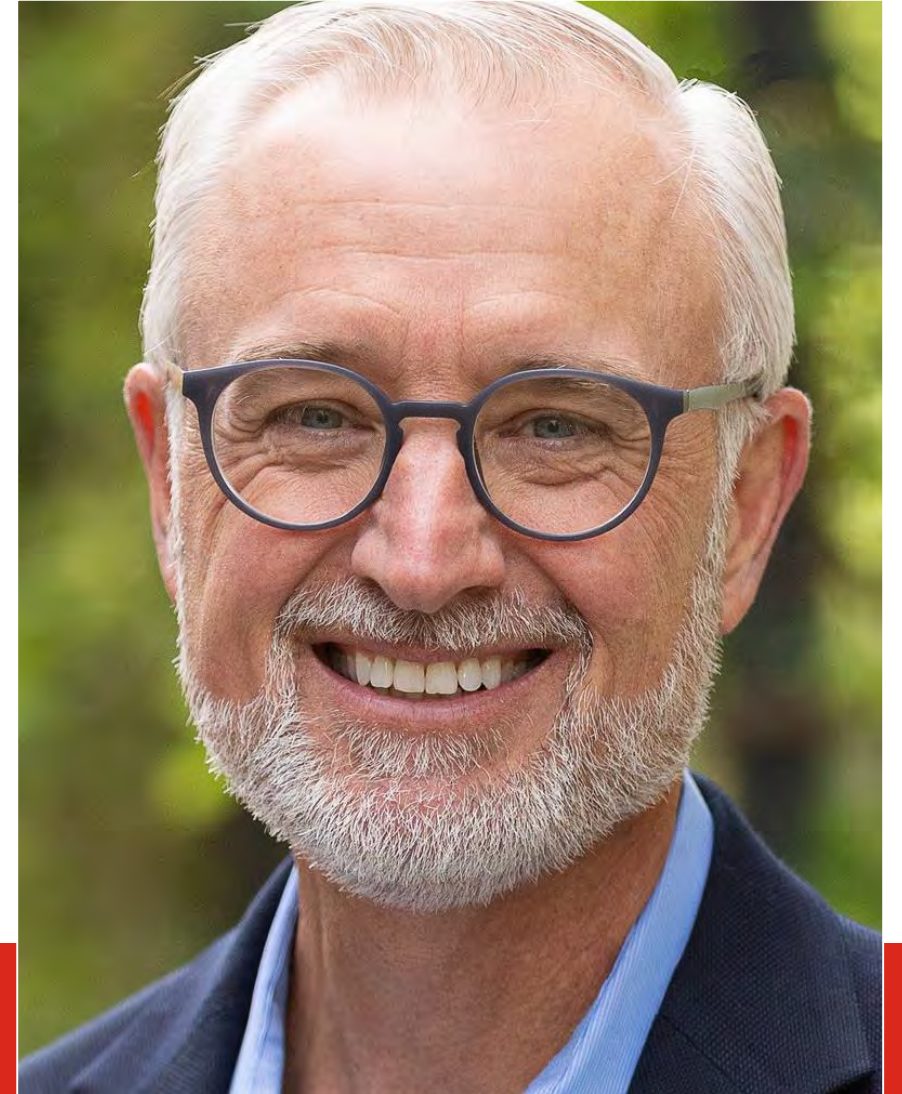


# Thoughts on More Sustainable Transportation

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Presented by Thomas Cerny, AICP, TDM-CP  
Toole Design | Climate Resiliency/TDM Practice Lead



**What got us here...**

# FEDERAL-AID HIGHWAY ACT (1956)



90% FEDERALLY FUNDED



Interstate highway system

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THAT BECAME "MAIN STREET"

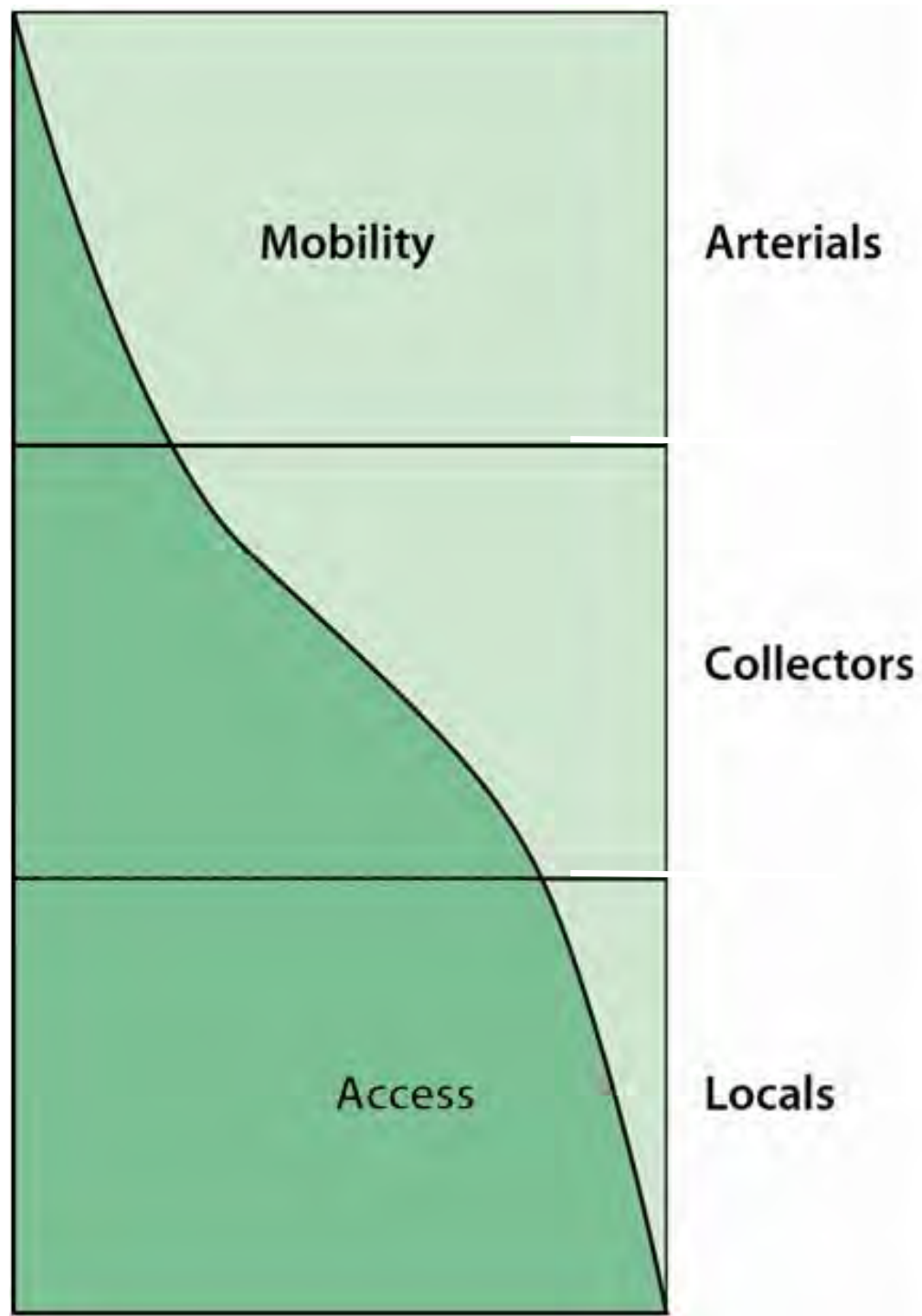
A POLICY  
on  
DESIGN  
of  
URBAN HIGHWAYS  
and  
ARTERIAL STREETS  
1973

A Policy on  
**Geometric  
Design of  
Highways  
and Streets**

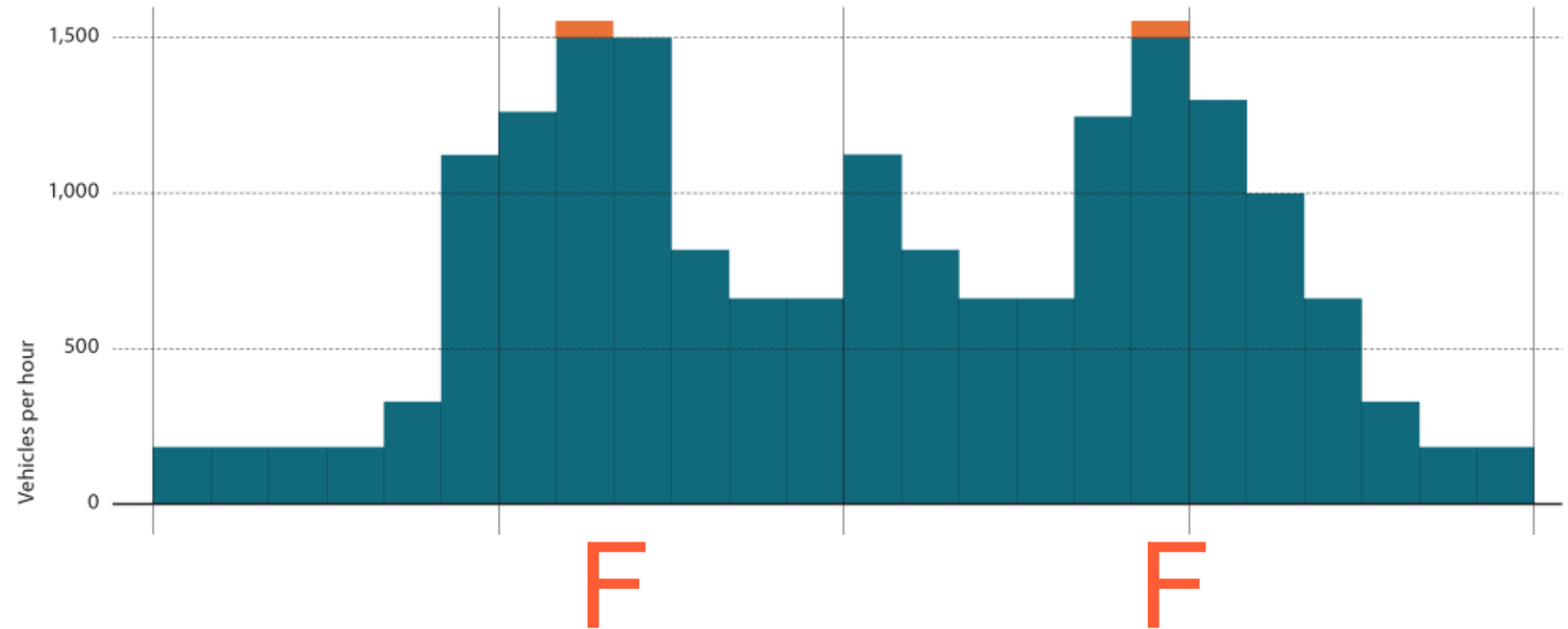
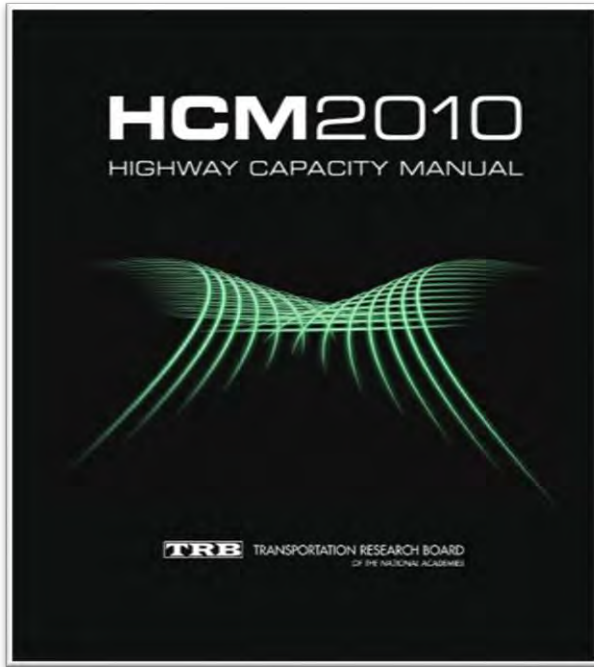
2011  
6th Edition



American Association of  
State Highway and  
Transportation Officials  
**AASHTO**  
1800 M Street, N.W.  
Washington, D.C. 20006



# Peak Hour Design Approach (1965)

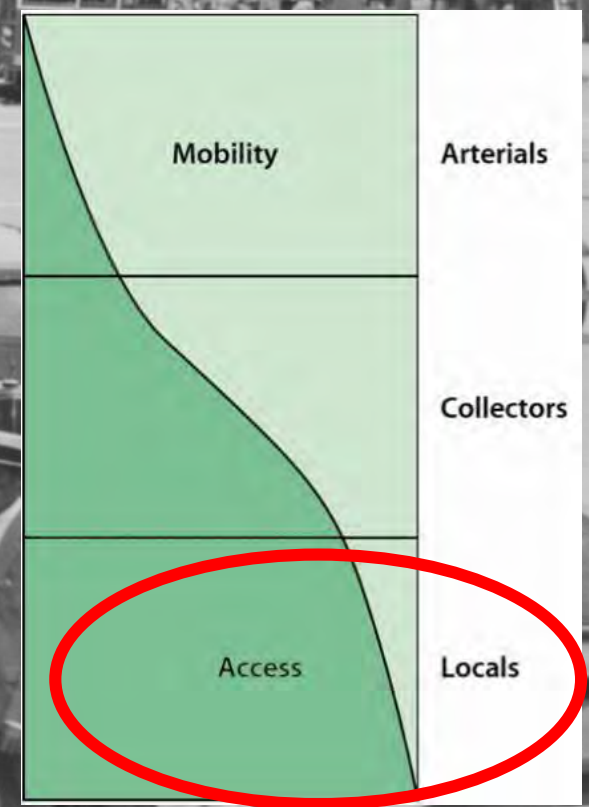




# Broad Street, Richmond, Virginia 1920's



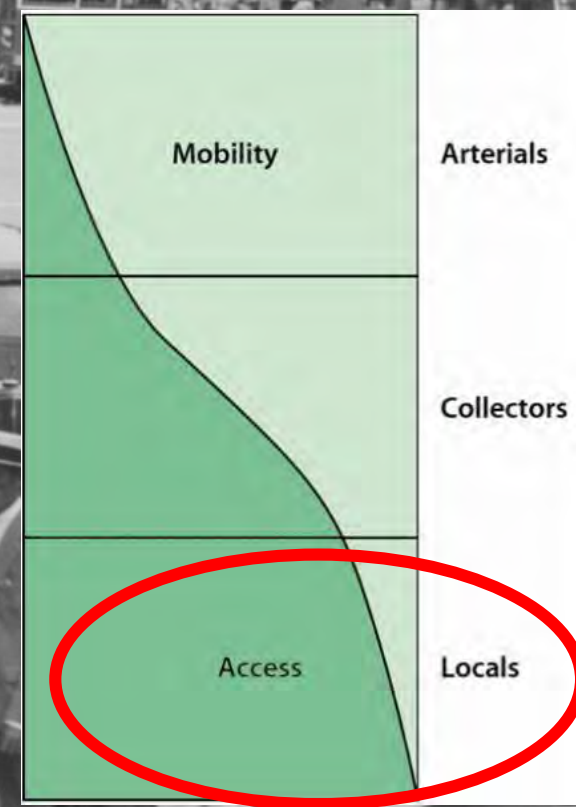
**LOS F**



# Broad Street, Richmond, Virginia 1920's



LOS F

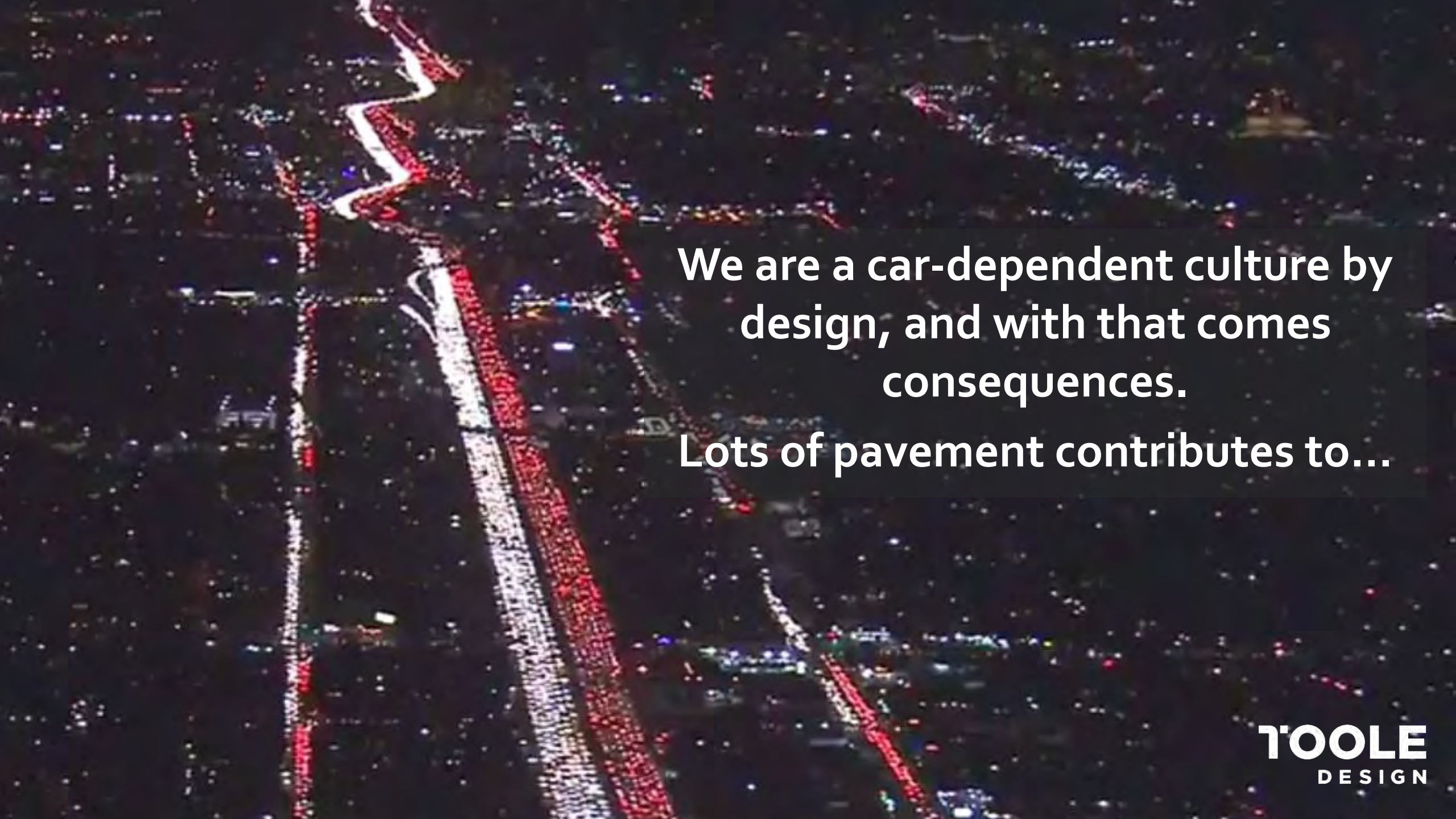




Broad Street, Richmond, Virginia 202



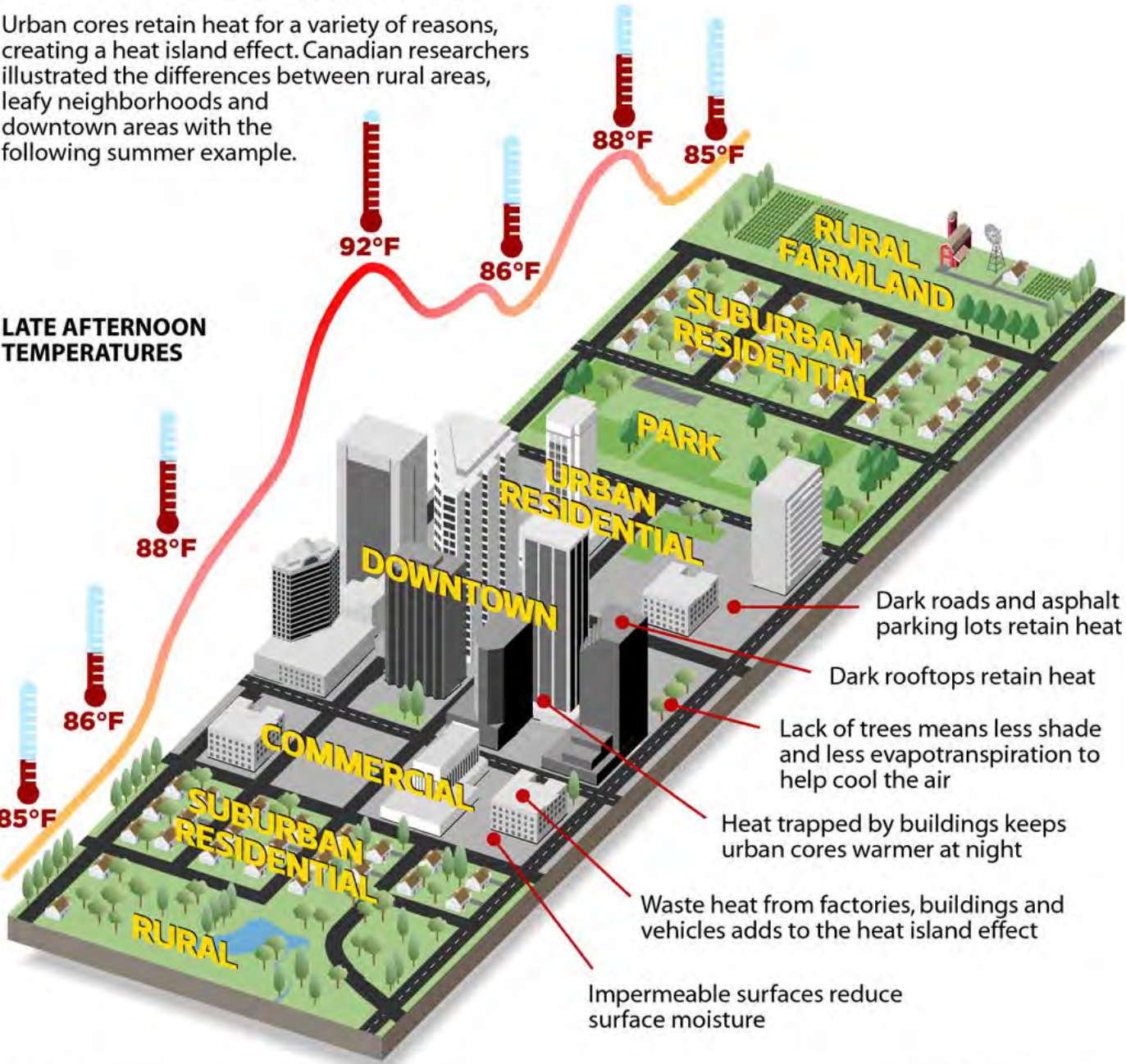
Broad Street, Richmond, Virginia 202

An aerial night photograph of a city street. The street is illuminated by a series of red and white lights, likely traffic lights or streetlights, creating a strong visual path. The surrounding city is dark, with scattered lights from buildings and other streets. The text is overlaid on the right side of the image.

**We are a car-dependent culture by  
design, and with that comes  
consequences.  
Lots of pavement contributes to...**

# Urban Heat Island Effect

Urban cores retain heat for a variety of reasons, creating a heat island effect. Canadian researchers illustrated the differences between rural areas, leafy neighborhoods and downtown areas with the following summer example.



# Underused underpass near Market Square now an urban recreational space



by Shari Blediger and Raquel Torres

August 21, 2023



A group of friends play basketball on the new court in the urban play park The Pass, which is located under Interstate 35 between Dolorosa and Commerce Streets near Market Square. Credit: Bria Woods / San Antonio Report

# Why Do Homeless People Live Near Freeways?

BY [VICTORIA VANTOL](#) | DECEMBER 9, 2021 | [AWARENESS](#) | [TENT CITIES](#)







# The deluge: It is a mess

BY **Max Brantley** ON March 17, 2021 10:37 am

8 Comments



by [Stephen Simpson](#) | April 19, 2019 at 4:30 a.m.



# Little Rock air quality rankings fall, though pollution levels hold steady

KUAR | By [Daniel Breen](#)

Published April 19, 2023 at 1:57 PM CDT



## STATE NEWS

# State officials issue Code Orange air quality advisory for central, northwest Arkansas

by: [Miriam Battles](#)

Posted: May 26, 2023 / 01:34 PM CDT

Updated: May 26, 2023 / 02:22 PM CDT



LOCAL NEWS

# AAA: Arkansas gas prices jump 16 cents over last week, up 30 cents in last two weeks

by: [Alex Kienlen](#)

Posted: Aug 3, 2023 / 02:45 PM CDT

Updated: Aug 3, 2023 / 02:54 PM CDT



*A motorist fills up a vehicle at a Shell gasoline station Sunday, June 18, 2023, in Englewood, Colo. The most-anticipated recession probably in modern U.S. ...*

**[Read More](#)**





# Better Options?



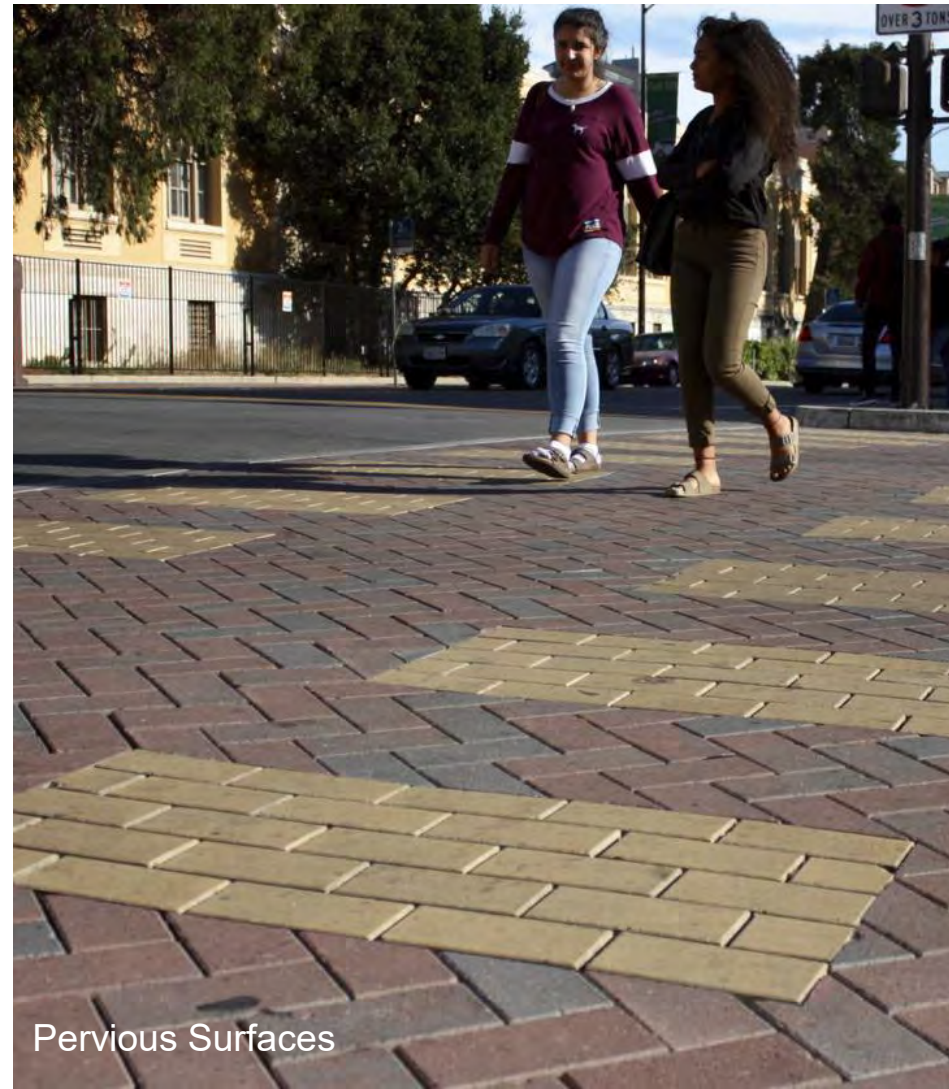


**Green Infrastructure** is “the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspirate stormwater and reduce flows to sewer systems or to surface waters.”



*Water Infrastructure Improvement Act (2019)*

# Green Infrastructure/Leveraging ROW





C

B

BICYCLE  
SIGNAL

# DEVELOPMENT OF GUIDEBOOKS ON TRAILS AS RESILIENT INFRASTRUCTURE

FEDERAL HIGHWAY ADMINISTRATION

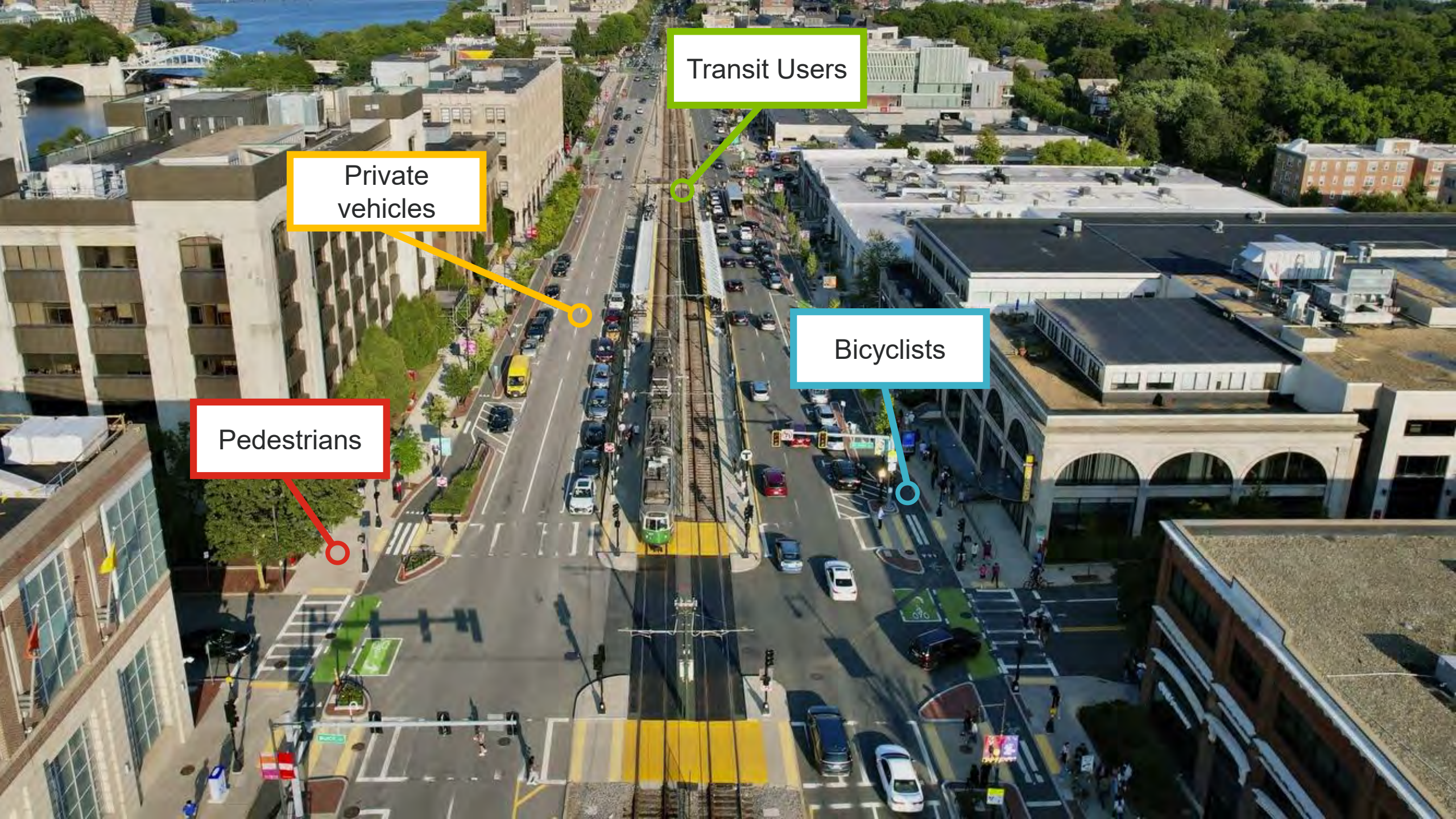




**Complete Streets are streets for everyone.** It is an approach to planning, designing, building, operating, and maintaining streets that enables safe access for all people who need to use them, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.



*Smart Growth America*



Transit Users

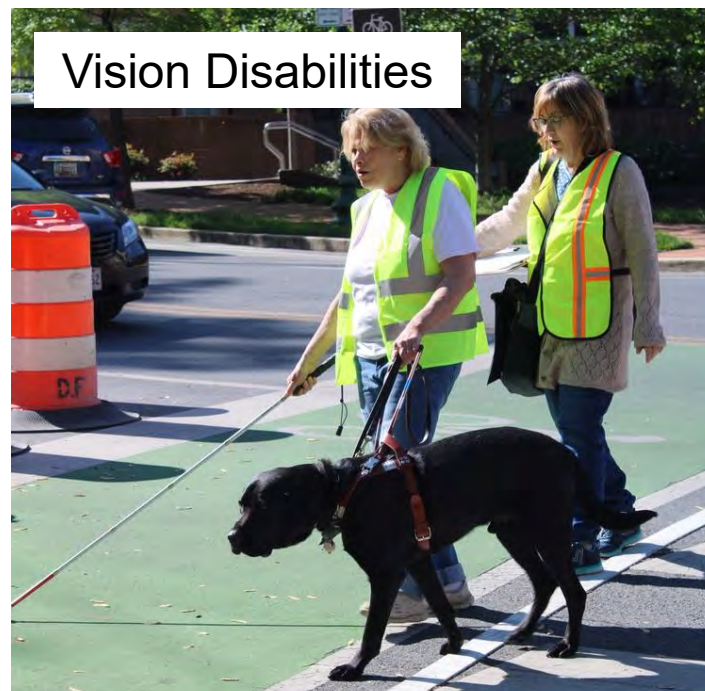
Private vehicles

Pedestrians

Bicyclists

# Works for Users of All Types, Ages, and Abilities

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# Model Street Types and Selection Guidance

## STREET TYPES: BALANCE OF ACCESS AND THROUGHPUT

Streets that balance access and throughput allow an acceptable level of motor vehicle throughput while maintaining a high level of comfort and convenience for people using transit, walking, and biking.

### MIXED USE AVENUE **A U**

A street with a diverse mix of retail, housing, office and/or education, with people using several types of transportation to circulate, but with increased transit and motor vehicle demand compared to that of a Mixed Use Street.



### AVENUE **R C I**

A street with a moderate amount of traffic, wider than a Neighborhood Street. These may include on-street parking and bike lanes.



Complete Streets Ames

## STREET TYPES: ACCESS-ORIENTED

Access-oriented streets emphasize peoples' ability to reach destinations and individual properties along a street by any mode. Access-oriented streets are typically lower-speed with higher levels of foot traffic.

### SHARED STREET **A U R**

A street or alley with no curbs or separate areas for various types of transportation. Emphasizes nonmotorized access; pedestrians have priority.



### MIXED USE STREET **A U**

A street with high amounts of a diverse mix of retail, housing, office and/or education, with people using several types of transportation to circulate.



Complete Streets Ames

## STREET TYPES: THROUGHPUT-ORIENTED

Throughput-oriented streets emphasize the efficient movement of people at greater distances, often at higher speeds. Safely maximizing throughput typically requires physically separating modes and limiting the number of intersections and driveways.

### THOROUGHFARE **R C**

A street with moderate to high amounts of traffic, used most often used for longer distance travel and automobile oriented uses.



### BOULEVARD **R C I**

A street with moderate to high amounts of traffic, with a landscaped median used to separate lanes of traffic and provide refuge for crossing pedestrian and bicycle traffic.



Complete Streets Ames

## STREET TYPES: ACCESS-ORIENTED

Access-oriented streets emphasize peoples' ability to reach destinations and individual properties along a street by any mode. Access-oriented streets are typically lower-speed with higher levels of foot traffic.

### NEIGHBORHOOD STREET **U R**

A low traffic street with housing and separated walkways, sometimes with on-street parking. A variation called "Bicycle Boulevard" is available, which optimizes the street for bicycle traffic through traffic calming and diversion; also includes pedestrian enhancements



### INDUSTRIAL STREET **C I**

A low-traffic street, often with a high percentage of truck traffic, accessing centers of manufacturing and large-scale retail.



Complete Streets Ames







# Beyond the ribbon-cutting





**Transportation Demand Management** is the use of strategies to inform and encourage people to maximize the efficiency of our transportation systems; leading to improved mobility, reduced congestion, and lower carbon emissions. TDM strategies are deployed by public and private sector organizations dedicated to providing a better journey for everyone.

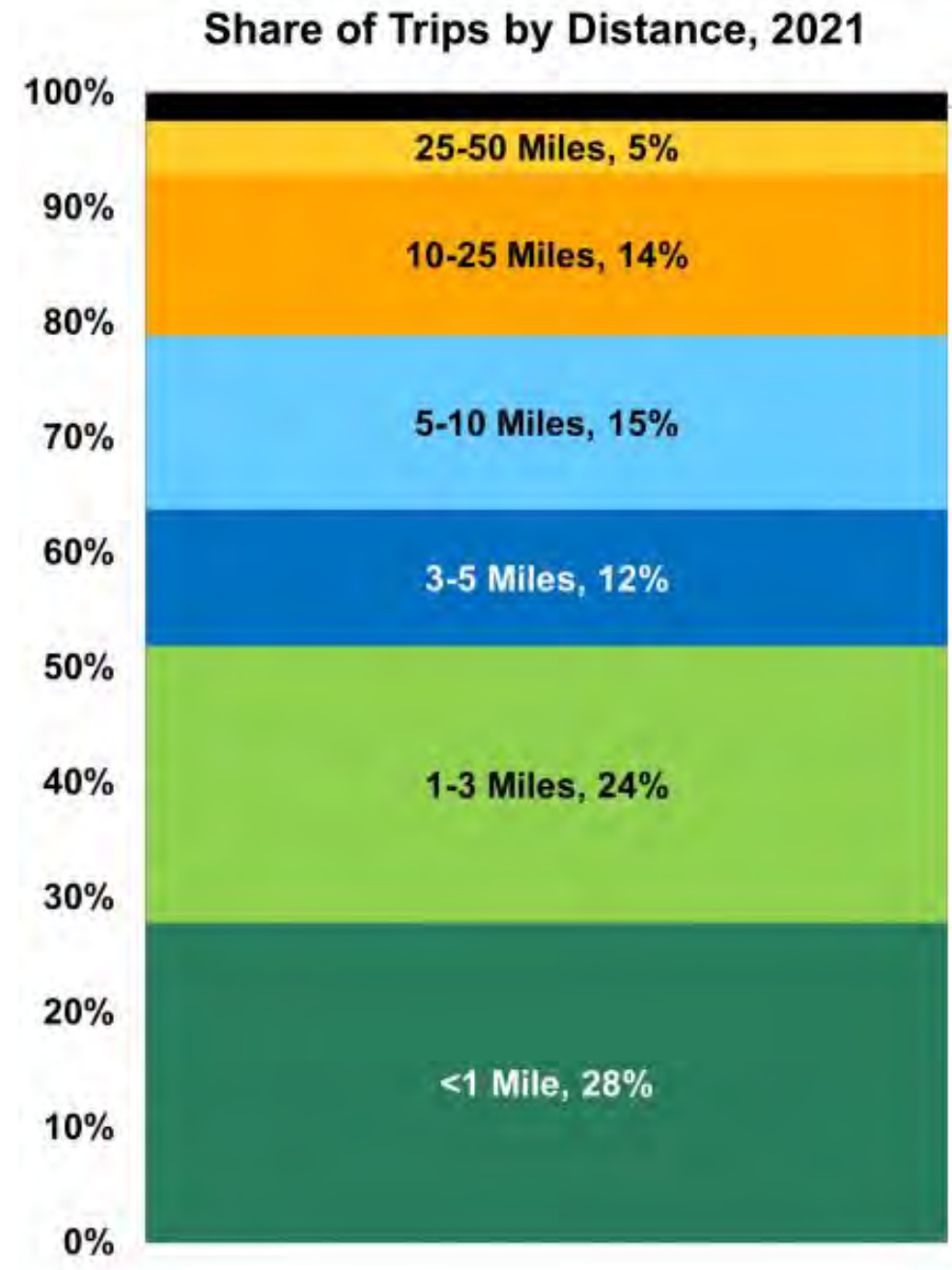


*Association for Commuter Transportation*



## Do We Need Cars for Every Trip?

- 60% of trips are 5 miles or less.
- WFH impacts
- Poor land use and hostile roads make some of these trips impossible or dangerous via any mode except by car.



# Reemphasize Carpooling?



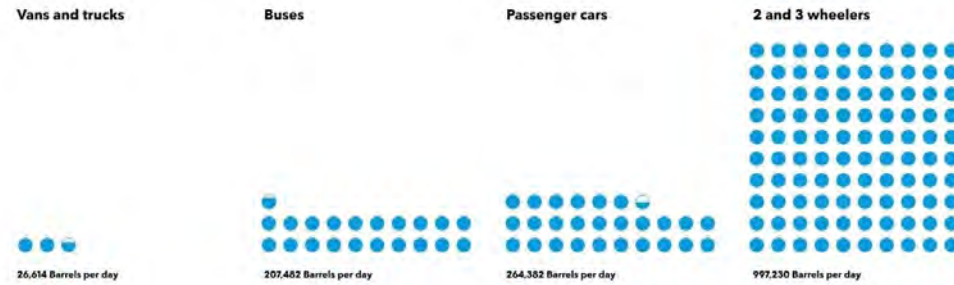
# E-bikes



## Oil displacement from EVs

EVs of all types are already displacing 1.5 million barrels per day of oil usage, equivalent to about 3% of total road fuel demand.

### Oil displacement by vehicle segment



# For your consideration

- How will we better leverage existing ROW?
- What is our commitment to the maintenance of green infrastructure?
- Can we begin to think (and fund) beyond the ribbon cuttings?
- What modes should get priority? What is the proper mode balance?
- What is the future of transit?
- Are E-bikes a game changer?





**T'OOLE**  
DESIGN



# Thank you

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