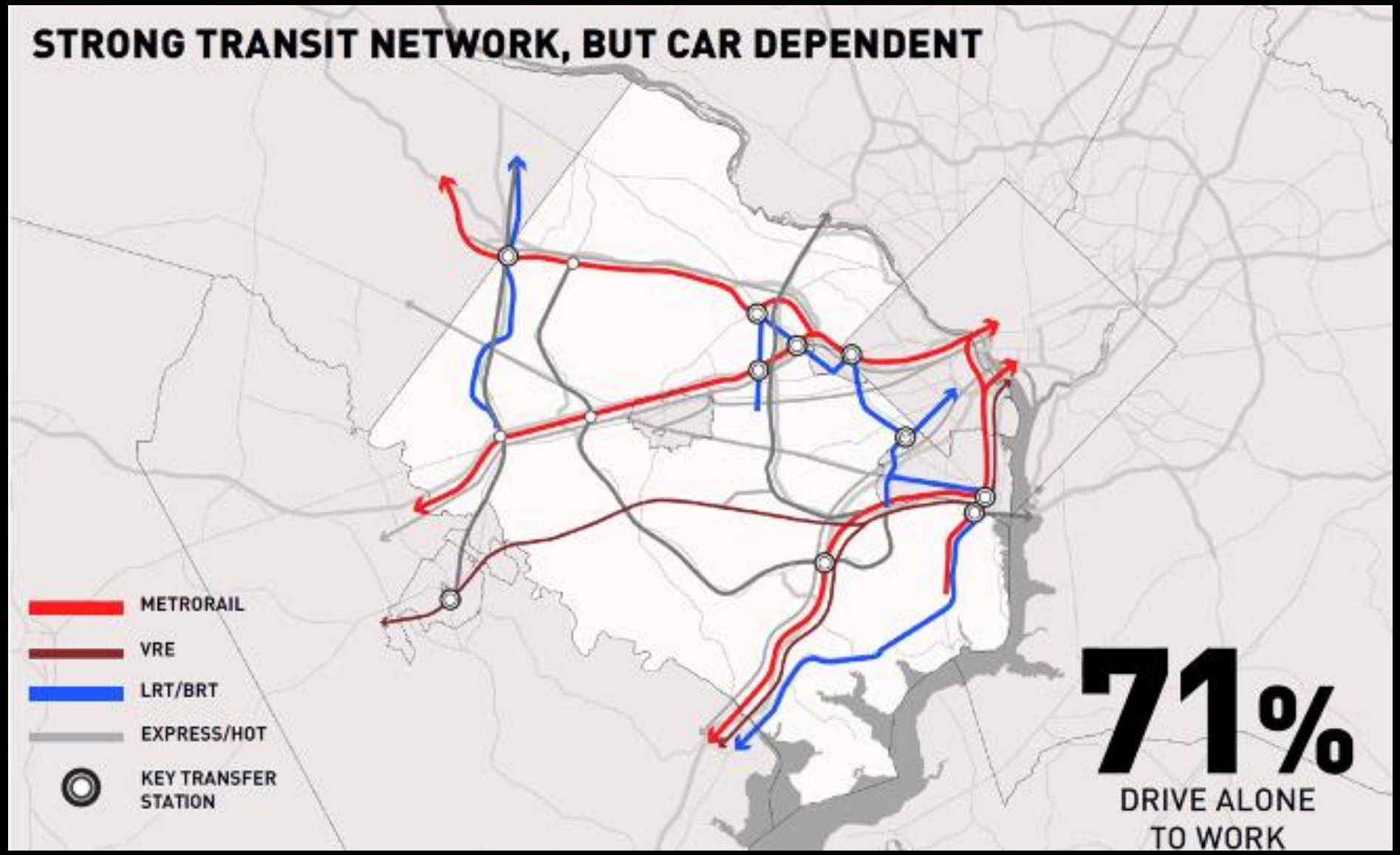
PLACEMAKING:

Transportation, Land Use, Economic Vitality

Why is Transportation & Street Design important?

It has a direct impact on Land Use and the Economy.



Single-occupant-vehicle (SOV) rate is too high (should be 50%)

The 3 Major Types of Street Categories:

Limited Access Highways

Arterials and Collectors

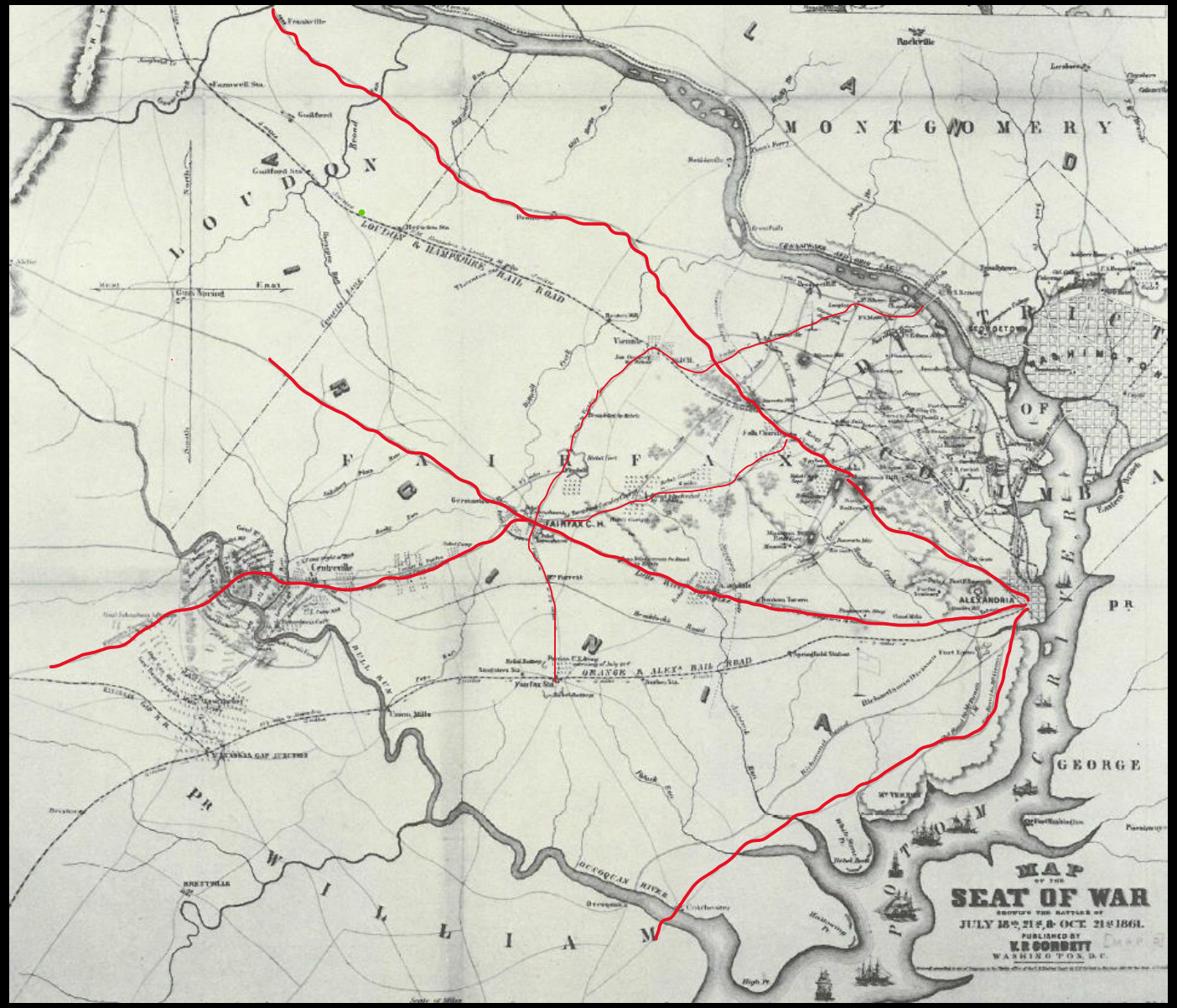
Local Streets

How did transportation & street design evolve?

A Brief History of Roads and Streets (in 2 minutes)

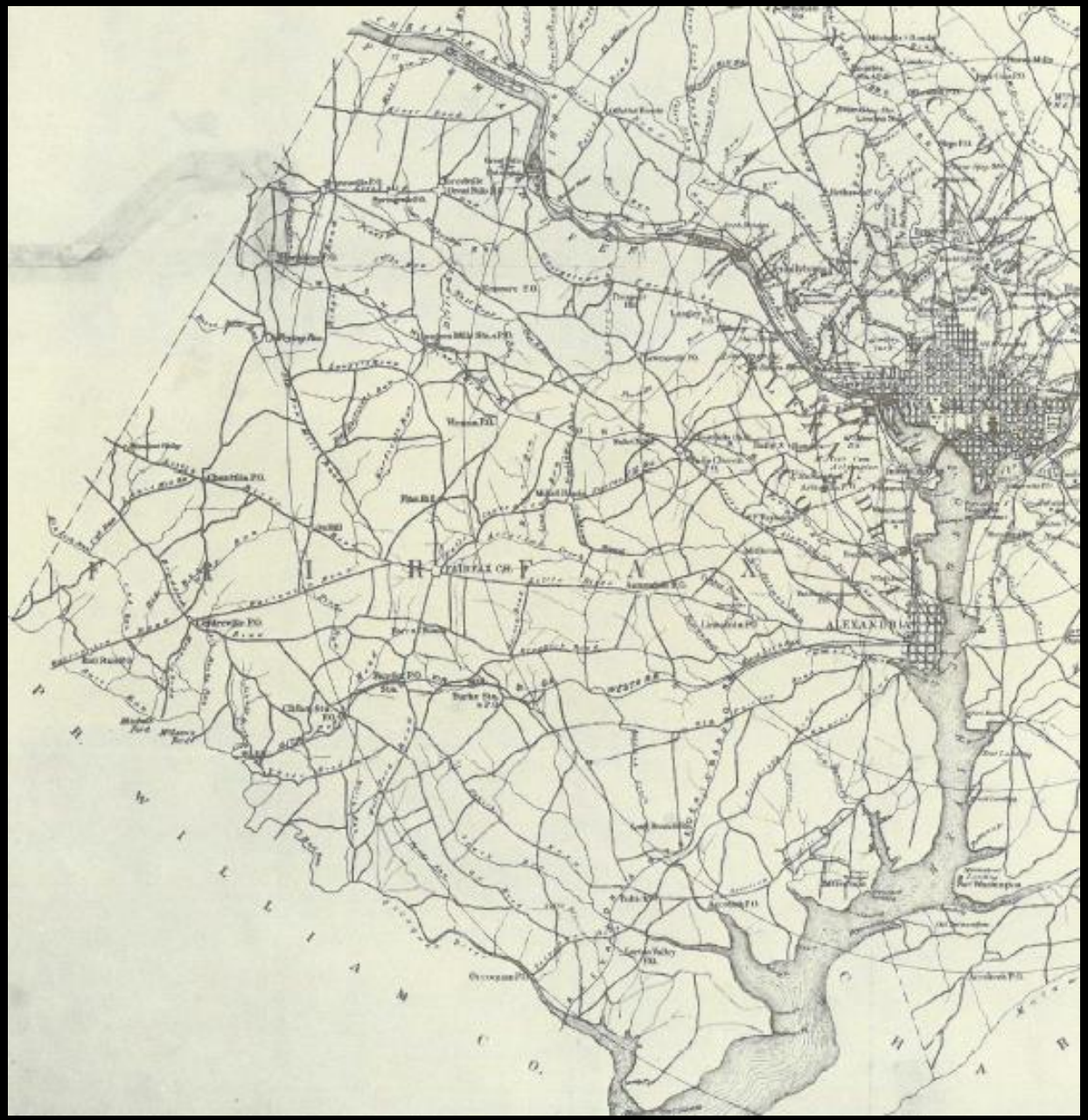
1700s – 2000s

Typical country road in Fairfax - 1700s-1800s



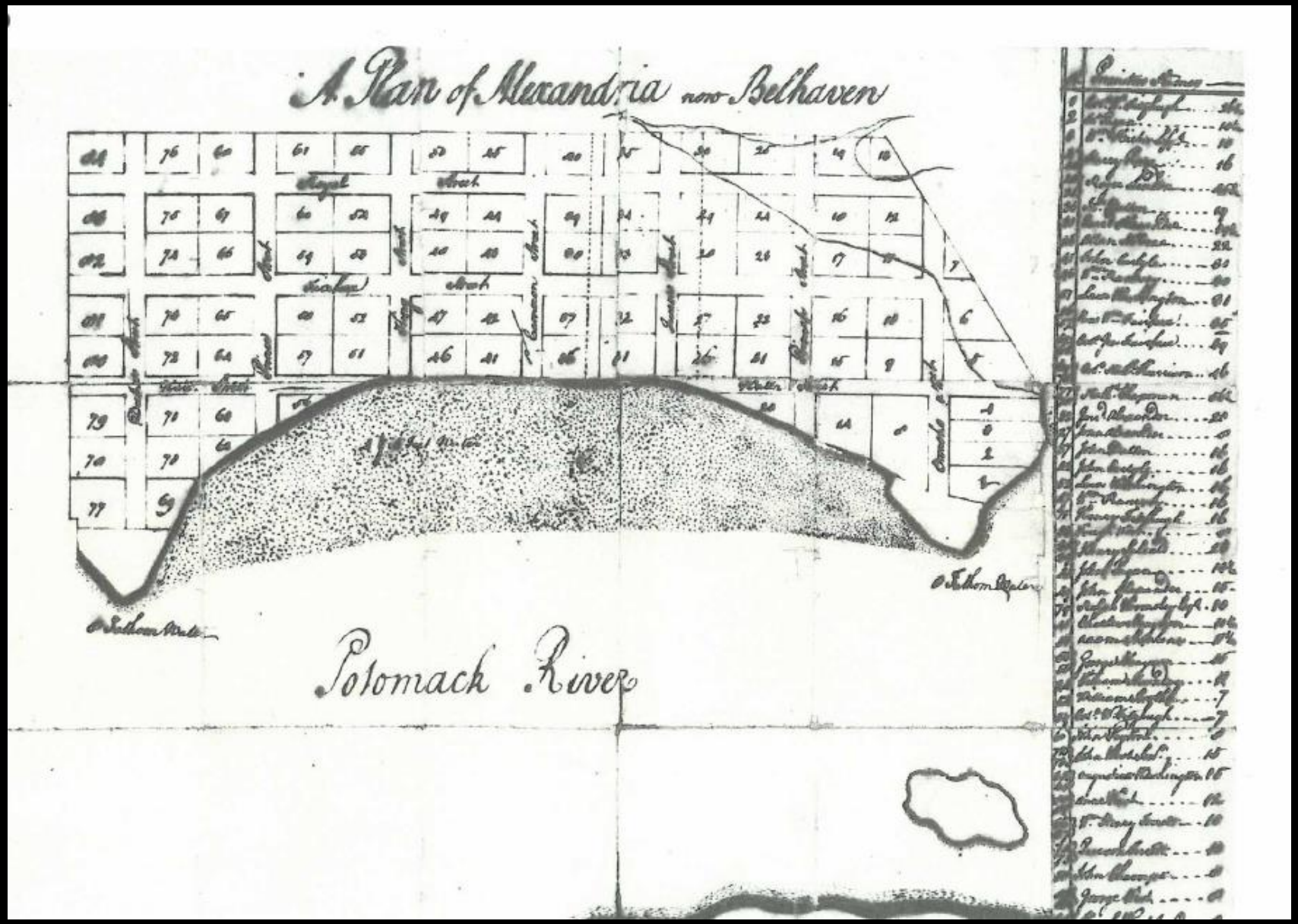
1860s: Country roads – Routes 1, 7, 29, 50,123

Primary Functions: Long distance travel (farm to market, town to town)



1880s: Fairfax country roads proliferate

Organic Growth: No formal plan or grid of streets



1749: Alexandria Plan

A planned grid of streets by George Washington

1800s: Alexandria

A dense, walkable grid spurs economic activity & growth along a river port

1800: City of Washington

A planned grid of streets

1900: Washington, D.C.

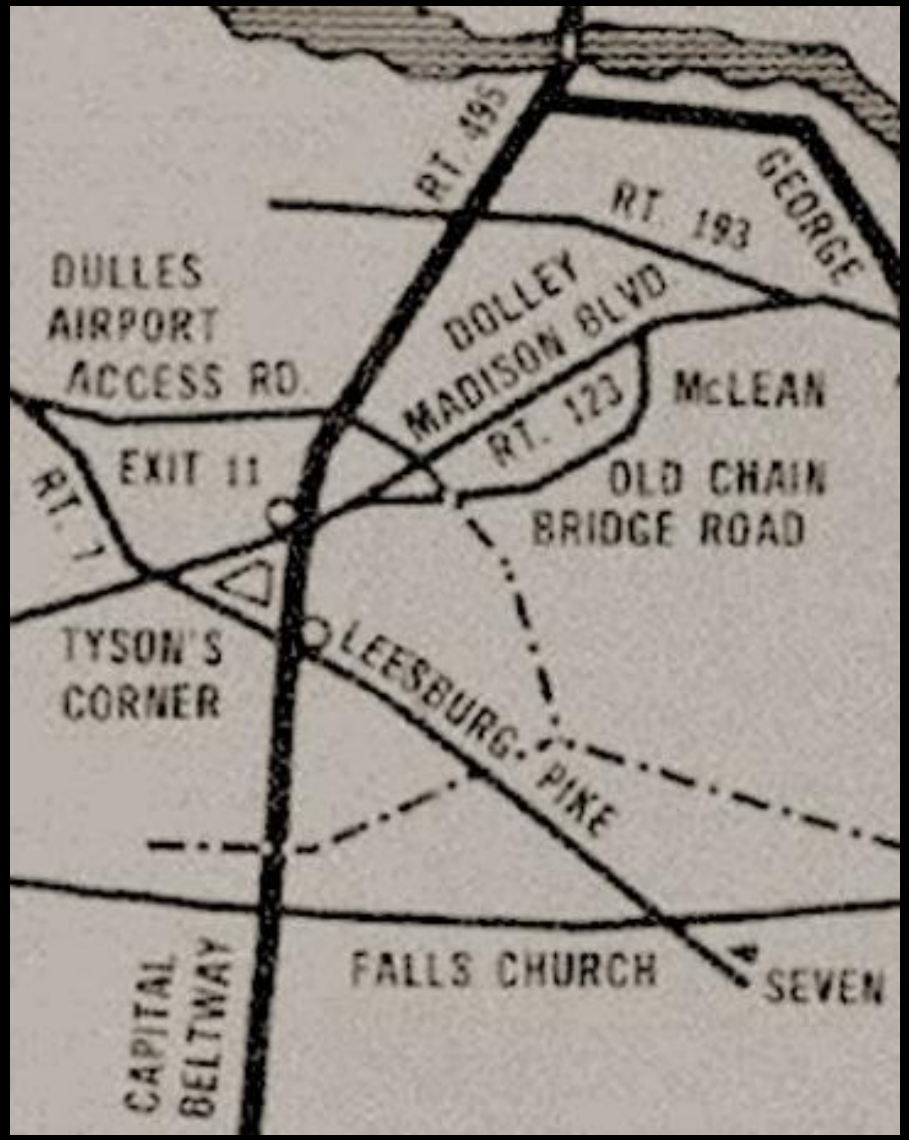
Urban Development: mixed-use, dense, multi-modal grid (peds, horses, bicycles, streetcars, cars)

1960s: Tysons Corner

Suburban Development: Euclidean zoning and auto-dominant infrastructure

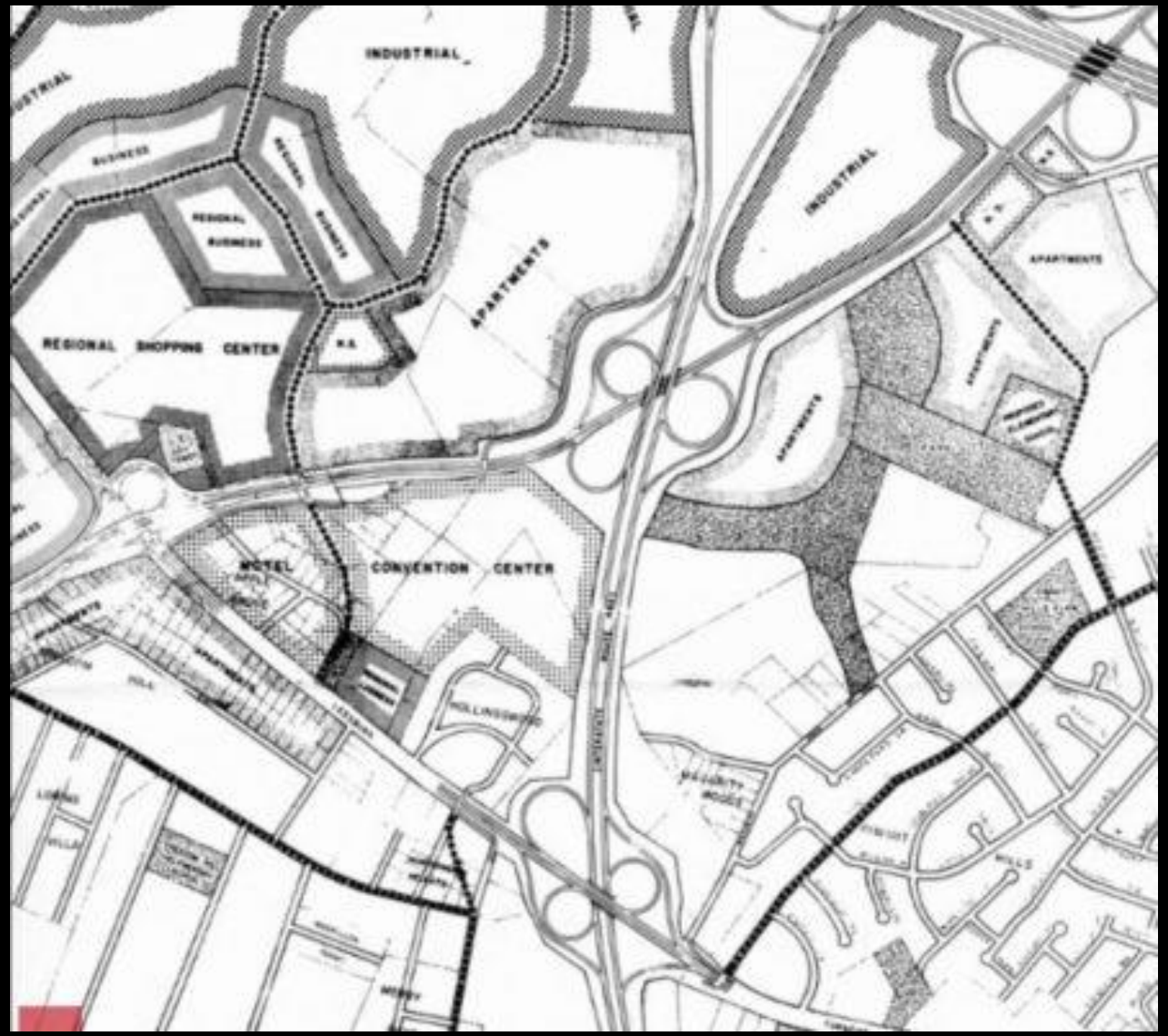
Main Arterial through Tysons

Focus on Automobile Throughput – Not on People



1960: Early Fairfax Plan

Major arterials and automobile scale

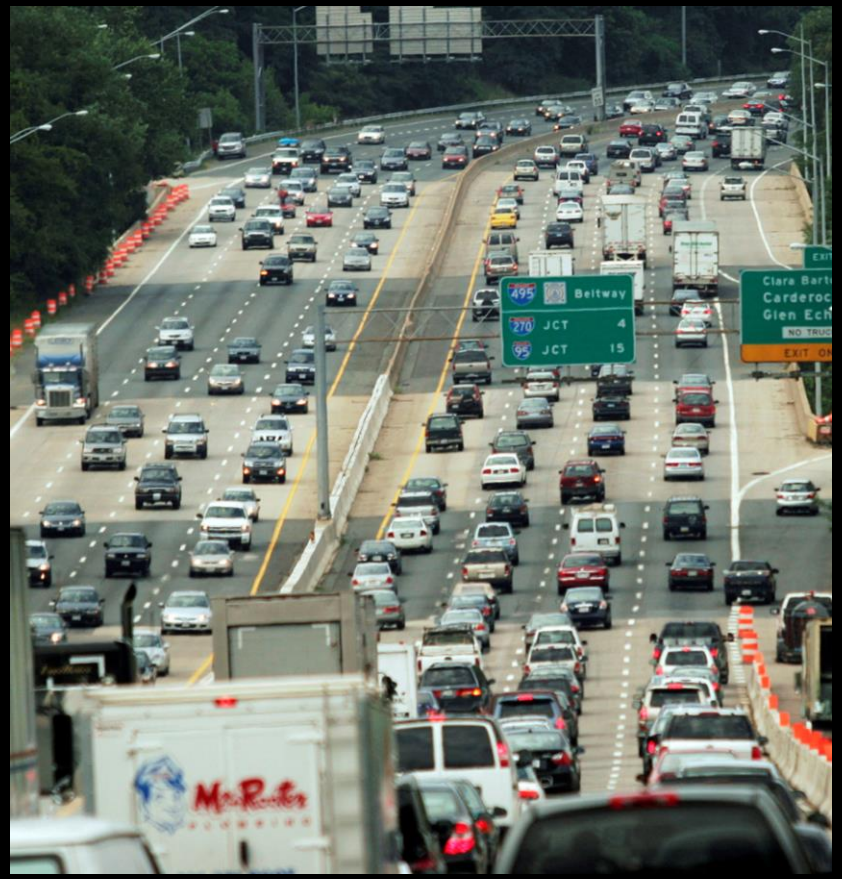


1961: Tysons Master Plan

Euclidean (single-use) Zoning

1964: Beltway

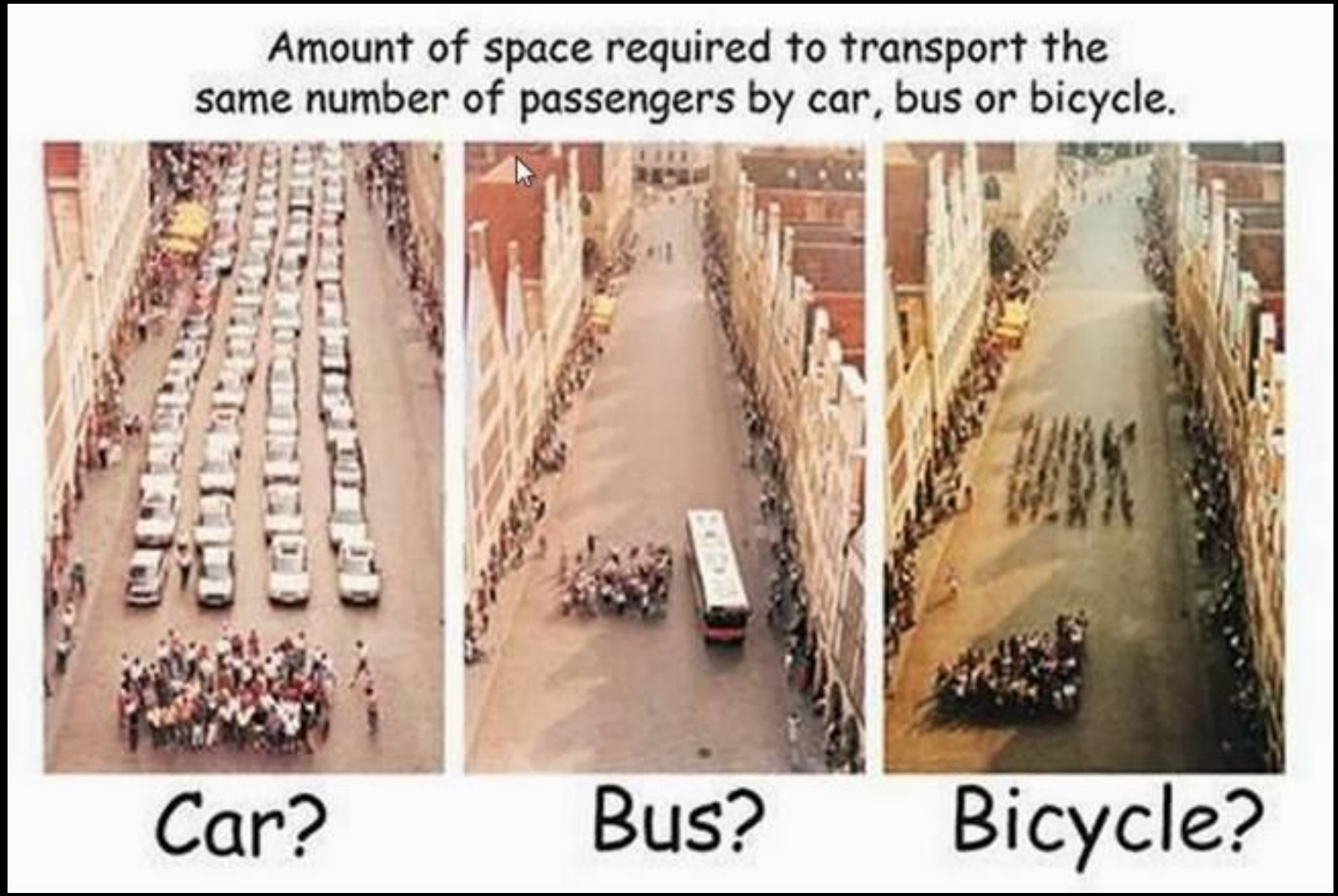
Fairfax's first highway – 4-lanes



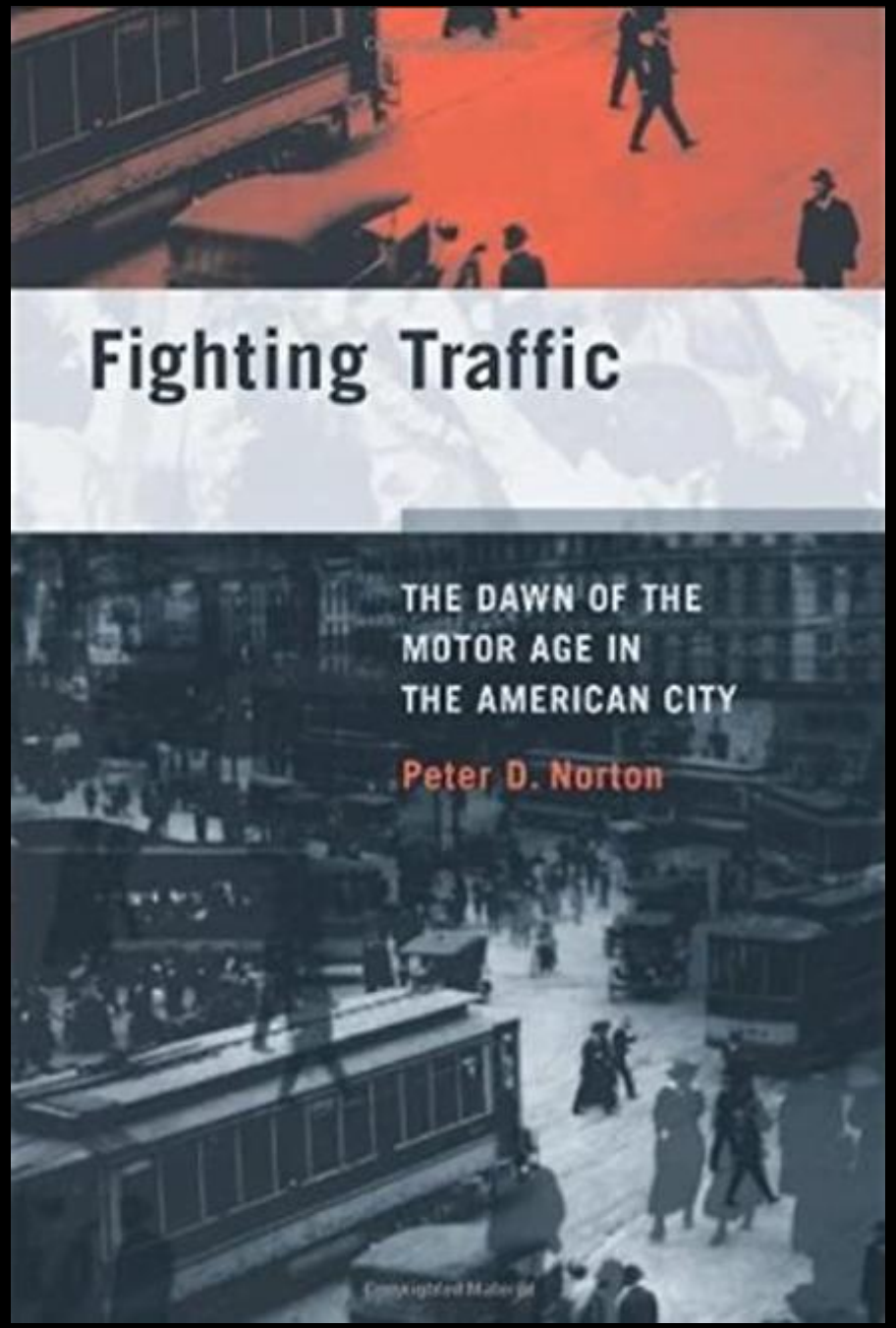
1970s: Beltway

Doubled to 8-lanes within 10 years

Traffic: A “new” 20th century problem due to auto-focused roads



Automobiles take up a lot of space and the infrastructure is expensive
Pedestrians and bicycles require much less space and infrastructure


Fighting Traffic
THE DAWN OF THE MOTOR AGE IN THE AMERICAN CITY
Peter D. Norton

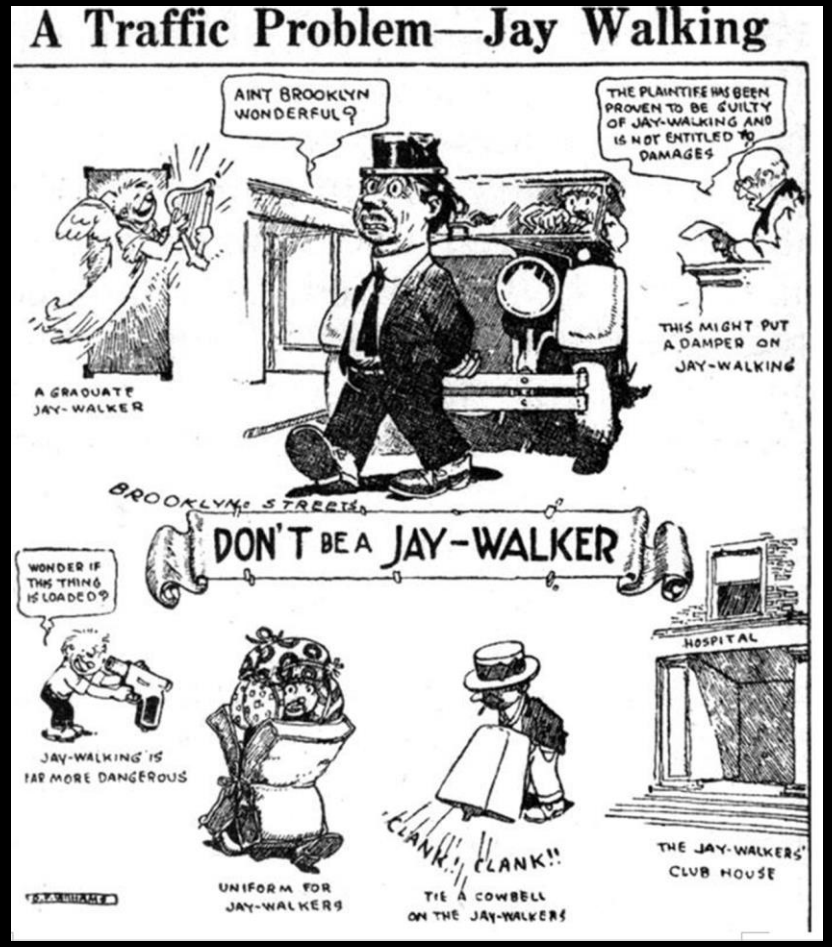
Late 1800s: New York City

Street as marketplace, gathering space, playground, *and* travel

MOVIE TIME!

Early 1906: San Francisco

All travelers “owned” the street due to slow speeds



As automobiles got faster, they were given highest priority and pedestrians and children were relegated to the sidewalks

1910: Richmond, Virginia (Broad & 4th)

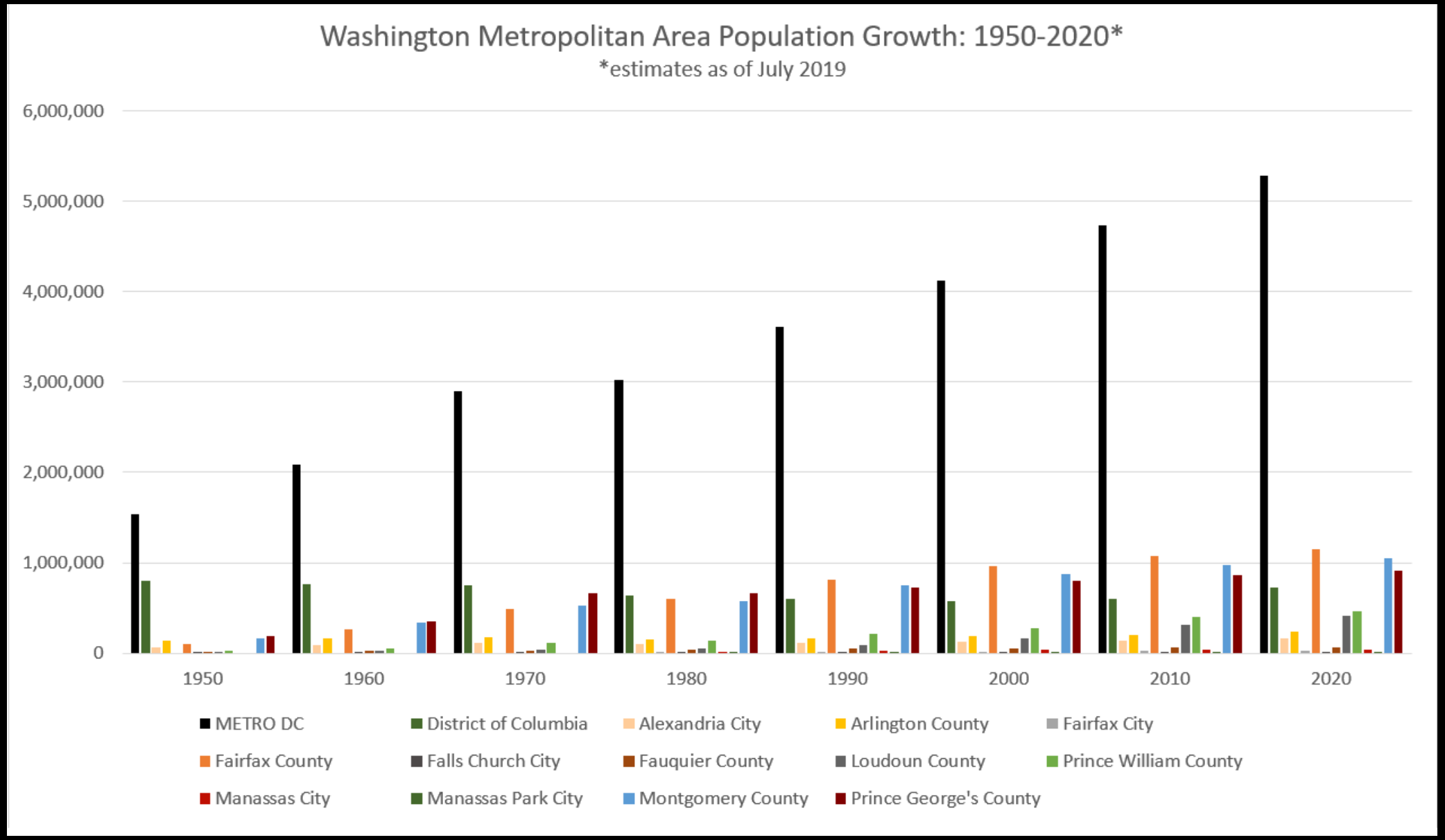
Street as marketplace, gathering space, and multi-modal travel

2010: Richmond, Virginia (Broad & 4th)

Automobiles dominate: Parking lots replaced buildings and streetcars were removed. Peds are gone.

1920s – The start of Euclidean (single-use) Zoning

This is where the pedestrians went: Auto-dominated subdivisions, shopping centers, office parks



1950: Washington D.C. population peaks

1980s: Suburban growth peaks

1930/40s: Washington, D.C. – Bustling Shopping & Office District

The end of an era, as business activities moved to suburbia and streetcars were removed

Seven Corners Section

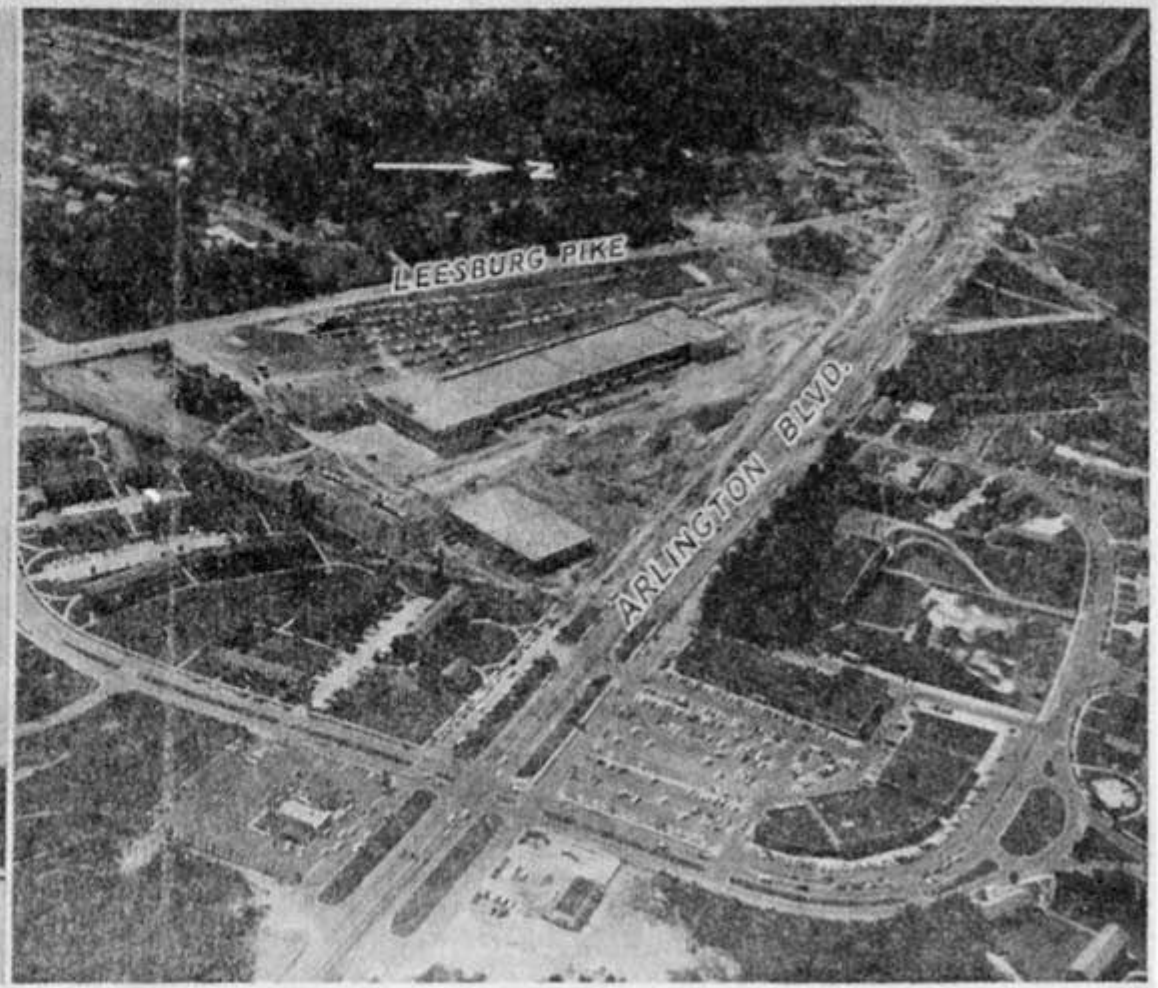
The Evening Star

History and Development of the Area

E

WASHINGTON, D. C., WEDNESDAY, OCTOBER 3, 1956

Largest and Newest Shopping Center Opens Tomorrow

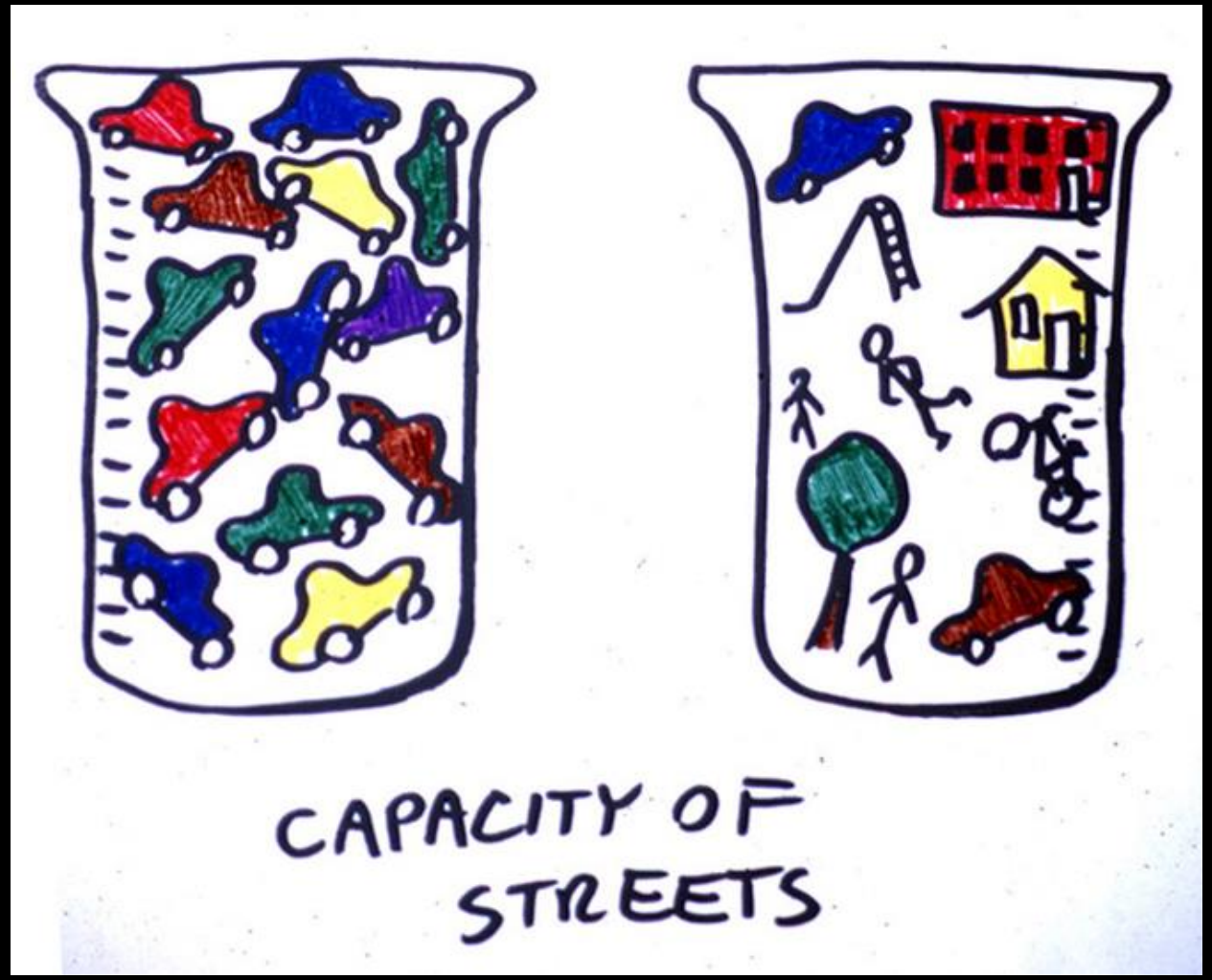


1956: Seven Corners Shopping Center

Fairfax's first major shopping center – auto-dependent

1960s: Rt. 50 and 7 are Widened

Former country roads become auto-dominated arterials. Not ped friendly.



Streets for cars only v. Streets for everyone

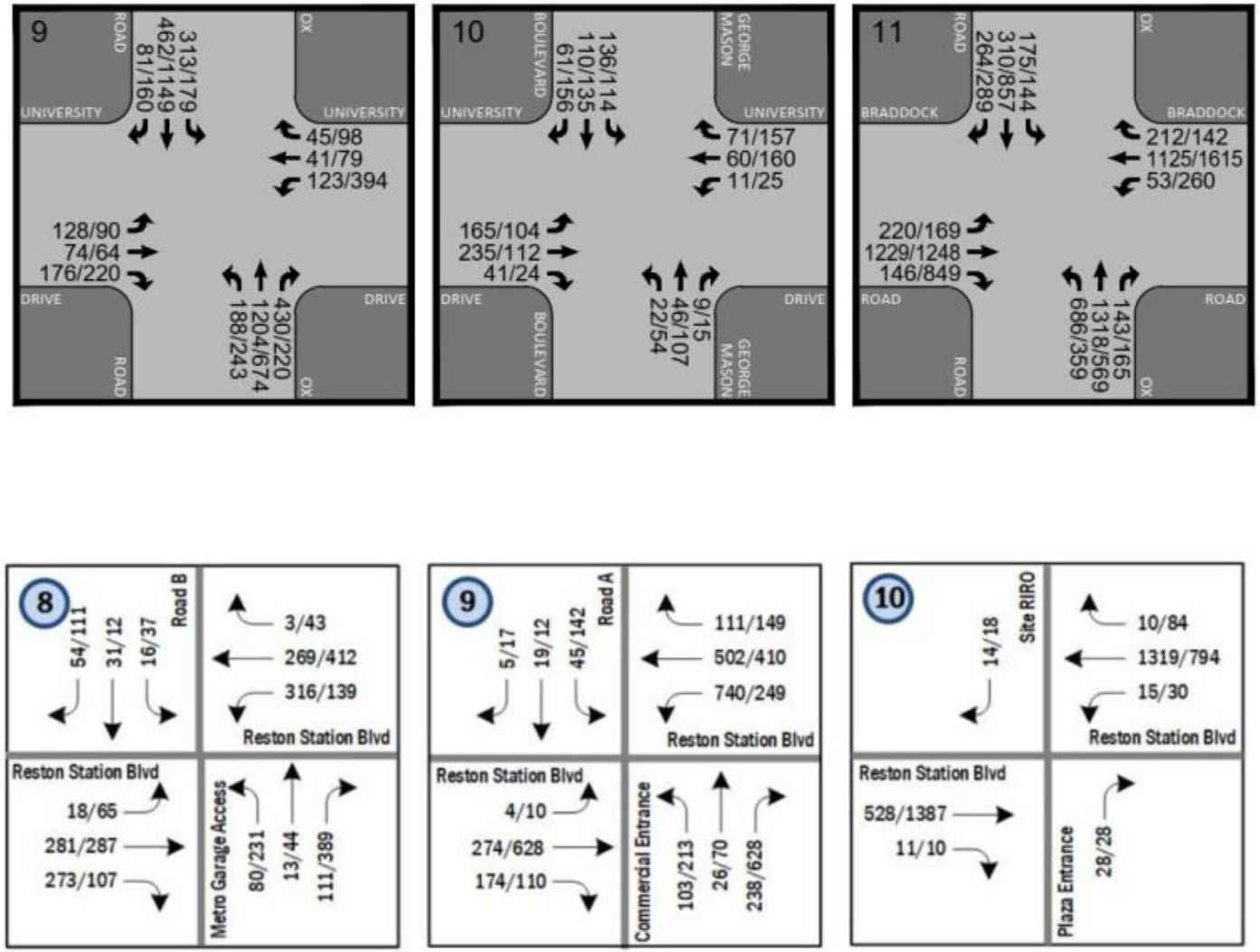
Level of Service (LOS) “traffic” modeling:

The basis of Fairfax street and road design

VDOT owns Fairfax roads and streets and uses LOS to ensure automobiles are delayed too long at traffic lights.
Other travelers are not considered in LOS modeling.

LOS	Average delay in seconds per vehicle	Description of motorist perception
A	< 10	Free-flow traffic: "Good" LOS
B	10.1 – 20	Reasonable free-flow
C	20.1 – 35	Stable but unreasonable delay begins to occur
D	35.1 – 55	Borderline "bad" LOS
E	55.1 – 80	"Bad" LOS: long queues
F	> 80	Unacceptable: very high delay, congestion

LOS: Measures Vehicle Delays at Traffic Lights



Typical LOS Modeling

Automobile counts at traffic lights, but no considerations for peds/cyclists

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	9	21	1393	17	0	17	1335	59	232	1596	37
Future Volume (vph)	18	9	21	1393	17	0	17	1335	59	232	1596	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			4%			-4%	
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95		1.00	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.95		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1805	1667	1615	1649	1654		1653	3435	1552	3536	3646	1540
Flt Permitted	0.95	1.00	1.00	0.95	0.95		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1805	1667	1615	1649	1654		1653	3435	1552	3536	3646	1540
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	18	9	21	1421	17	0	17	1362	60	237	1629	38
RTOR Reduction (vph)	0	0	20	0	0	0	0	0	38	0	0	22
Lane Group Flow (vph)	18	9	1	725	713	0	17	1362	22	237	1629	16
Heavy Vehicles (%)	0%	14%	0%	4%	7%	0%	7%	3%	2%	1%	1%	7%
Turn Type	Split	NA	Perm	Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3		4	4		1	6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	4.1	4.1	4.1	60.7	60.7		2.9	53.7	53.7	8.5	59.3	59.3
Effective Green, g (s)	4.1	4.1	4.1	60.7	60.7		2.9	53.7	53.7	8.5	59.3	59.3
Actuated g/C Ratio	0.03	0.03	0.03	0.42	0.42		0.02	0.37	0.37	0.06	0.41	0.41
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	51	47	45	690	692		33	1272	574	207	1491	629
v/s Ratio Prot	c0.01	0.01		c0.44	0.43		0.01	0.40		c0.07	c0.45	
v/s Ratio Perm			0.00						0.01			0.01
v/c Ratio	0.35	0.19	0.01	1.05	1.03		0.52	1.07	0.04	1.14	1.09	0.02
Uniform Delay, d1	69.1	68.8	68.5	42.1	42.1		70.4	45.6	29.2	68.2	42.9	25.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.7	0.0	48.3	42.2		5.5	46.5	0.1	107.1	52.9	0.1
Delay (s)	70.7	69.6	68.5	90.5	84.4		75.9	92.2	29.3	175.3	95.7	25.7
Level of Service	E	E	E	F	F		E	F	C	F	F	C
Approach Delay (s)		69.5			87.5			89.3			104.2	
Approach LOS		E			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	94.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	105.2%	ICU Level of Service	G
Analysis Period (min)	15		

SBL	SBT
232	1596
232	1596

Prot	NA
5	2
8.5	59.3
8.5	59.3

175.3	95.7
F	F
	104.2
	F

Only considers to driver's experience,
not the pedestrian or cyclist's experience

Voila!

LOS determines that the road must be widened for vehicles (not peds/cyclists)

11’-12’ Lanes, High Speed, No Street Trees, No Ground Floor Retail, No On-street Parking, No Peds/Cyclists

From 2-Lane Country Road to 10-Lane Auto Strip

Historic Chain Bridge Rd/Rt 123: 30,000 ADT

10’ Lanes, Slow Speed, Street Trees, Ground Floor Retail, On-Street Parking, Peds/Cyclists

Connecticut Ave: Urban Street of Six-Lanes

Major Arterial: 29,250 ADT (similar to Rt. 7)

12’ Lanes, High Speed, No Street Trees, Parking Lots, No Peds/Cyclists

Rt. 7 in Tysons – Major Arterial of 7-lanes

Major Arterial: 42,000 ADT

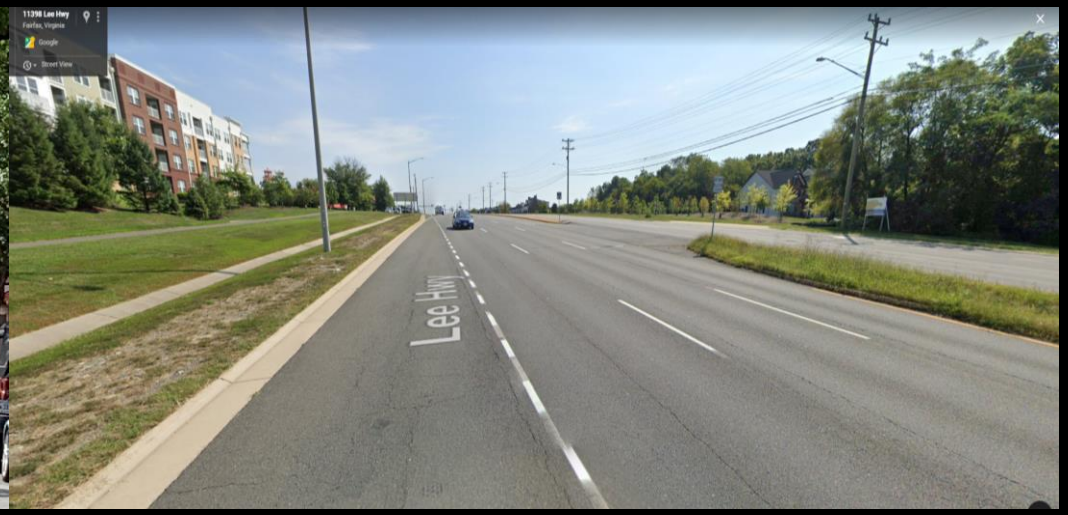
10.5’-11’ Lanes, Slow Speed, Street Trees, Ground Floor Retail, Peds/Cyclists

Rt. 7 in Fall Church – Major Arterial of 4 lanes

21,000 ADT

The Tysons Plan envisions Complete Streets,
more like the one shown in Falls Church

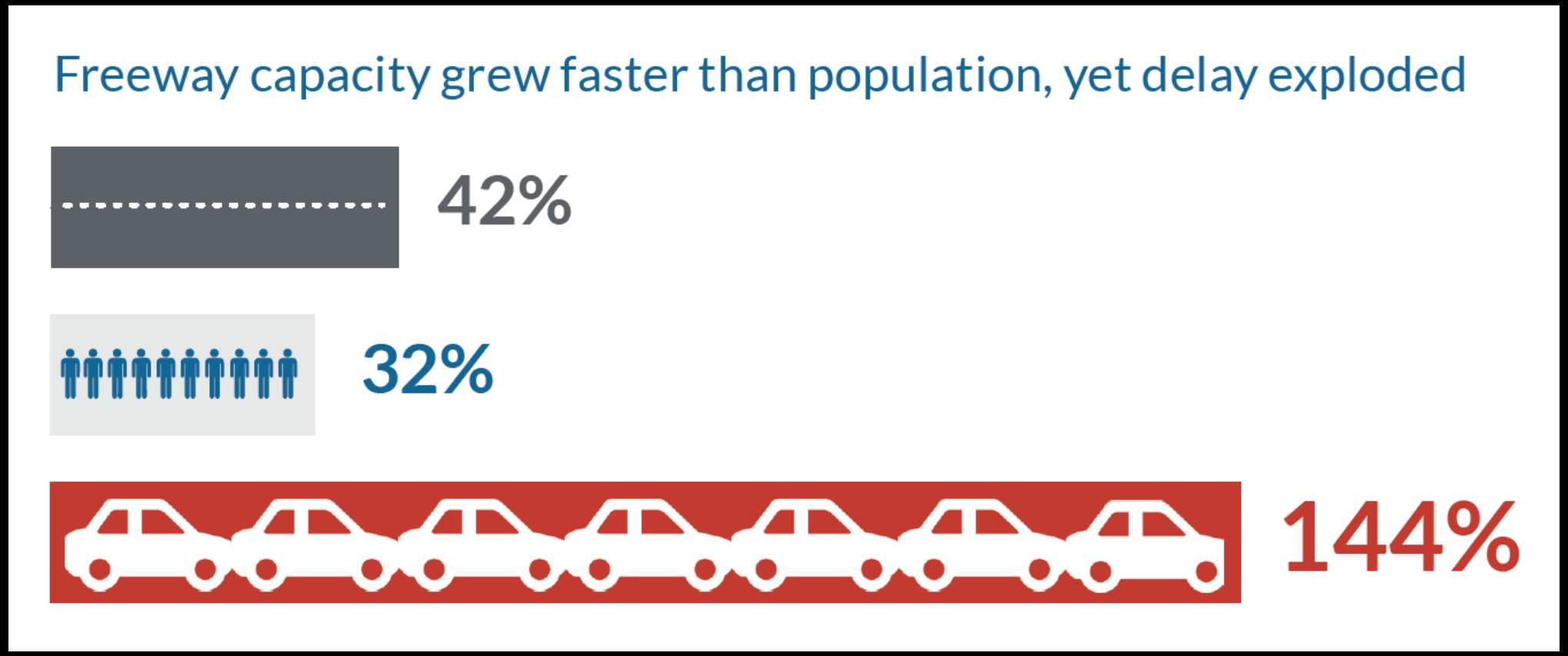
What's important depends upon values and perspective



LOS Model:	**F**	**A**
Economic/Complete Streets Model:	**A**	**F**

The **LOS** Methodology is INDUCING More Traffic

Therefore, it will never “solve” for congestion or result in Complete Streets



U.S. Averages

Urbanized area	Population growth	Freeway lane-miles growth	Growth in delay
Washington, DC	47%	43%	131%

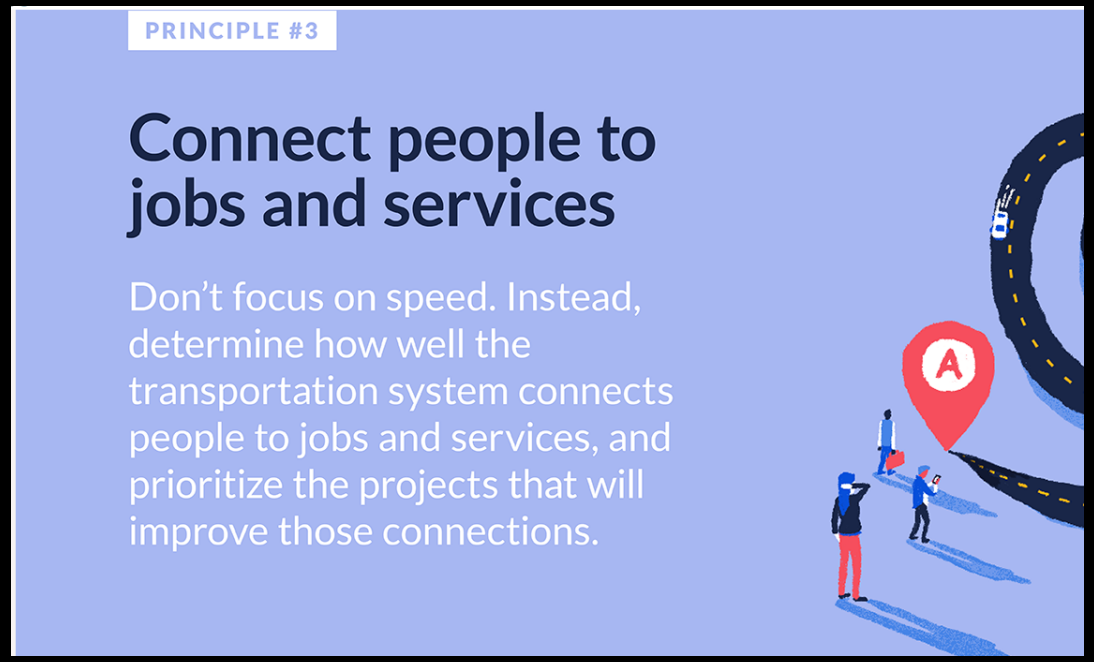
Source: Smart Growth America
"The Congestion Con" 2020

Miles driven per person grew by 20 percent in the largest 100 urbanized areas

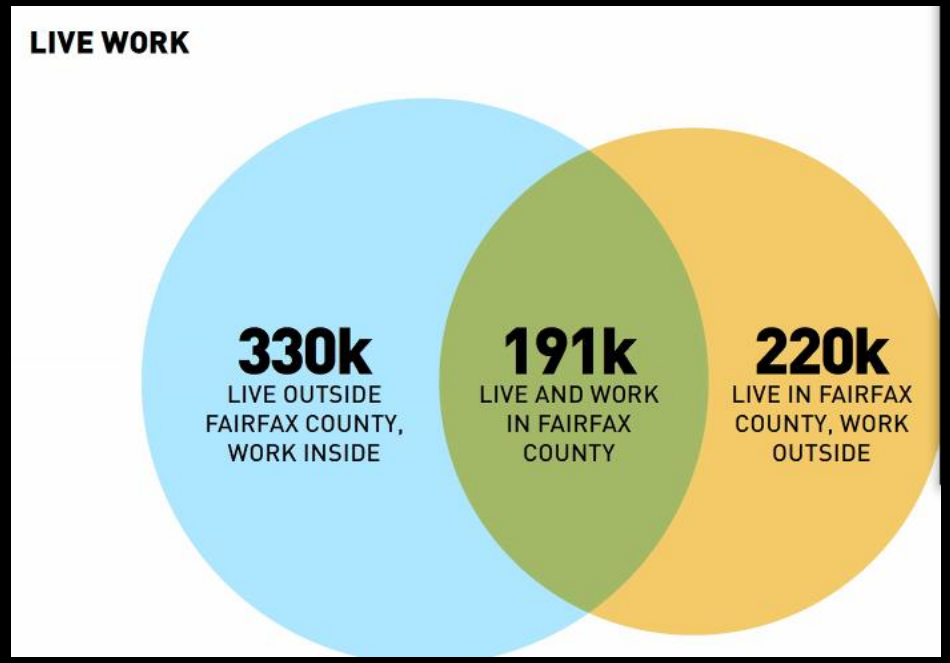
1993 - 21 miles per day

2017 - 25 miles per day

Source: Smart Growth America
"The Congestion Con" 2020



Source: Smart Growth America

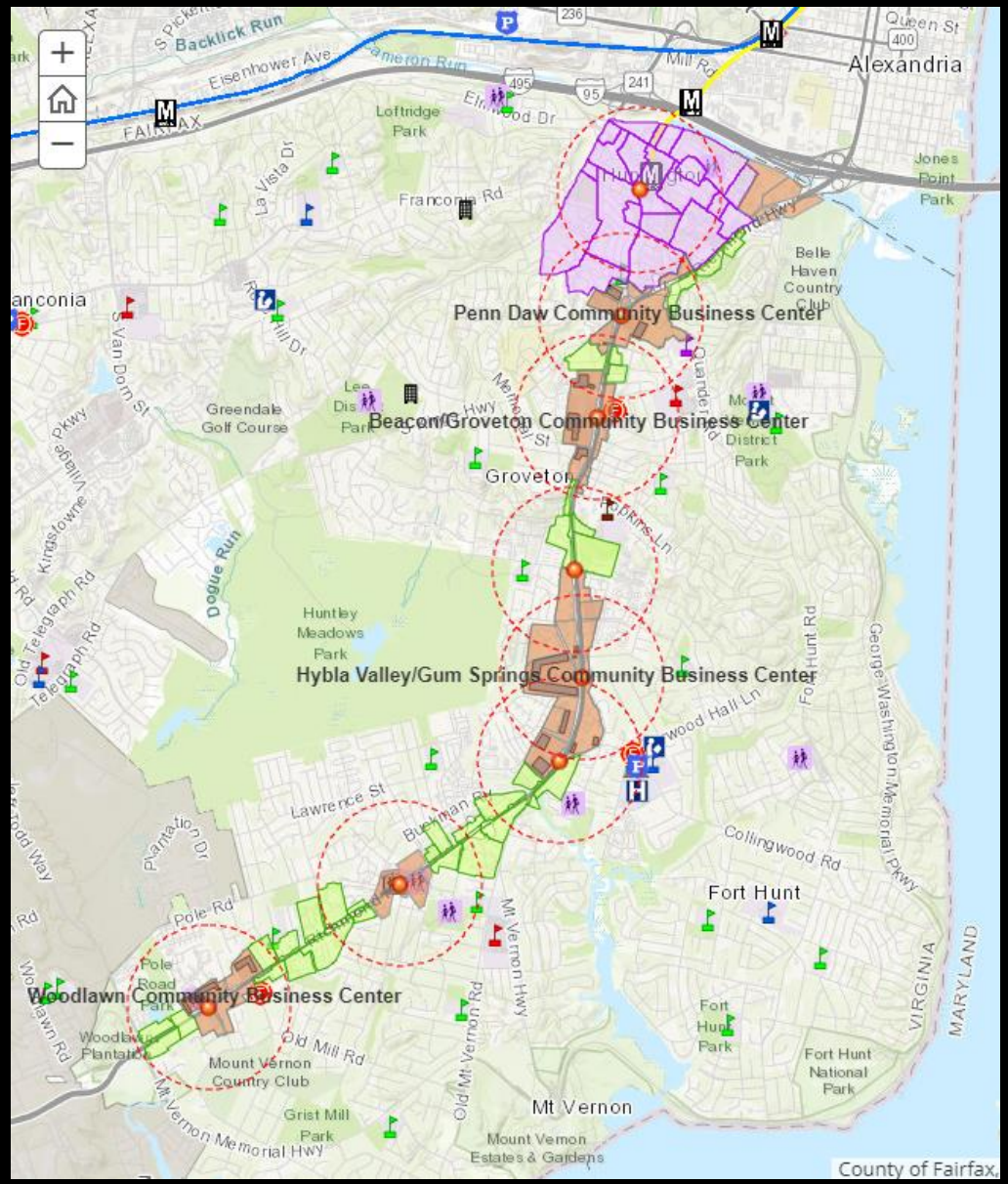


Source: U.S. Census Bureau

1946 - 2020: Springfield
Auto-Dominated Roads and No Mixed-Use Developments

2020: A new vision for Springfield

Mixed-Use Development and walkable streets

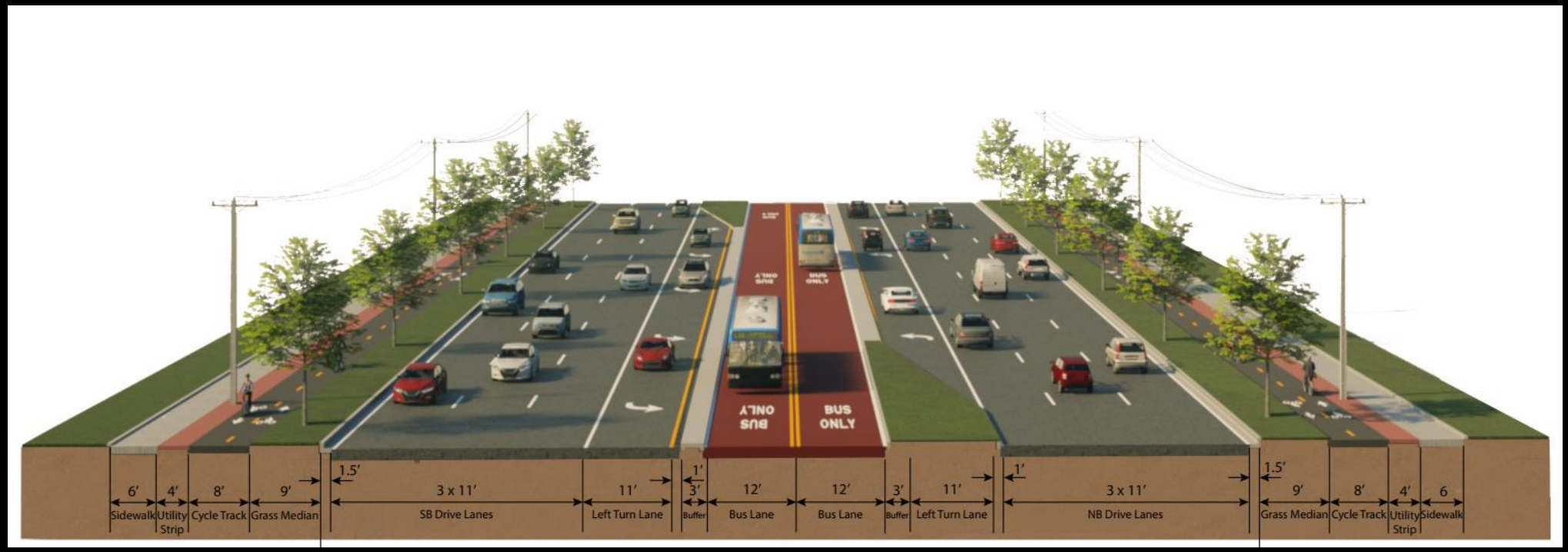


2018: A new vision for Rt. 1

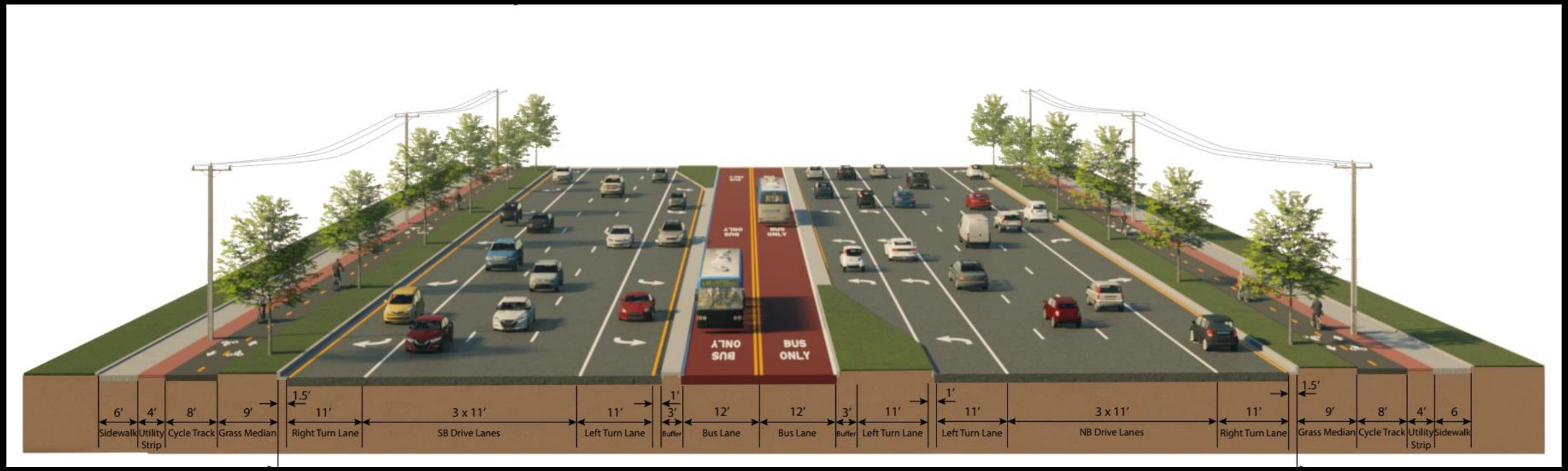
Mixed-Use Development, a new Bus Rapid Transit (BRT) system and and walkable streets

The Rt. 1 “Embark Plan” with
Community Business Centers (villages) at BRT stops

Penn Daw CBC Vision: A new “Livability Spine parallel to the Rt. 1 Corridor



Rt. 1 – Future Street Section with BRT
10 Lanes plus new sidewalks and cycle tracks



Rt. 1 – Future Street Section with BRT

13 Lanes is too wide and

we are working to reduce these road sections down to 10 lanes

1980s: A Vision for Reston Town Center
that was realized in the 1990s
Mixed-use, pedestrian-oriented

Halley Rise @ RTC Metro

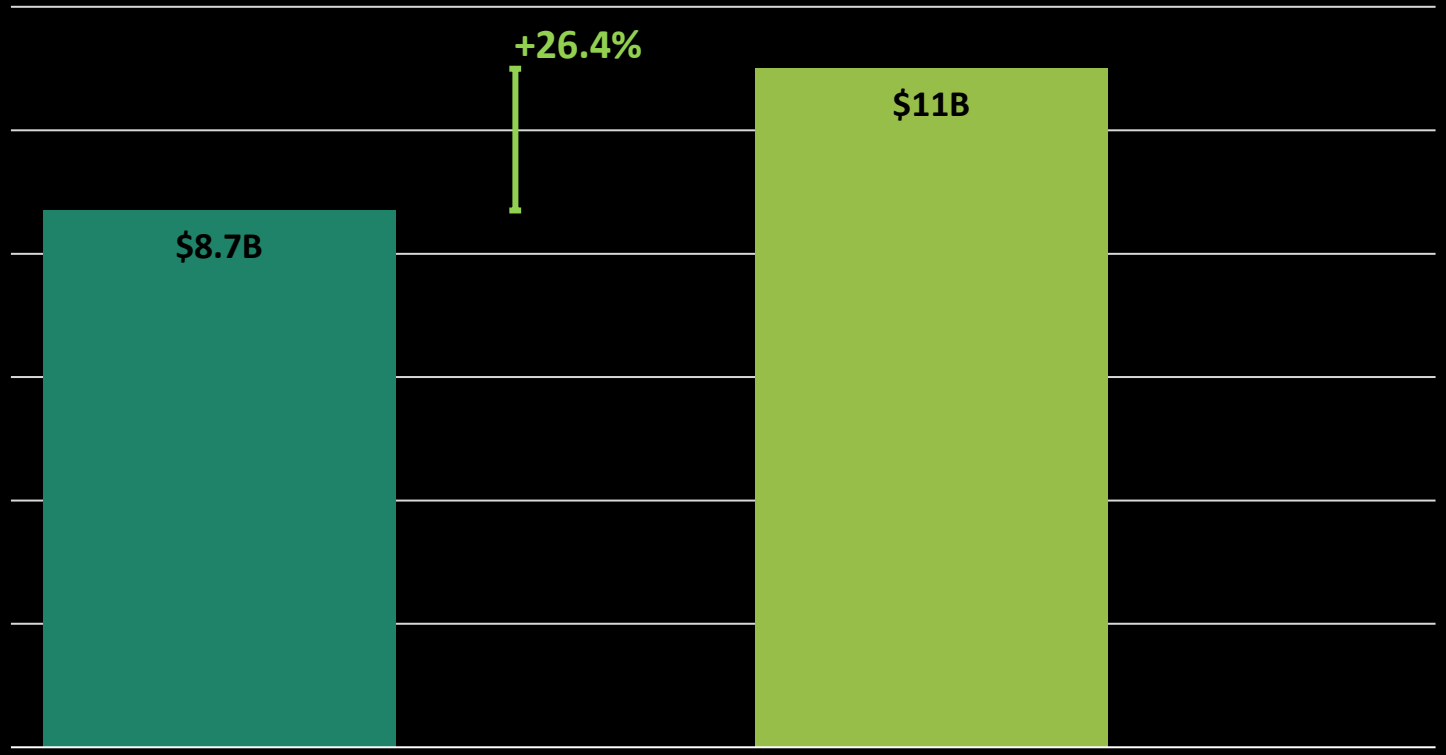
2000s: Reston TSAs
More mixed-use, walkable places

Reston Station @ Wiehle Metro Station

Reston TSA Real Estate Growth Since 2017

2017: $8.7 billion in RE assessments

2019: $11 billion in RE assessments

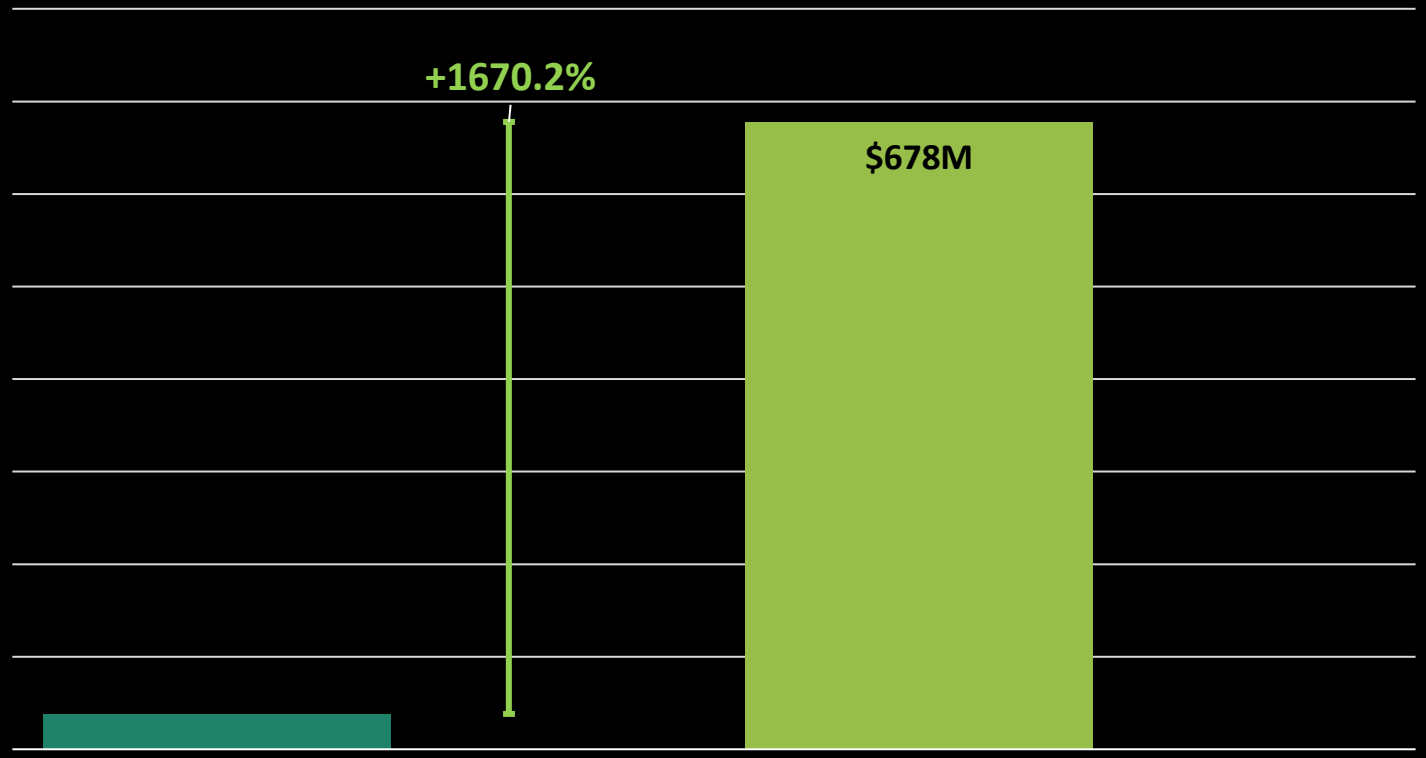


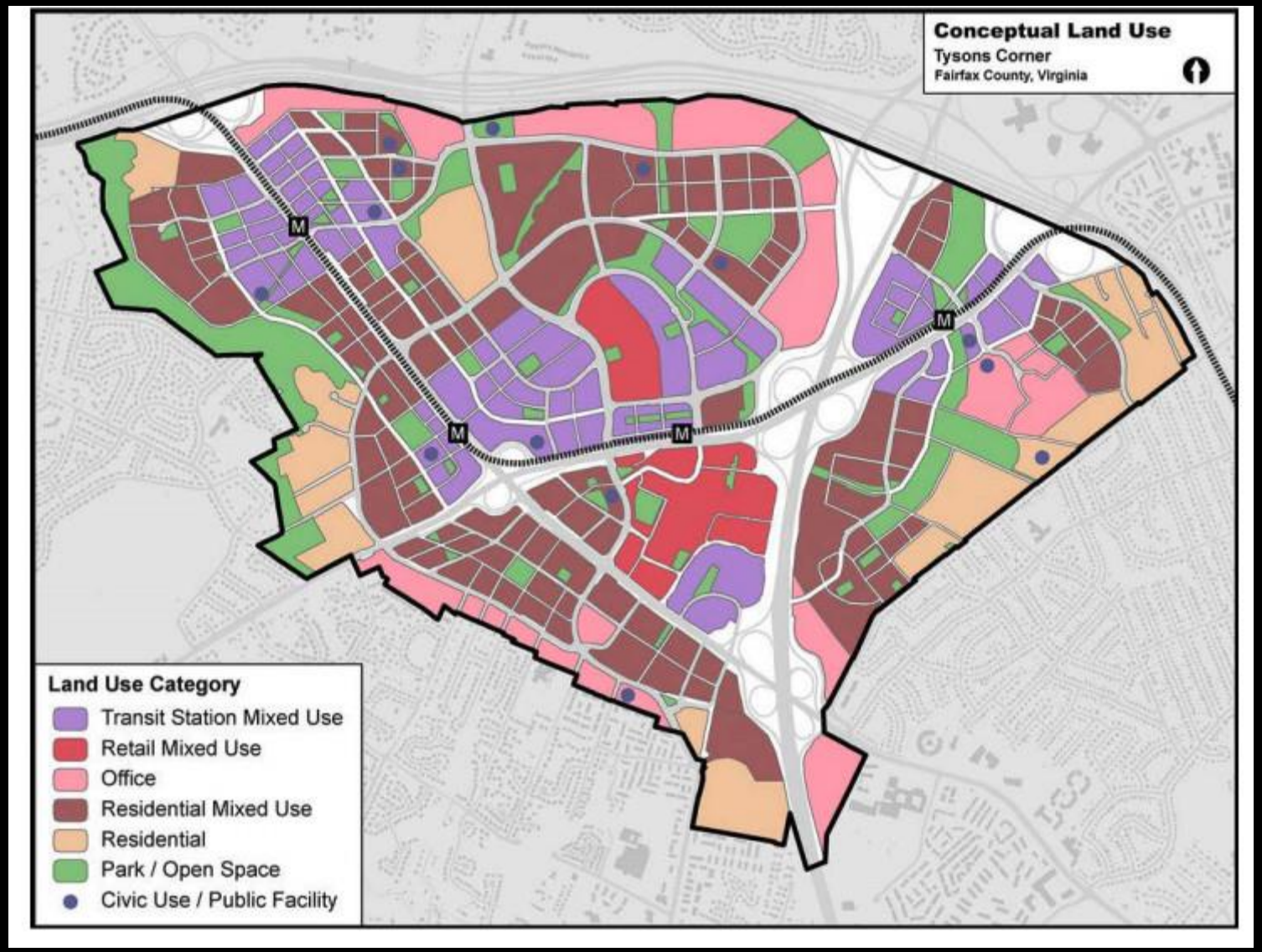
2010s: Mosaic District

Mosaic Real Estate Growth Since 2007

2007: $38.3 million in RE assessments

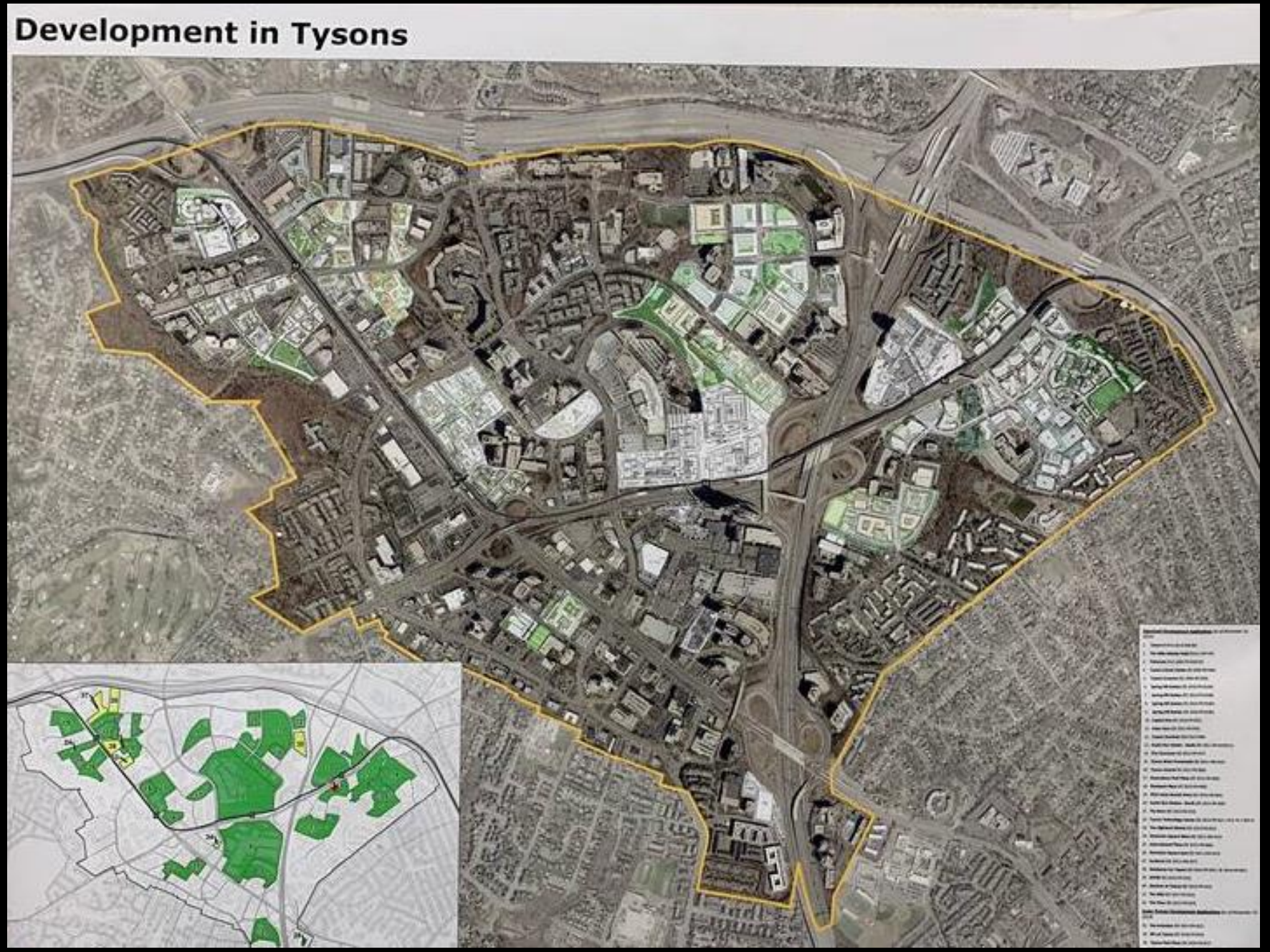
2020: $673 million in RE assessments





2010: The Tysons Plan is Adopted

Development in Tysons

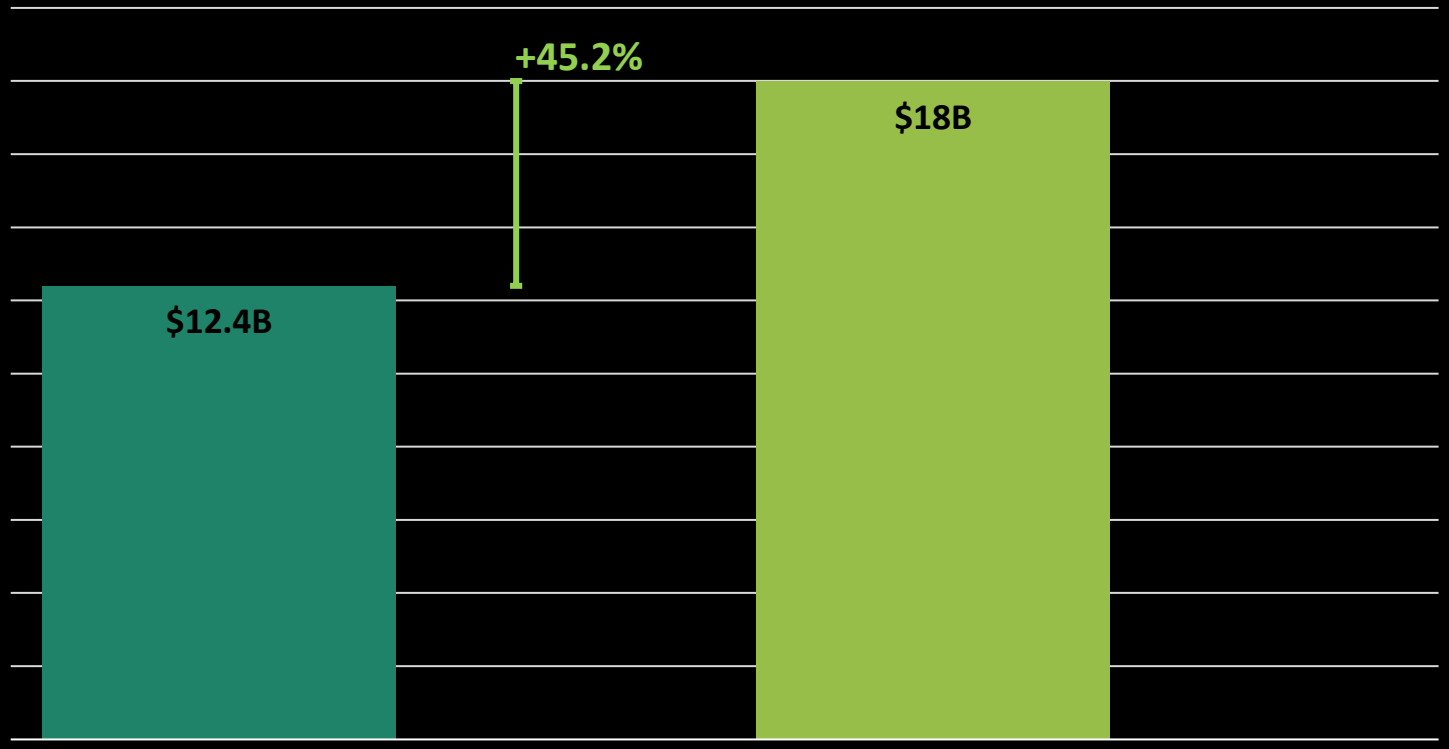


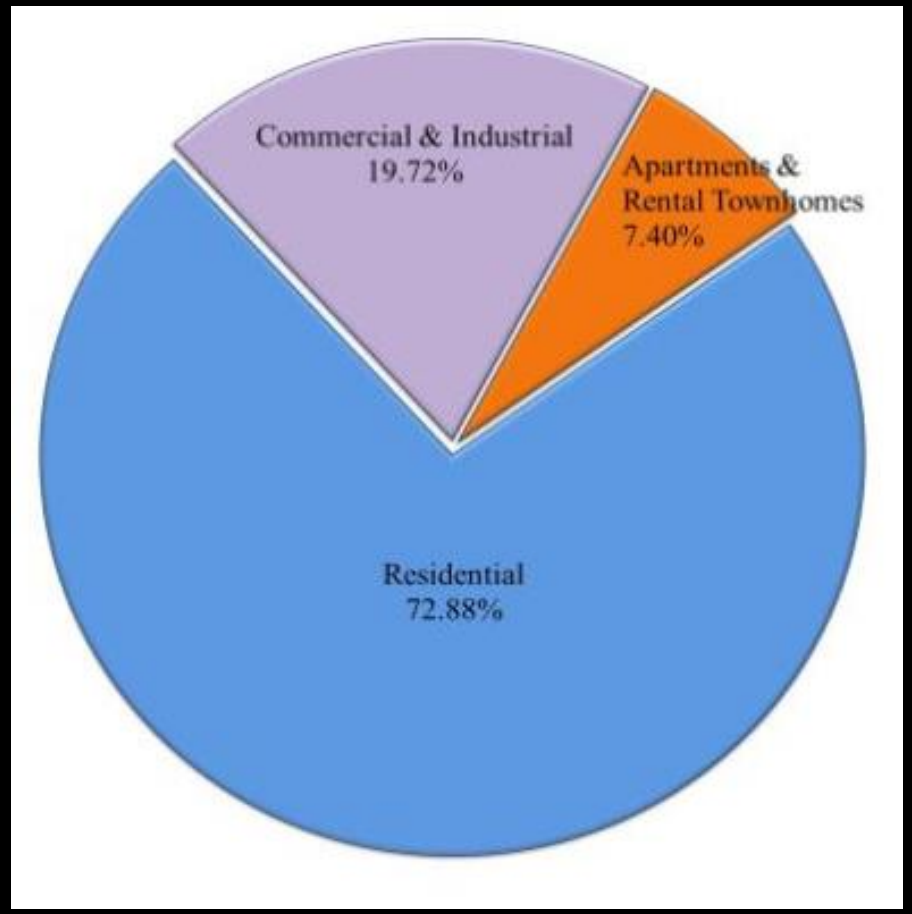
2010s: The Boro in Tysons – Placemaking through
Mixed-use development, quality public spaces and walkable streets

Tysons Real Estate Growth in Last 6 Years

2014: $12.4 billion in RE assessments

2020: $18 billion in RE assessments





Tax Revenue Generation per District and Sources of Tax Revenue
Places with mixed-use and walkable development pays off

Traditional Grid/Complete Streets

Promotes walking

Traditional Suburban Arterial & Cul-de-Sacs

Promotes driving

You suffer from a severe lack of urbanism.

The road that LOS built

Can you find the pedestrian?


93 NORTH
LEFT LANE
Hardee's
Chevron

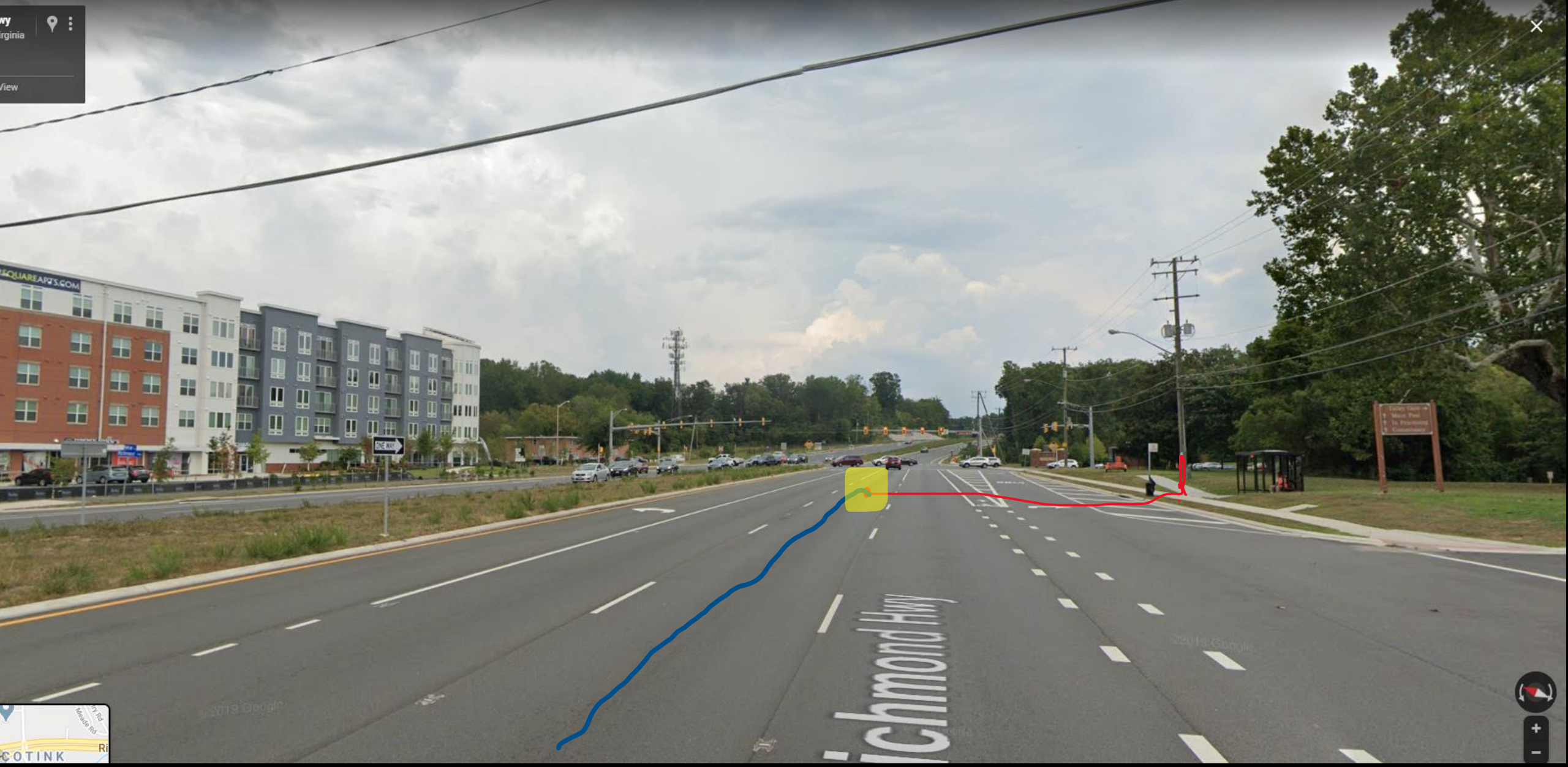
Nearly 40,000 people die each year in auto related accidents

The gateway to Fairfax County – Rt. 1

A suburban arterial with 11 lanes and high speeds

This is where Ms. Alston was killed in 2020

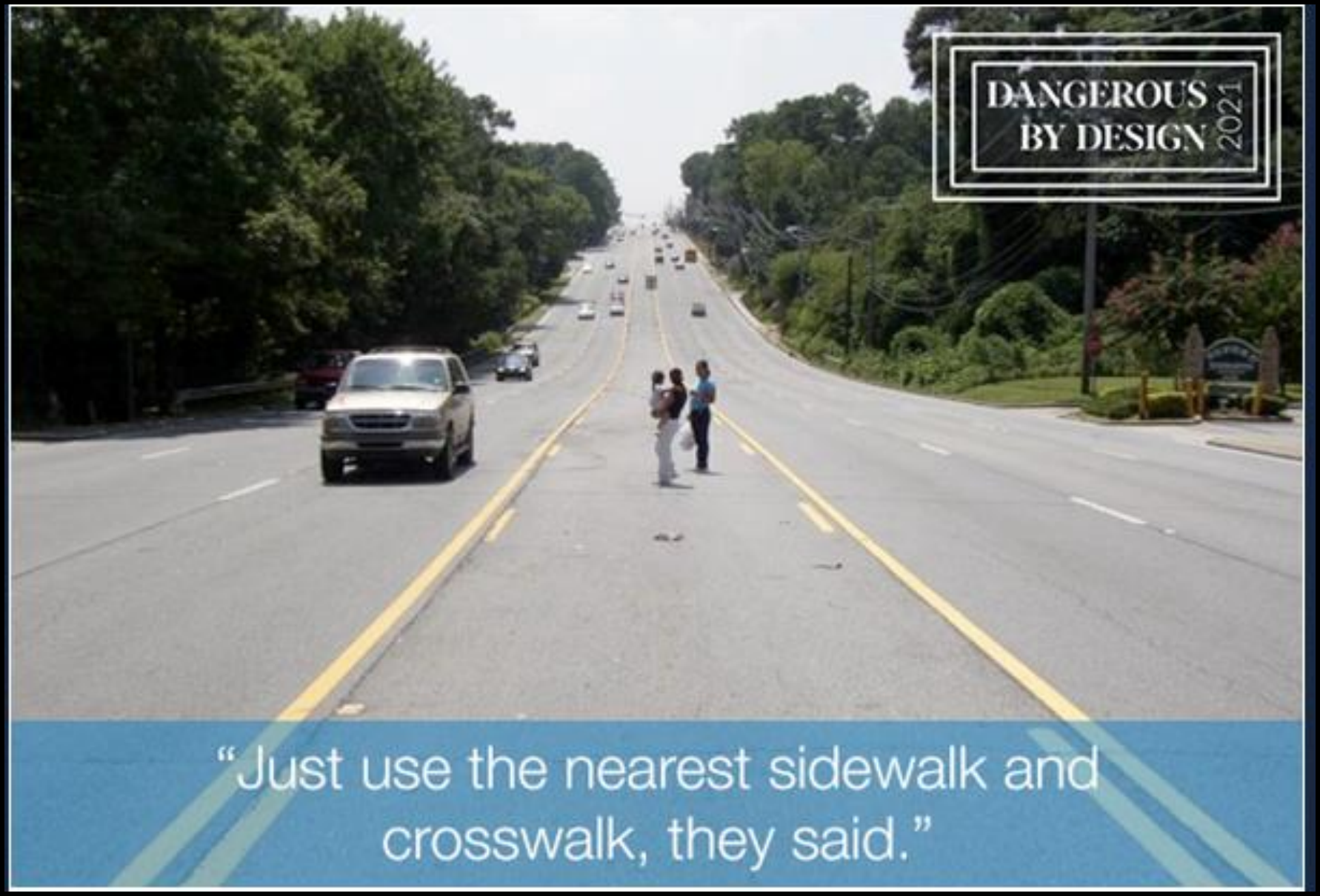
This is where Ms. Asante was Killed



This is where Mr. Yeboah was killed in 2020

Notice the number of lanes & the lousy bike lane

Our residents deserve better: they deserve more humane streets



Many of our crosswalks are too far apart, which results in jay-walking

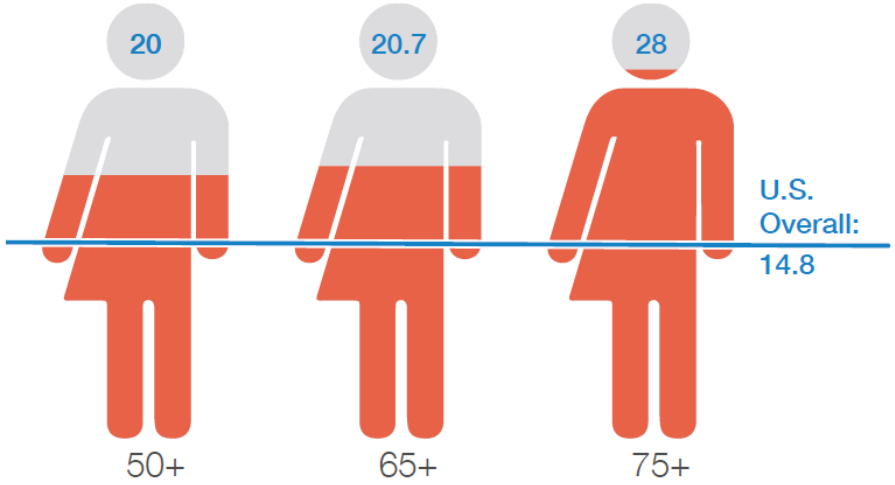
POPULATIONS

Who are the victims of these tragic crashes? Although people of all ages, races, ethnicities, and income levels suffer the consequences of dangerous street design, some neighborhoods and groups of people bear a larger share of the burden than others.

Older adults, people of color, and people walking in low-income communities are disproportionately represented in fatal crashes involving people walking.

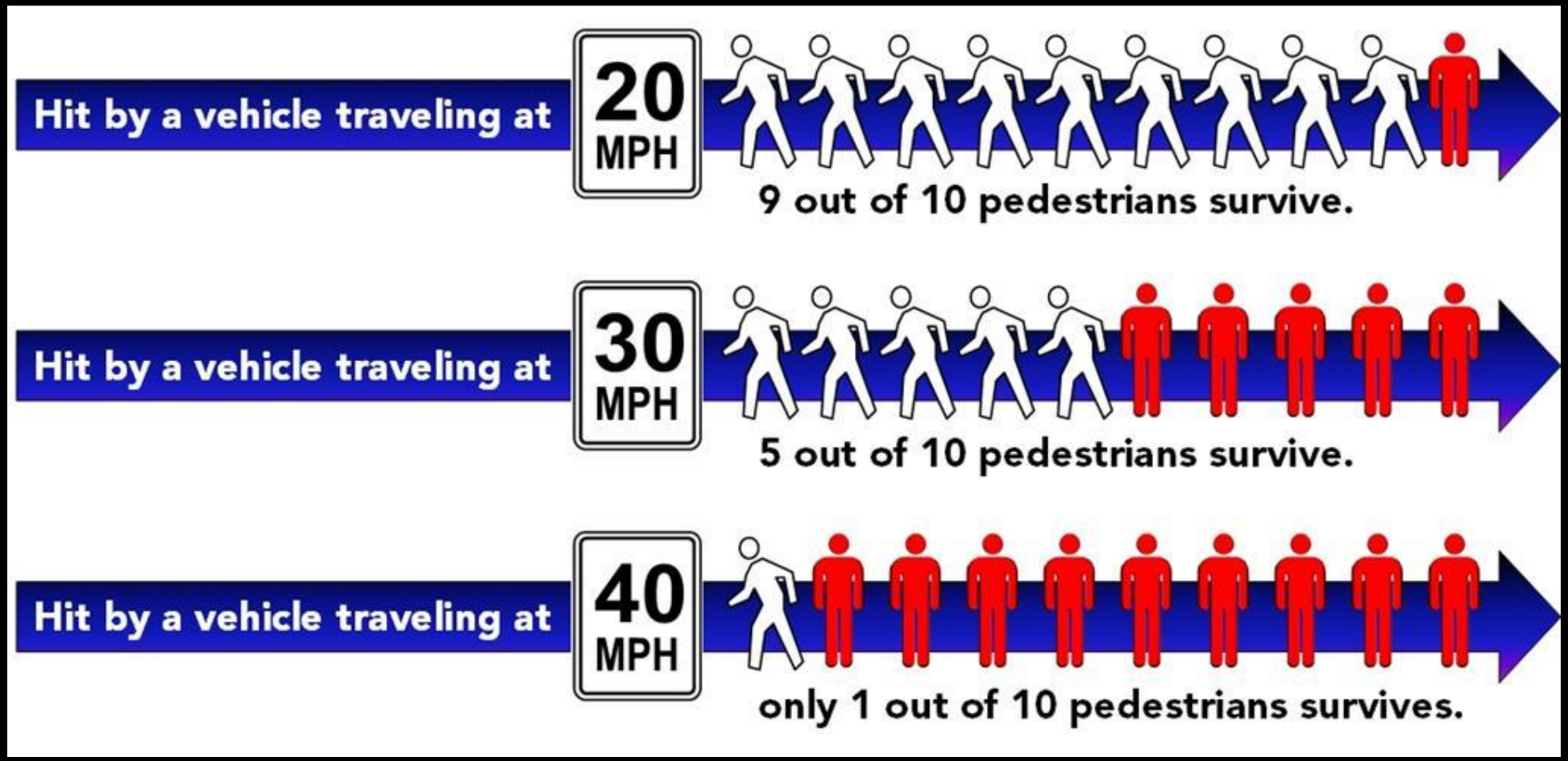
Even after controlling for differences in population size and walking rates, we see that drivers strike and kill people over age 50, Black or African American people, American Indian or Alaska Native people, and people walking in communities with lower median household incomes at much higher rates.

Relative Pedestrian Danger by Age (2008-2017)



People age 50 and up, and especially people age 75 and older, are overrepresented in deaths involving people walking.[12] This age group is more likely to

Source: Smart Growth America



Speed results in serious injures and deaths

The gateway to Alexandria – Rt. 1

An urban arterial, but only 6 lanes, and slow speeds

The gateway to Fairfax County – Rt. 1

A suburban arterial with 11 lanes and high speeds

A gateway to Washington, D.C.:
A beautiful and humane “civic space”

Wiehle Avenue Redesign:

An opportunity to create a “Complete Street”
(a humane street focused on people)

We can create Complete Streets that are:

- Great places
- Induce more ped/cyclist/transit travel
- Spur economic activity

How?

DEVELOP A "COMPLETE STREETS" POLICY

1. Replace **LOS** with other measures, i.e., **Vehicle Miles Traveled (VMT) Reduction**

2. Humanize our streets for ALL users:
   a. Slow speeds to **25-35 mph** (to reduce fatalities/injuries)
   b. Limit arterials to **6 thru-lanes** (to calm traffic)
   d. Add **on-street parking** (to help small businesses & calm traffic)
   e. Add crosswalks every **300'- 500'** (to reduce jay-walking & calm traffic)
   e. Add *well-designed* **sidewalks/bike lanes** (to induce ped/bike travel)
   f. Plant **shade trees** (for comfort and beauty & to calm traffic)
   g. Place buildings close to street (to create "place" & calm traffic)

U.S. Department of Transportation

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- Literature and Resources
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- Strategies

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Complete Streets

Complete Streets are streets designed and operated to enable safe use and support mobility for all users. Those include people of all ages and abilities, regardless of whether they are travelling as drivers, pedestrians, bicyclists, or public transportation riders. The concept of Complete Streets encompasses many approaches to planning, designing, and operating roadways and rights of way with all users in mind to make the transportation network safer and more efficient. Complete Street policies are set at the state, regional, and local levels and are frequently supported by roadway design guidelines.

Complete Streets approaches vary based on community context. They may address a wide range of elements, such as sidewalks, bicycle lanes, bus lanes, public transportation stops, crossing opportunities, median islands, accessible pedestrian signals, curb extensions, modified vehicle travel lanes, streetscape, and landscape treatments. Complete Streets reduce motor vehicle-related crashes and pedestrian risk, as well as bicyclist risk when well-designed bicycle-specific infrastructure is included (Reynolds, 2009). They can promote walking and bicycling by providing safer places to achieve physical activity through transportation. One study found that 43% of people reporting a place to walk were significantly more likely to meet current recommendations for regular physical activity than were those reporting no place to walk (Powell, Martin, Chowdhury, 2003).

Related Transportation and Heath Tool Indicators

Metropolitan Washington Council of Governments

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Home > Transportation > Planning Areas > Walking & Biking > Complete Streets Policy

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TRANSPORTATION

Complete Streets Policy

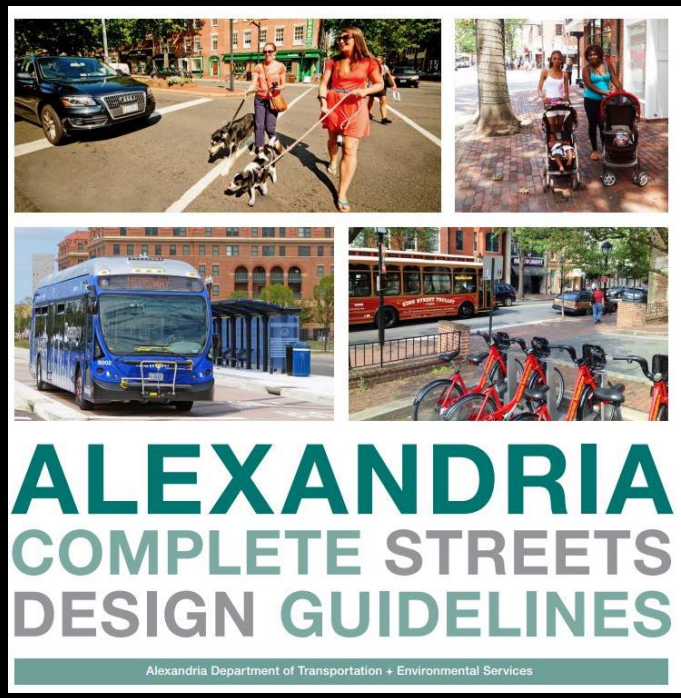
Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.

In 2012, in response to an initiative from the Citizens Advisory Committee, the TPB approved a Complete Streets Policy for the National Capital Region that defines a Complete Street as a street that "safely and adequately accommodates motorized and non-motorized users, including pedestrians, bicyclists, motorists, freight vehicles, emergency vehicles, and transit riders of all ages and abilities, in a manner appropriate to the function and context of the facility."

The policy provided a Complete Streets Guidance and Policy Template, and strongly encouraged TPB member jurisdictions and agencies to adopt their own Complete Streets policies.

Transportation – Planning Areas

- Regional Planning Approach
- Roads & Transit
- Walking & Biking
  - Regional Bicycle & Pedestrian Priorities
  - Complete Streets Policy
  - Transportation Alternatives Program



Smart Growth America
Improving lives by improving communities

OUR VISION | OUR WORK | GET INVOLVED | RESEARCH | WORK WITH US

National Complete Streets Coalition

What are Complete Streets?

Where are Complete Streets?

Adopt a Complete Streets policy

Implement a Complete Streets policy

Streets are a vital part of livable, attractive communities. All people ought to have safe, comfortable, and convenient access to community

- National Complete Streets Coalition
- Complete Streets + COVID-19
- Who we are
- Become a partner
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- E-learning
- Technical assistance
- Blog
- Resources
- Webinar series

County of Fairfax, Virginia

Proposed Safe Streets for All Program

Lauren Delmare

Fairfax County Department of Transportation

November 18, 2021

FCDOT
Serving Fairfax County for 30 Years and More

ACTIVE FAIRFAX

Vision, Goals, and Objectives

Nicole Wynands
Fairfax County Department of Transportation

Public Information Meeting

September 13, 2021

Interim measures: Flowers, Trees, Lawn Chairs!

How about closing a slip lane for PEOPLE?

Engage the Community to Create Community

Safe Streets, Placemaking and Economic Vitality through Quality Planning

2020: The Boro in Tysons – Placemaking through Quality Public Spaces and Walkable Streets