PLACEMAKING:

Transportation, Land Use, Economic Vitality

What is the purpose of a road or street?

1. **Mobility**: Point A to Point B
   Vehicle throughput (highways, arterials, collectors)

2. **Access**: Goods, services, housing, jobs
   Placemaking (main streets and n'hood streets)

Who do they serve?

1. Drivers only:
   Limited Access Highways, i.e., the Beltway

2. Drivers mostly:
   Arterials and Collectors, i.e., Rt. 29 and Gov Ctr Pkwy

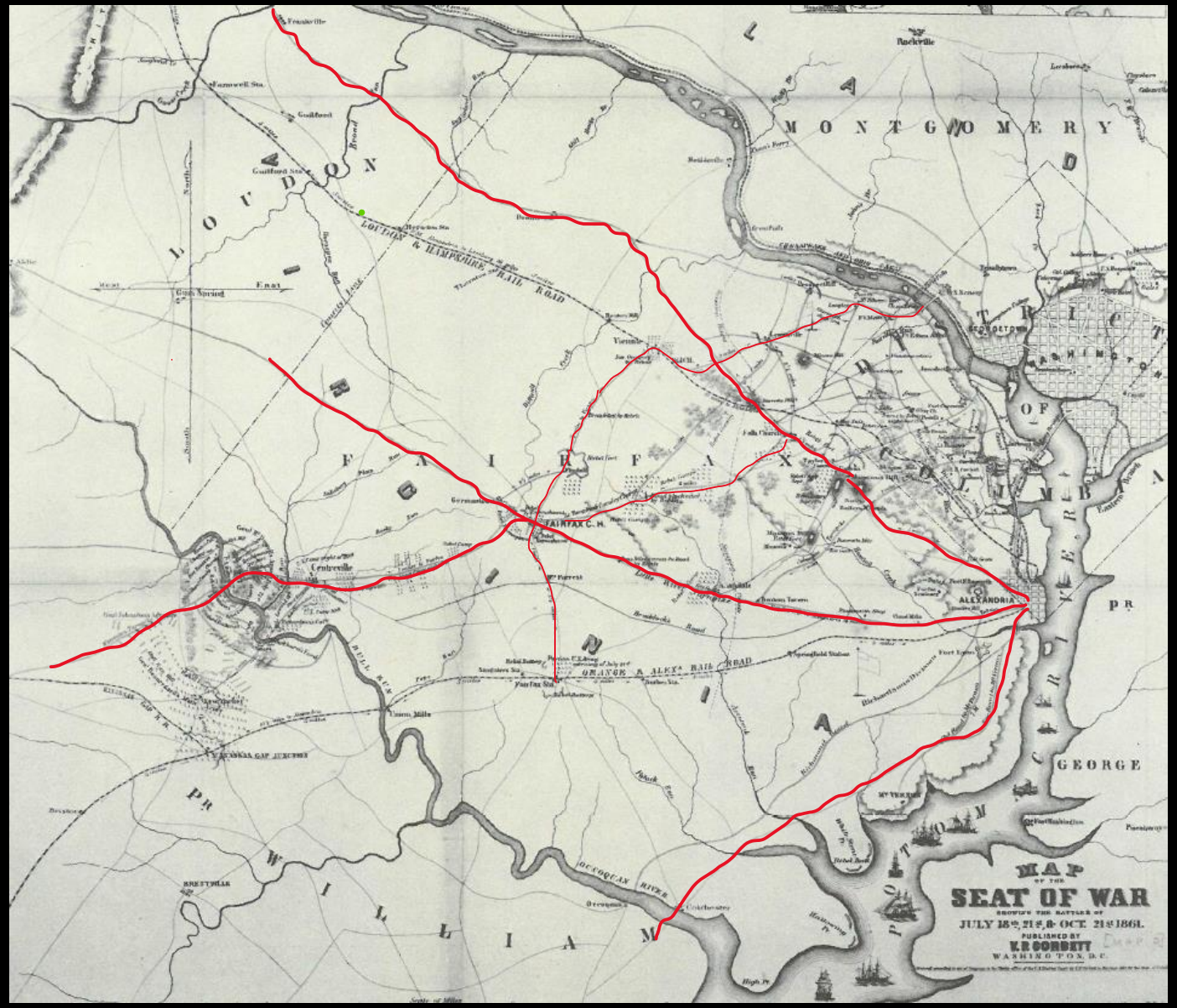
3. All travelers:
   Local Streets, i.e., Market Street in Reston

How did we get here?

A Brief History of Roads and Streets

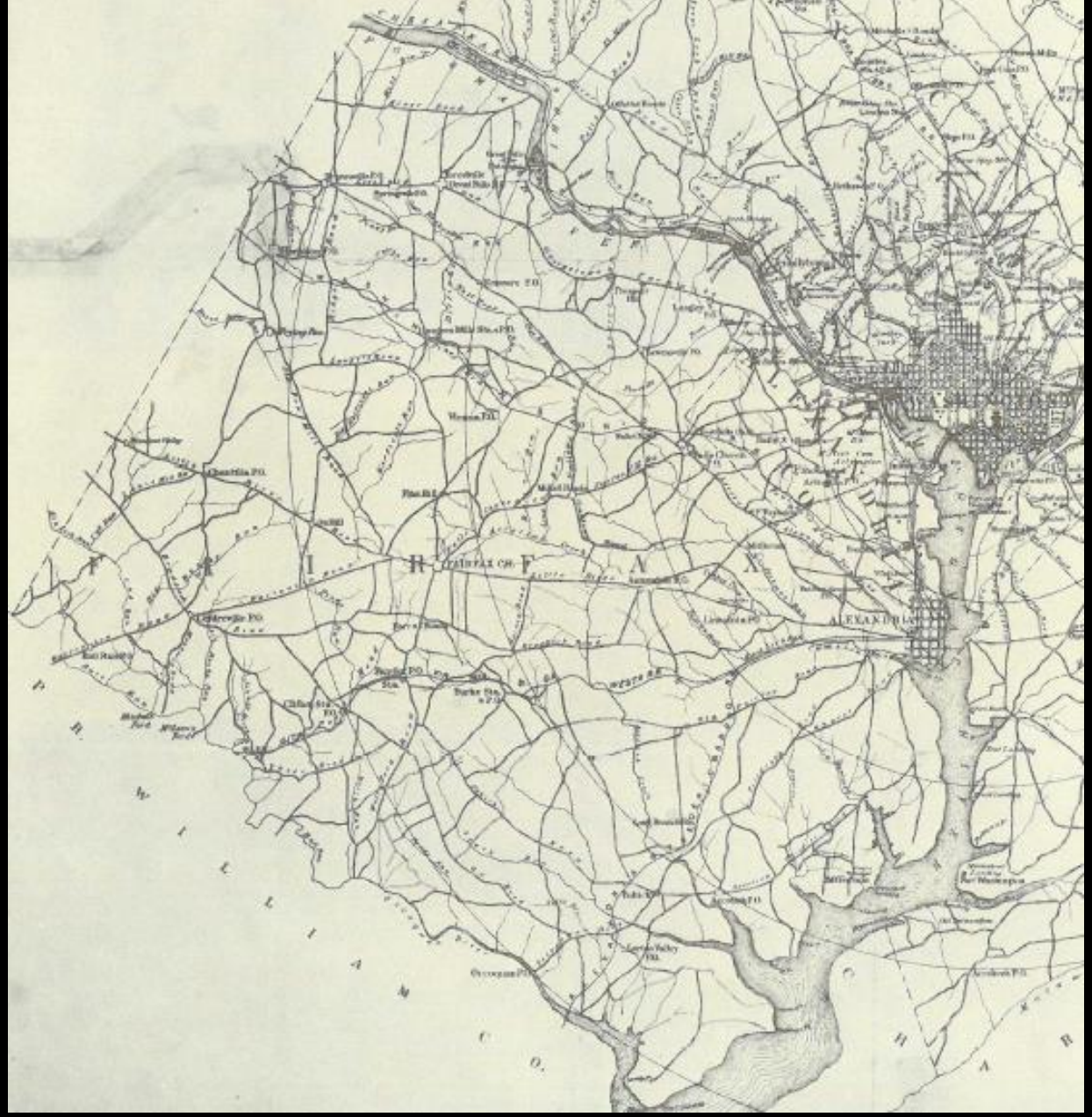
1700s to Today

The typical 1700s country road



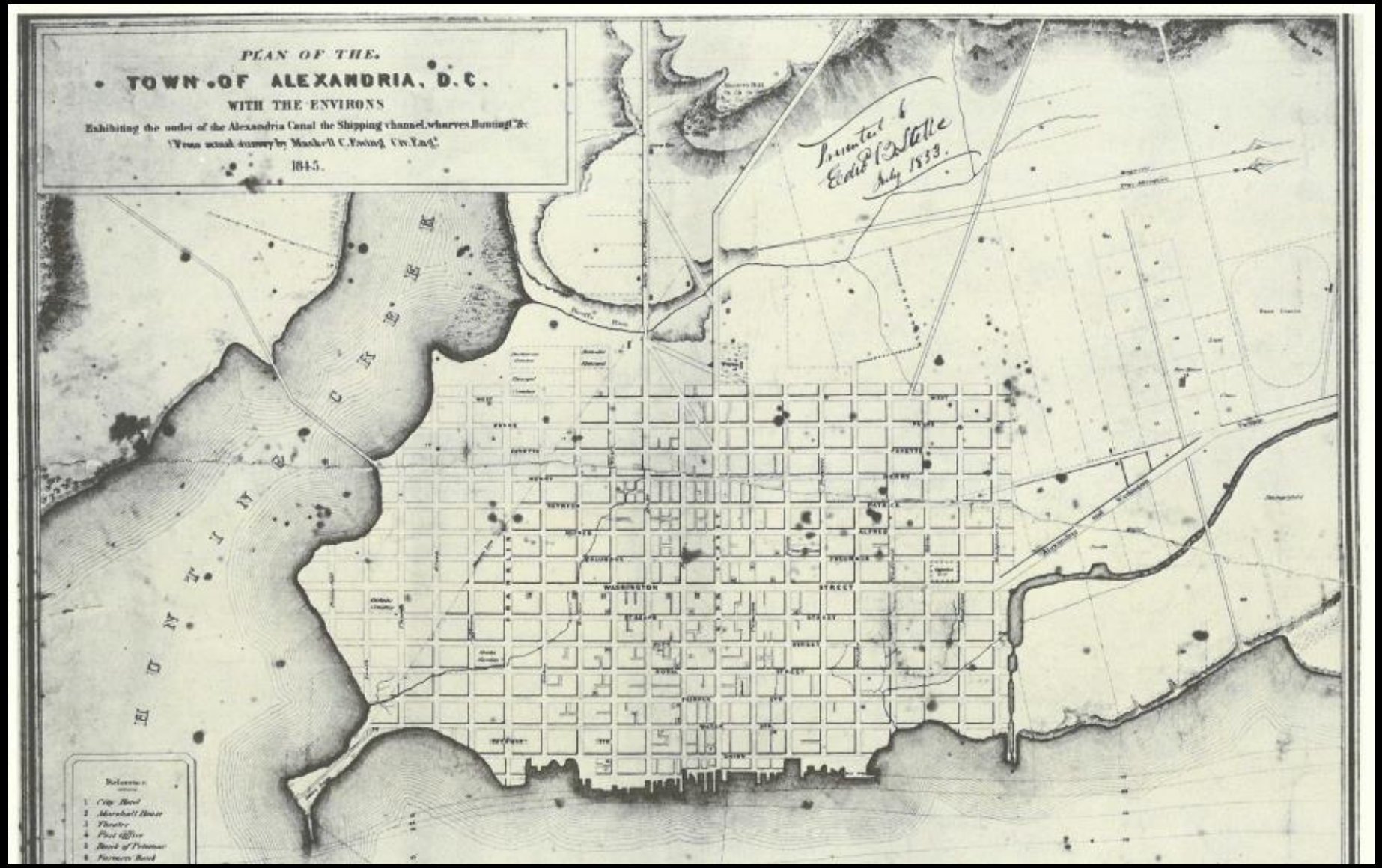
1860s: Country roads – Rt 1, 7, 29, 50,123

Long distance travel: farm to market, town to town



1880s: Fairfax country roads proliferate

No “plan” or grid of streets

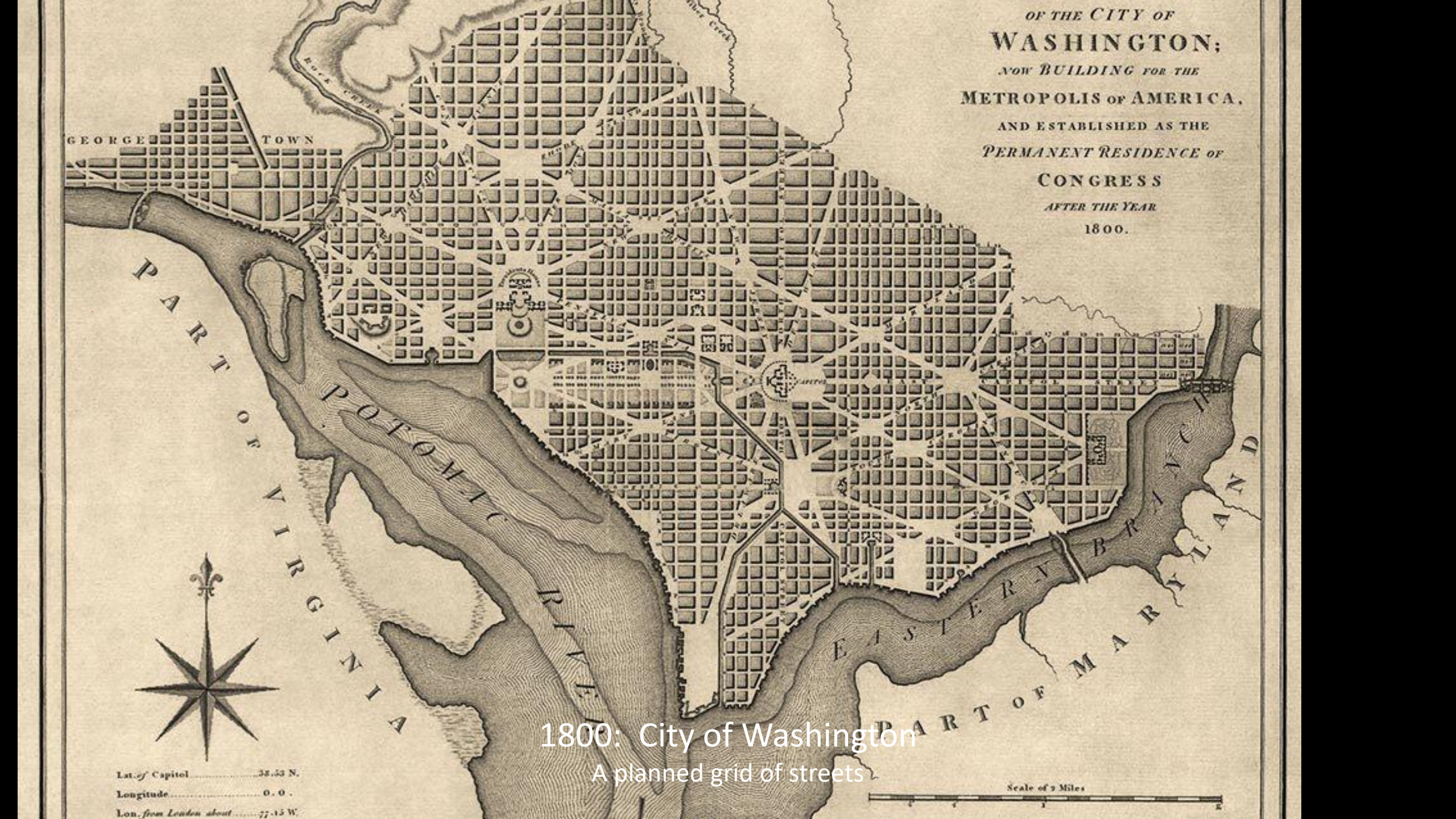


1749: Alexandria Plan

A planned grid of streets

1749: Alexandria

A dense, walkable grid spurs economic activity

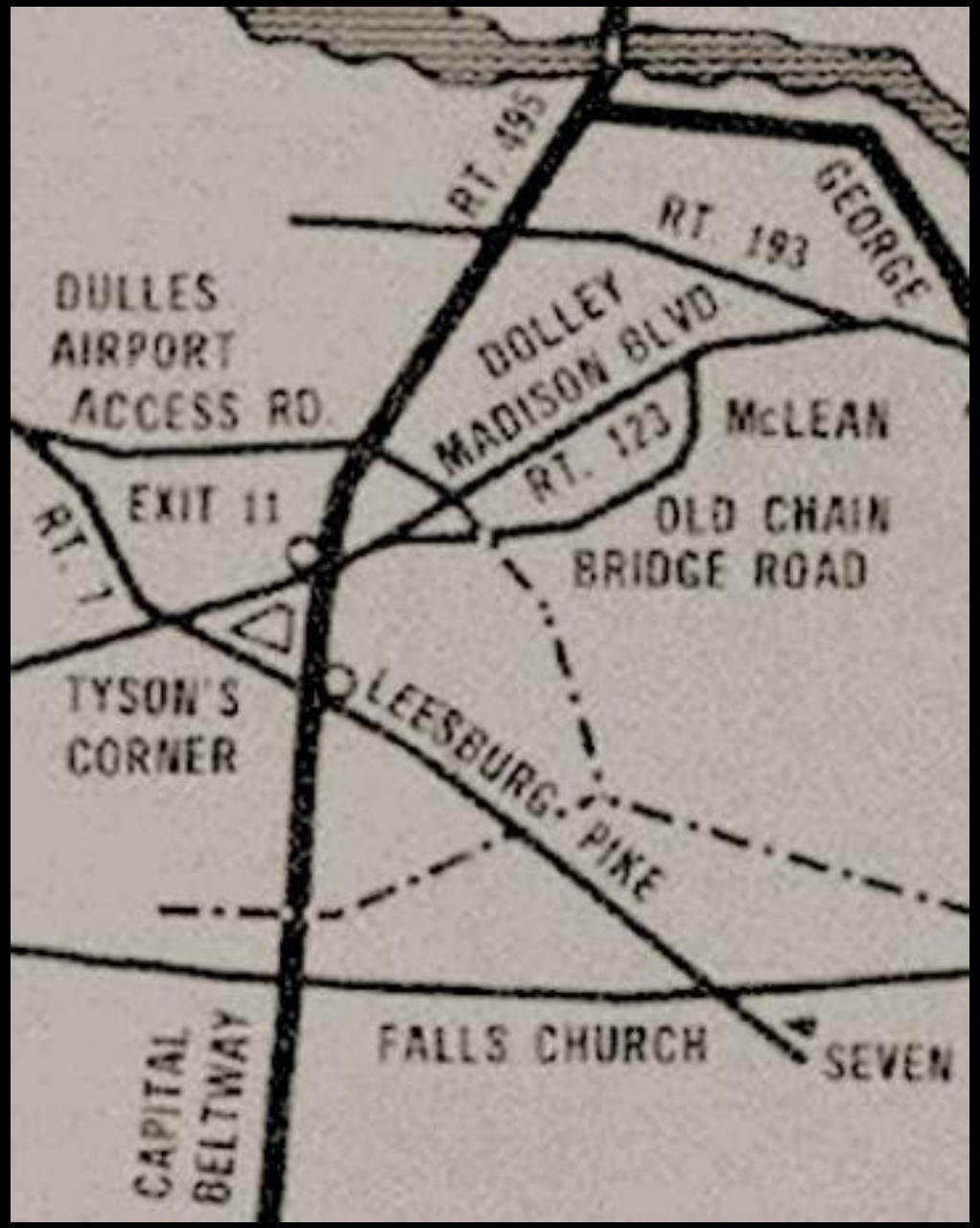


1800: City of Washington

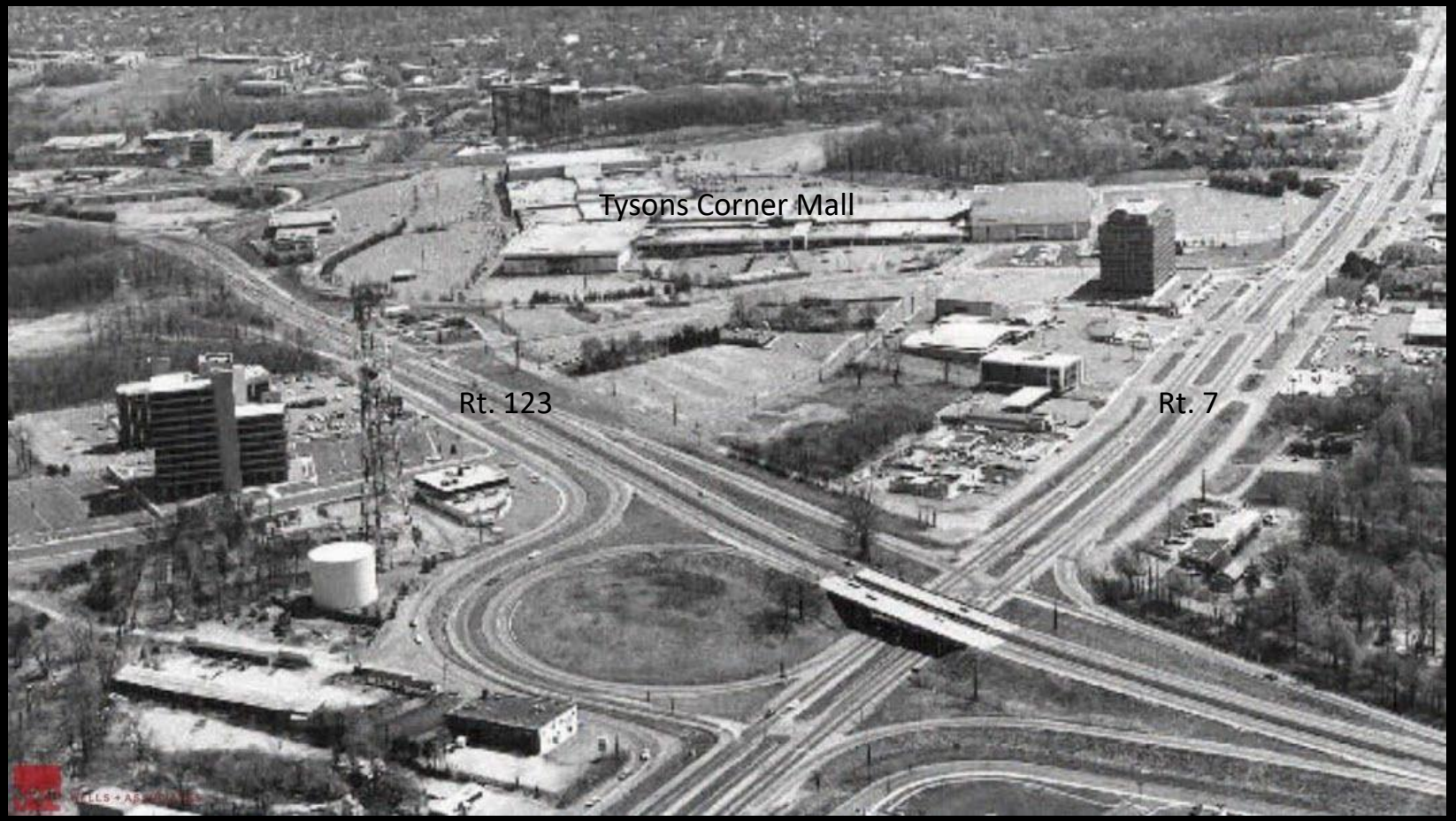
A planned grid of streets

1900: City of Washington

A dense, multi-modal grid (peds, horses, bicycles, streetcars, cars) spur economic activity

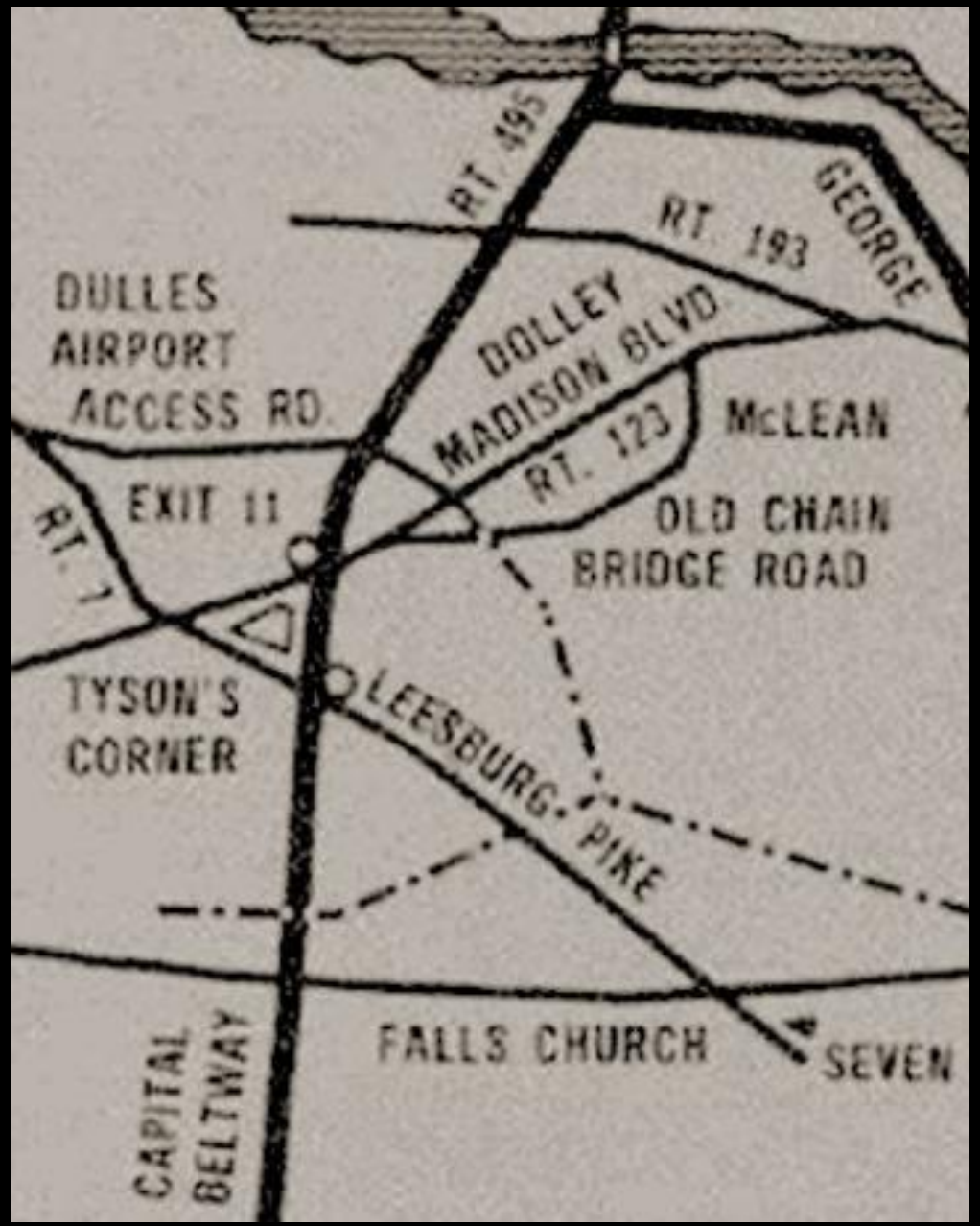


1960: First Fairfax Plan



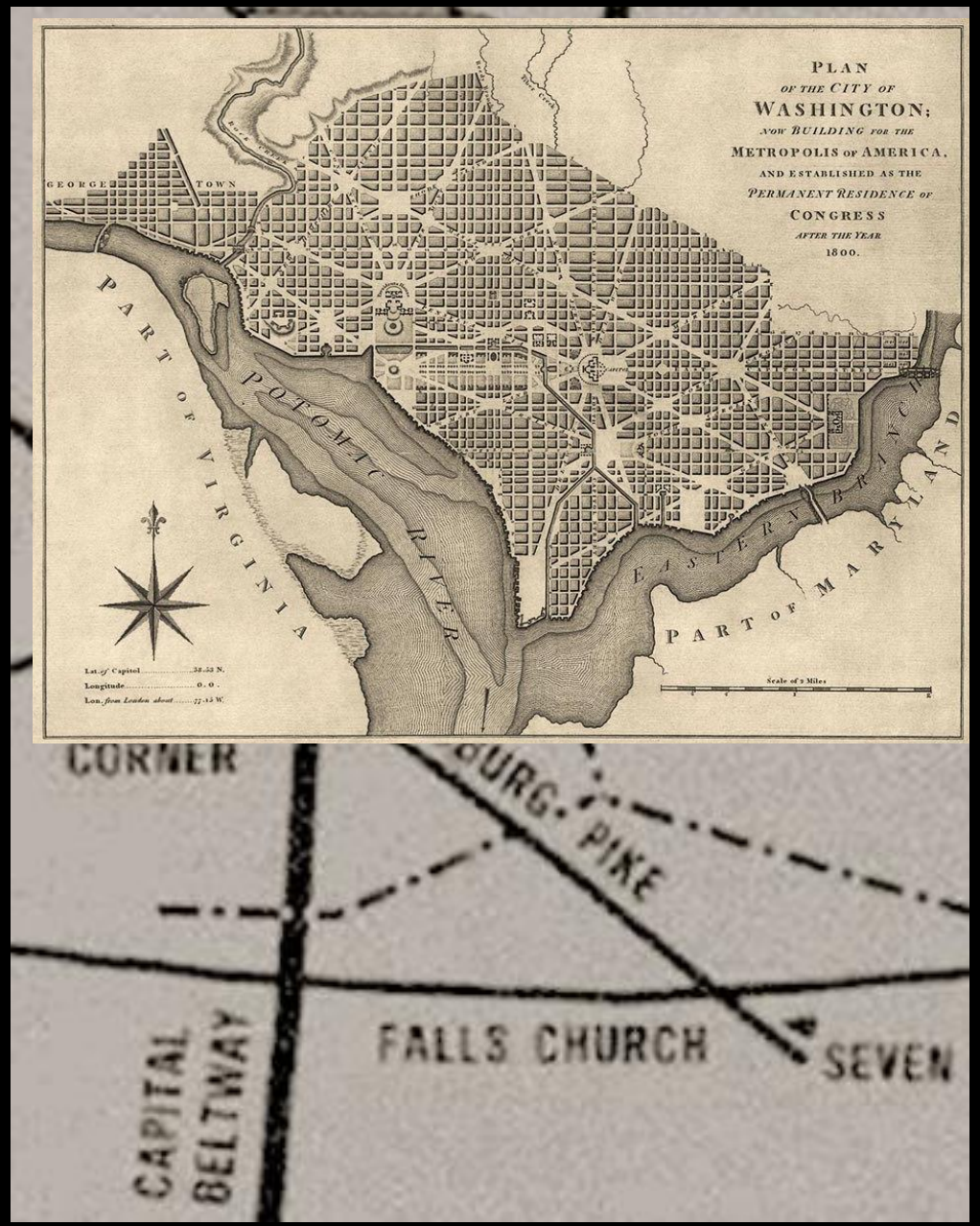
1960s: Tysons Corner

Auto-dominant development



Auto-scale: 8 roads

Human-scale: 112 streets



Auto-scale v Human-scale

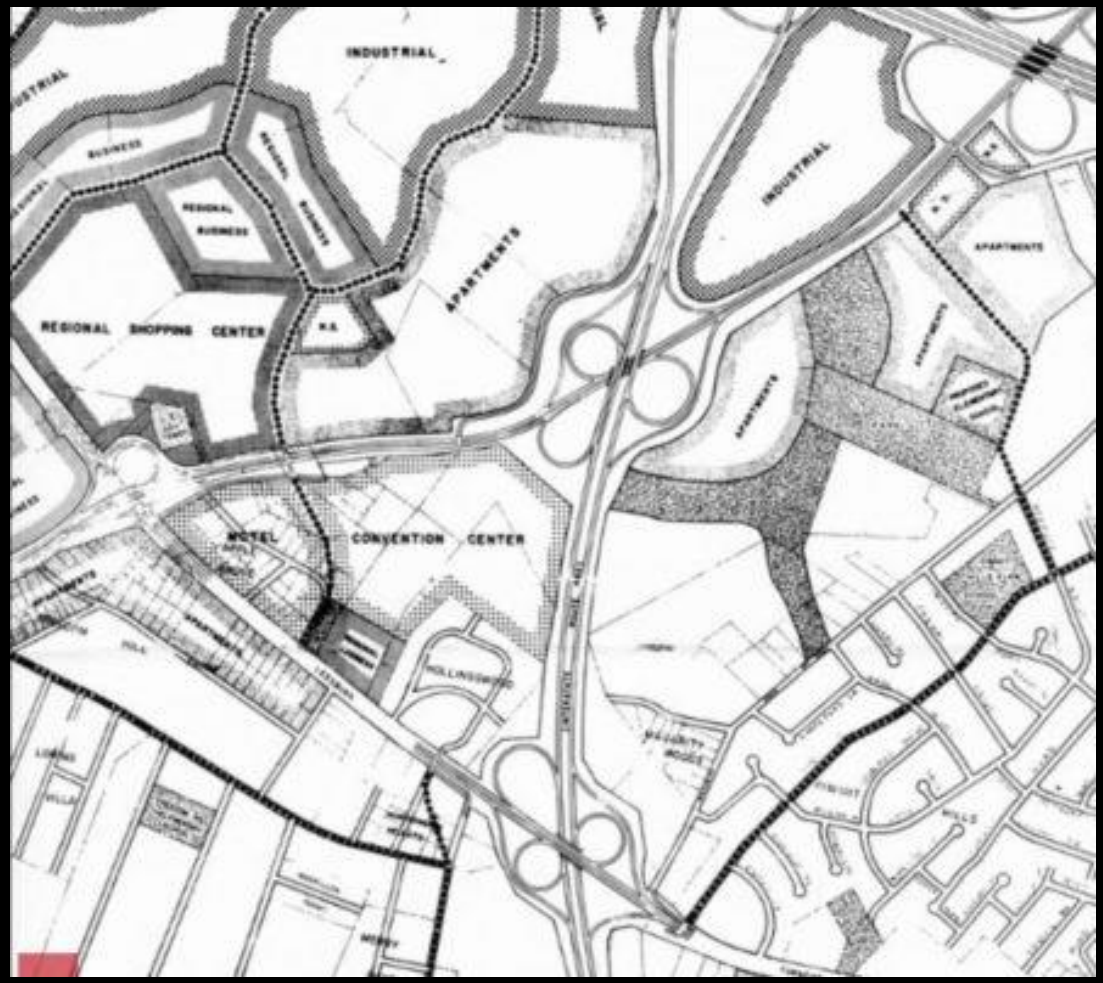
Fairfax development was built on highways & arterials

1964: Beltway

Fairfax's first highway – 4-lanes

1970s: Beltway

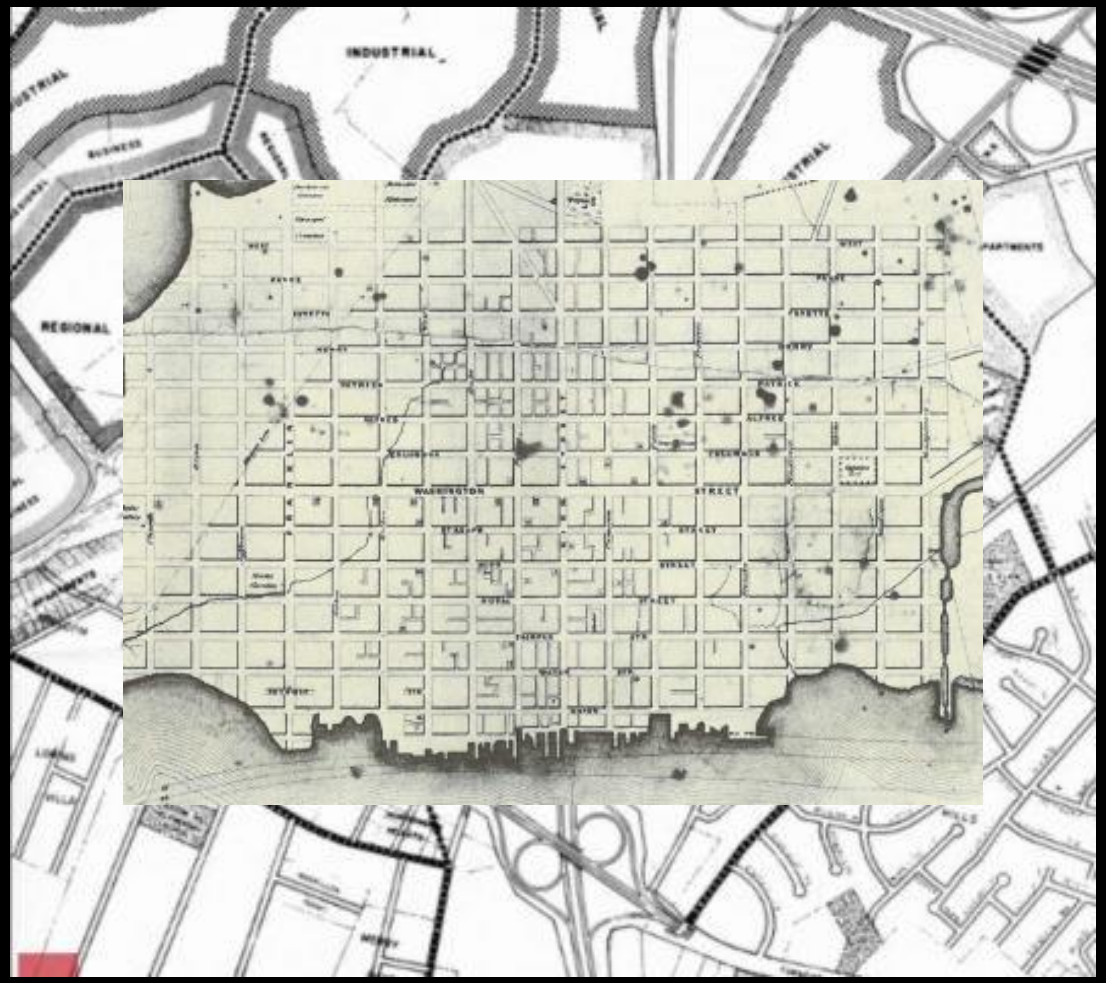
Doubled to 8-lanes within 10 years



1961: First Tysons Plan

Based on highways (495) & arterials (Rt. 7 & 123)

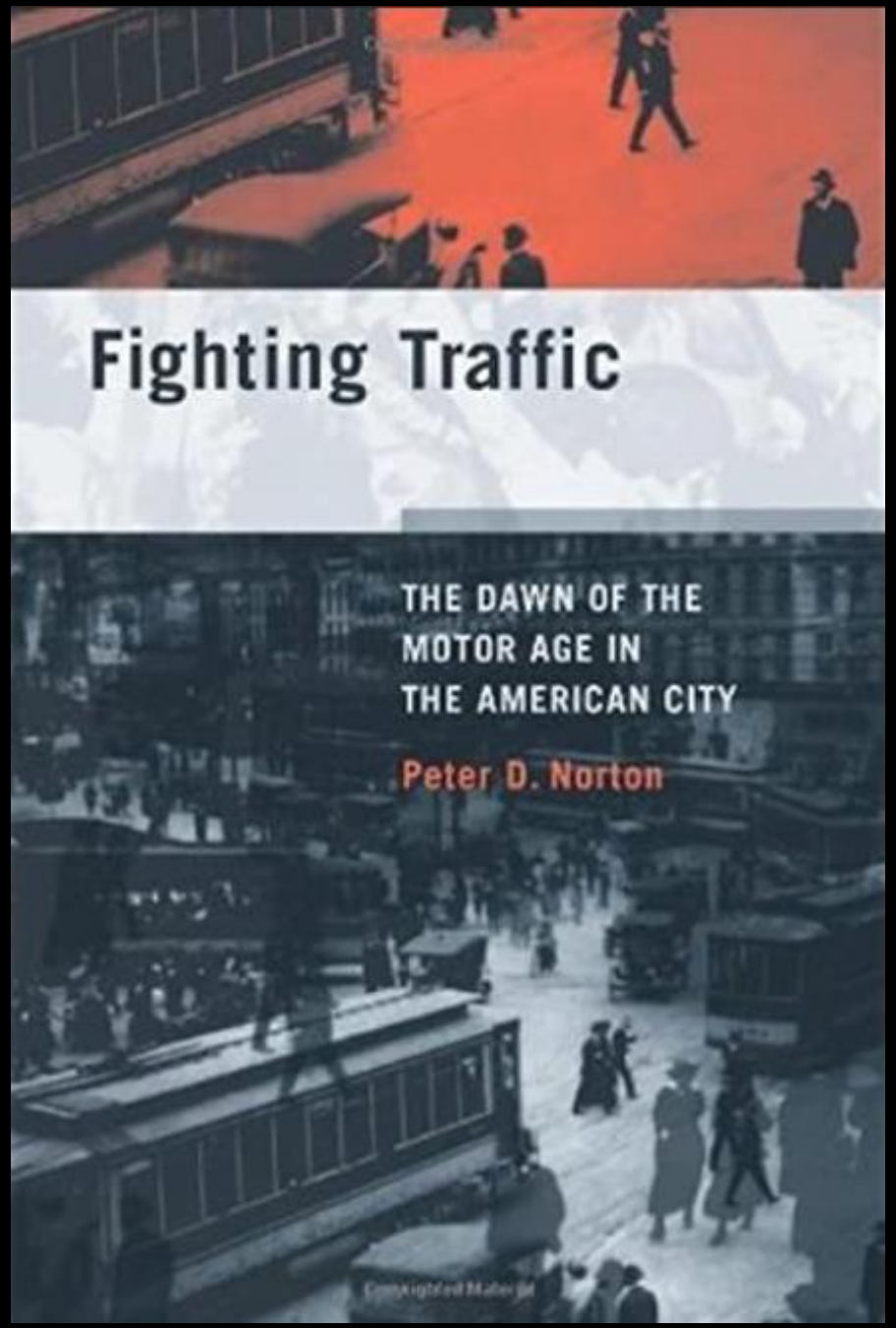
Separated land uses



Auto-scale v Human-scale

Main Arterial through Tysons

Rt. 123 is now 10-lanes – No peds/cyclists


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

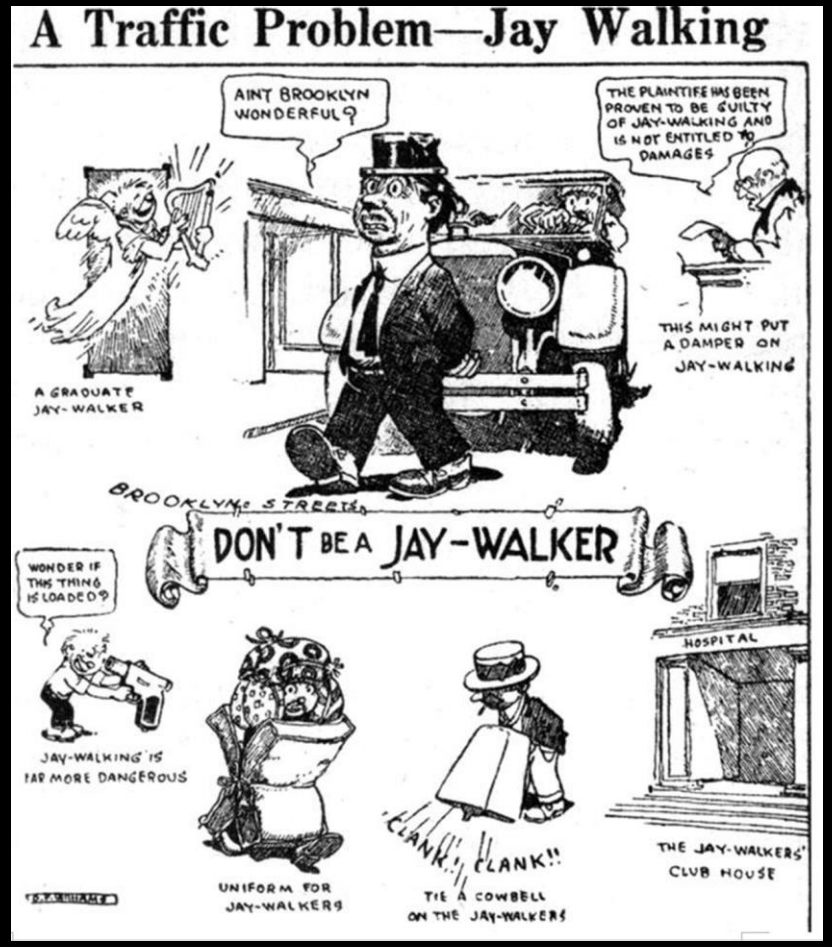
Late 1800s: New York City

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

MOVIE TIME!

Early 1906: San Francisco

All travelers “owned” the street



Automobiles are given highest priority on streets

1910: Richmond, Virginia (Broad & 4th)

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

2010: Richmond, Virginia (Broad & 4th)

Street as automobile thoroughfare

1920s – The start of Euclidean Zoning

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

1930s: Washington, D.C. – Shopping District

Active Multi-Modal Streets: Pedestrians, Streetcars & Studebakers in Street Grid

Seven Corners Section

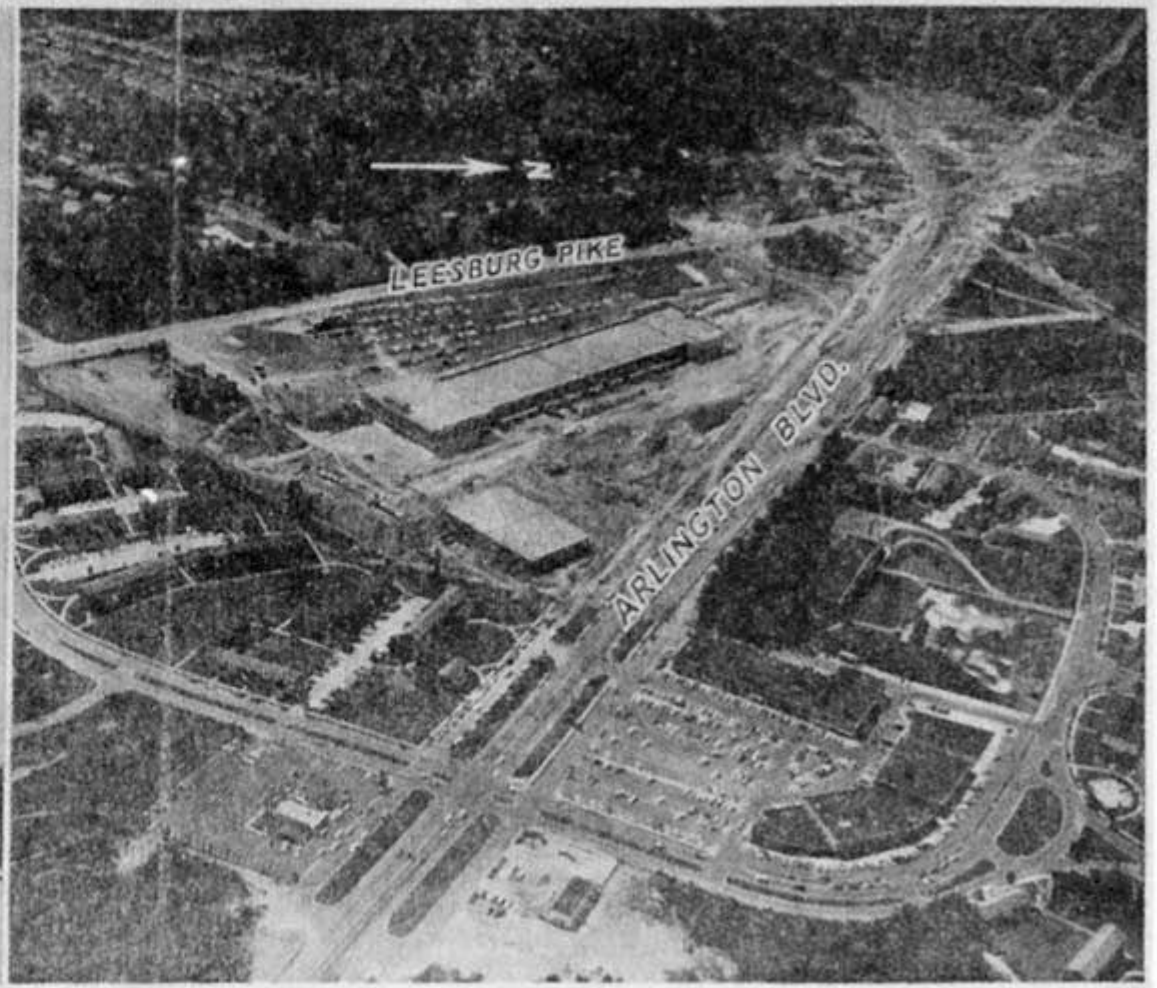
The Evening Star

History and Development of the Area

E

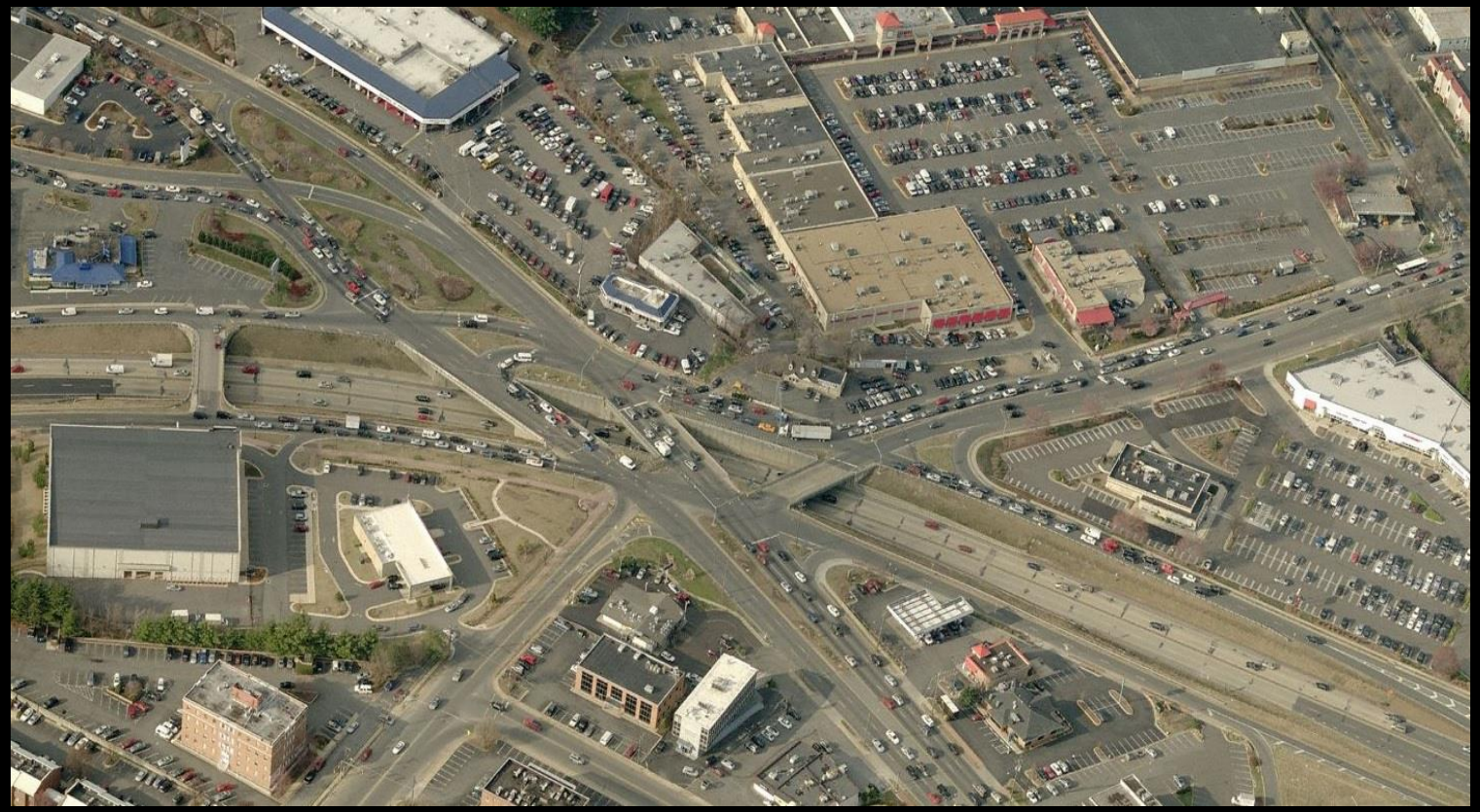
WASHINGTON, D. C., WEDNESDAY, OCTOBER 3, 1956

Largest and Newest Shopping Center Opens Tomorrow



1956: Seven Corners Shopping Center

Fairfax's first major auto-dominated shopping center



1960s: Rt. 7 and 50 are Widened

Former country roads become auto-dominated arterials

The Futon

The Futon

A lousy sofa and a lousy bed

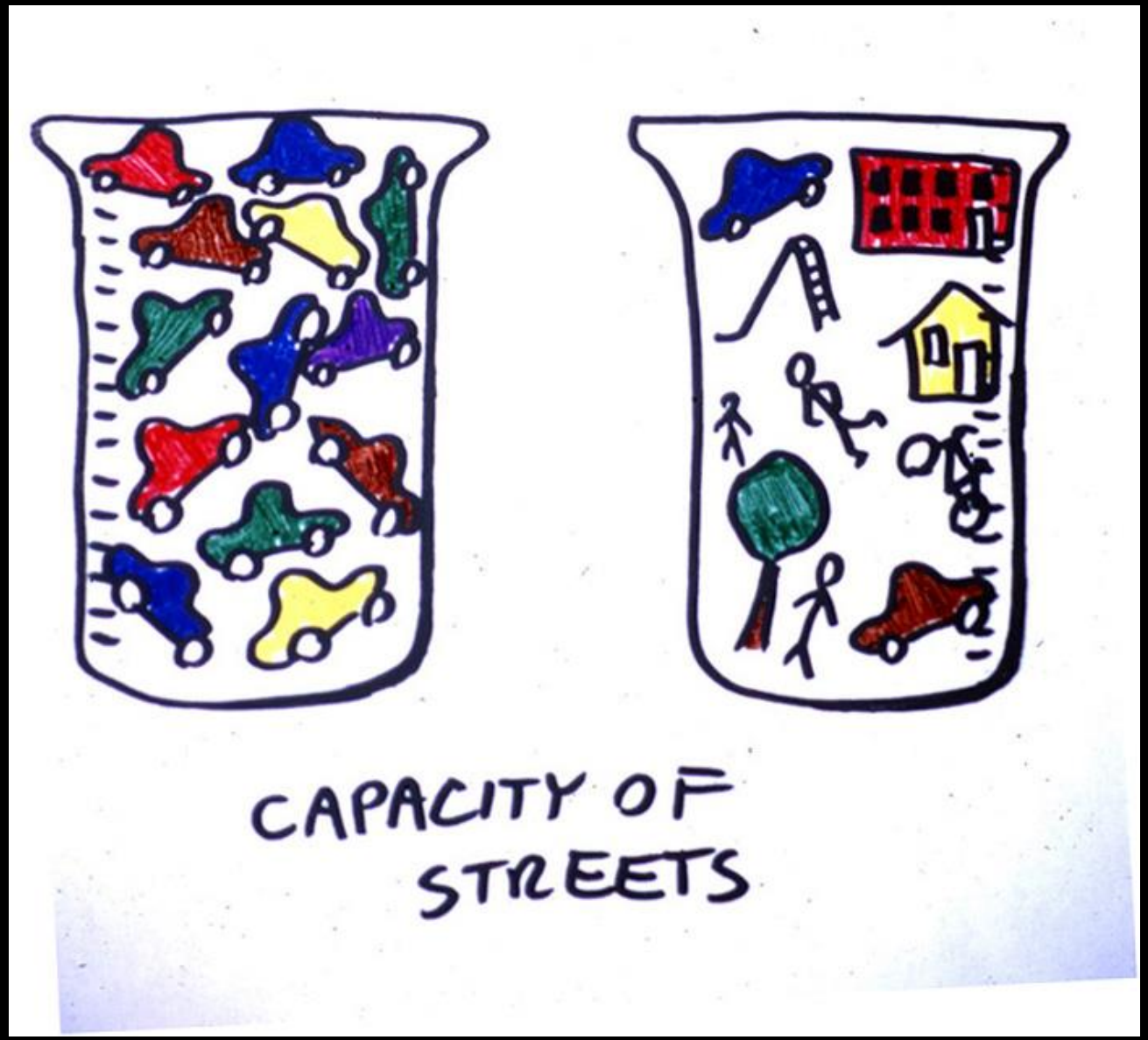
The Futon

A lousy sofa and a lousy bed

=

The Arterial

Lousy throughput and lousy place


CAPACITY OF
STREETS

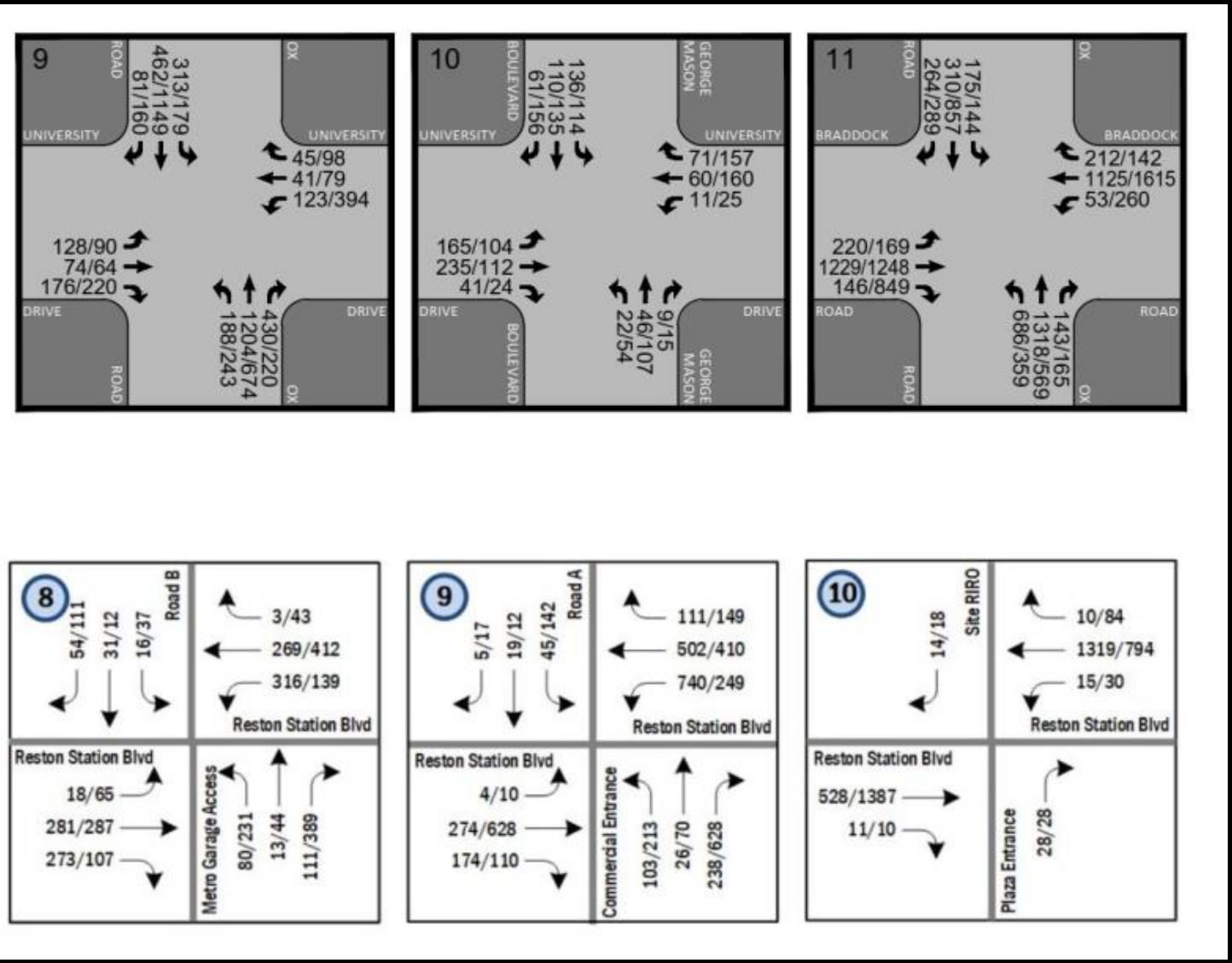
Level of Service (LOS):

The basis of Fairfax street and road design

VDOT owns Fairfax streets and roads and uses LOS

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

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

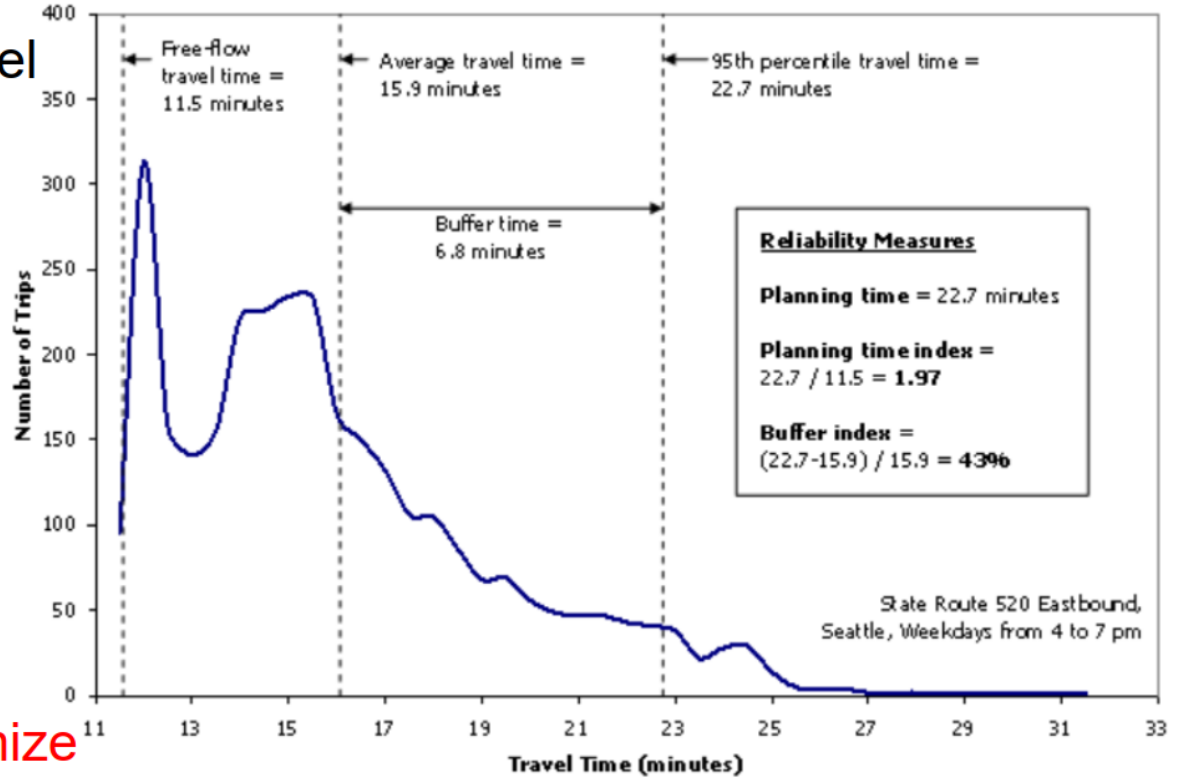
Prot	NA
5	2
8.5	59.3
8.5	59.3

175.3	95.7
F	F
	104.2
	F

Typical LOS Modeling

Travel Time Reliability (TTR): Application

- Frequency distribution of travel times
- Free flow travel time = 11.5 min
- Average travel time = 15.9 min
- 95th% travel time = 22.7 min ←Near Worst
- Buffer time = 6.8 min ←Minimize



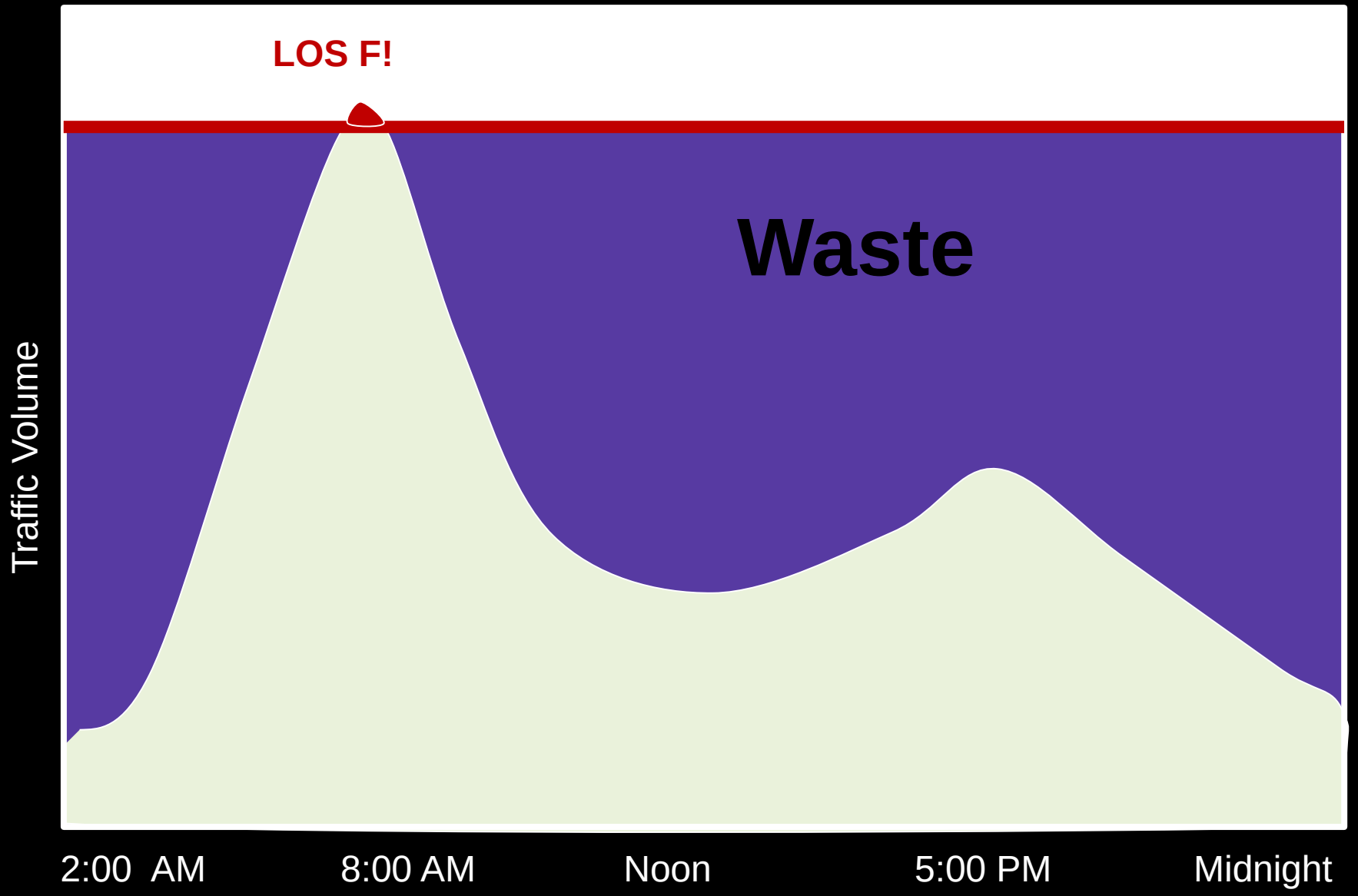
Typical LOS Modeling

Voila!

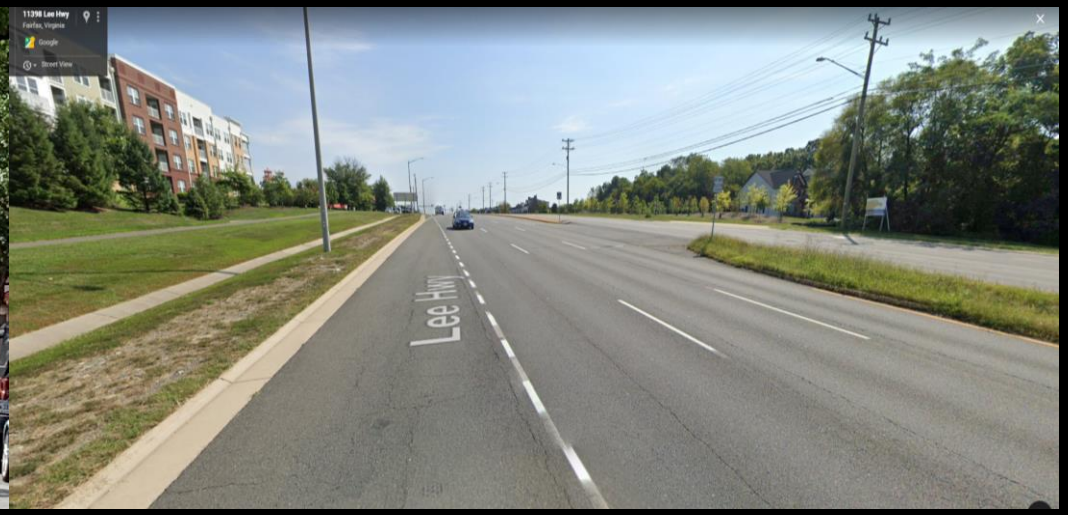
LOS determines that the road must be widened for vehicles

How about considering all users and creating great places?

Here's how LOS works: Infrastructure for Peak Hours



What's important depends upon values and perspective



LOS Model:	**F**	**A**
Economic/PlacemakingModel:	**A**	**F**

The **LOS** Methodology is INDUCING More Traffic

Therefore, it will never “solve” for congestion

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

1993 - 21 miles per day

2017 - 25 miles per day

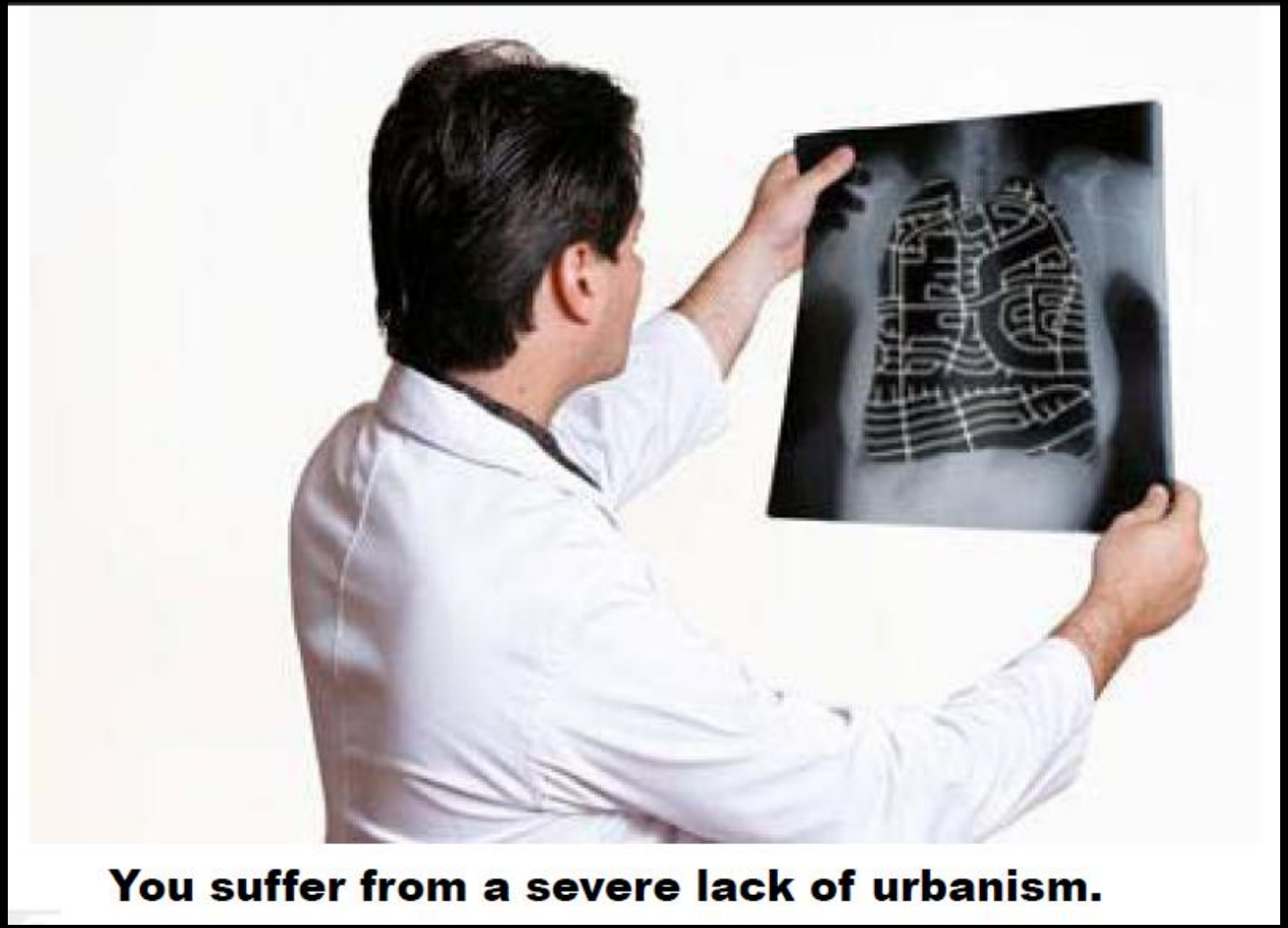
Source: Smart Growth America
"The Congestion Con" 2020

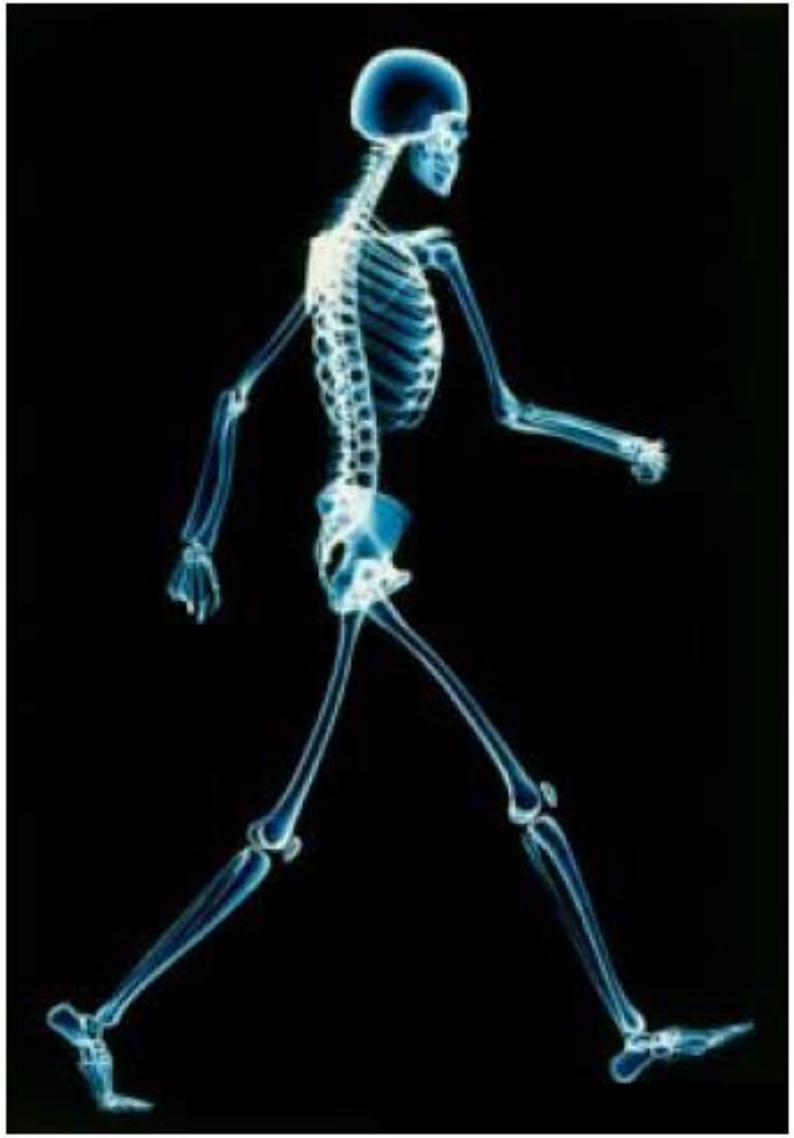
Traditional Urban Grid

Promotes walking

Traditional Suburban Arterial & Cul-de-Sacs

Promotes driving


You suffer from a severe lack of urbanism.



Get rid of LOS, design your streets for walking, and call me in the morning

The road that LOS built

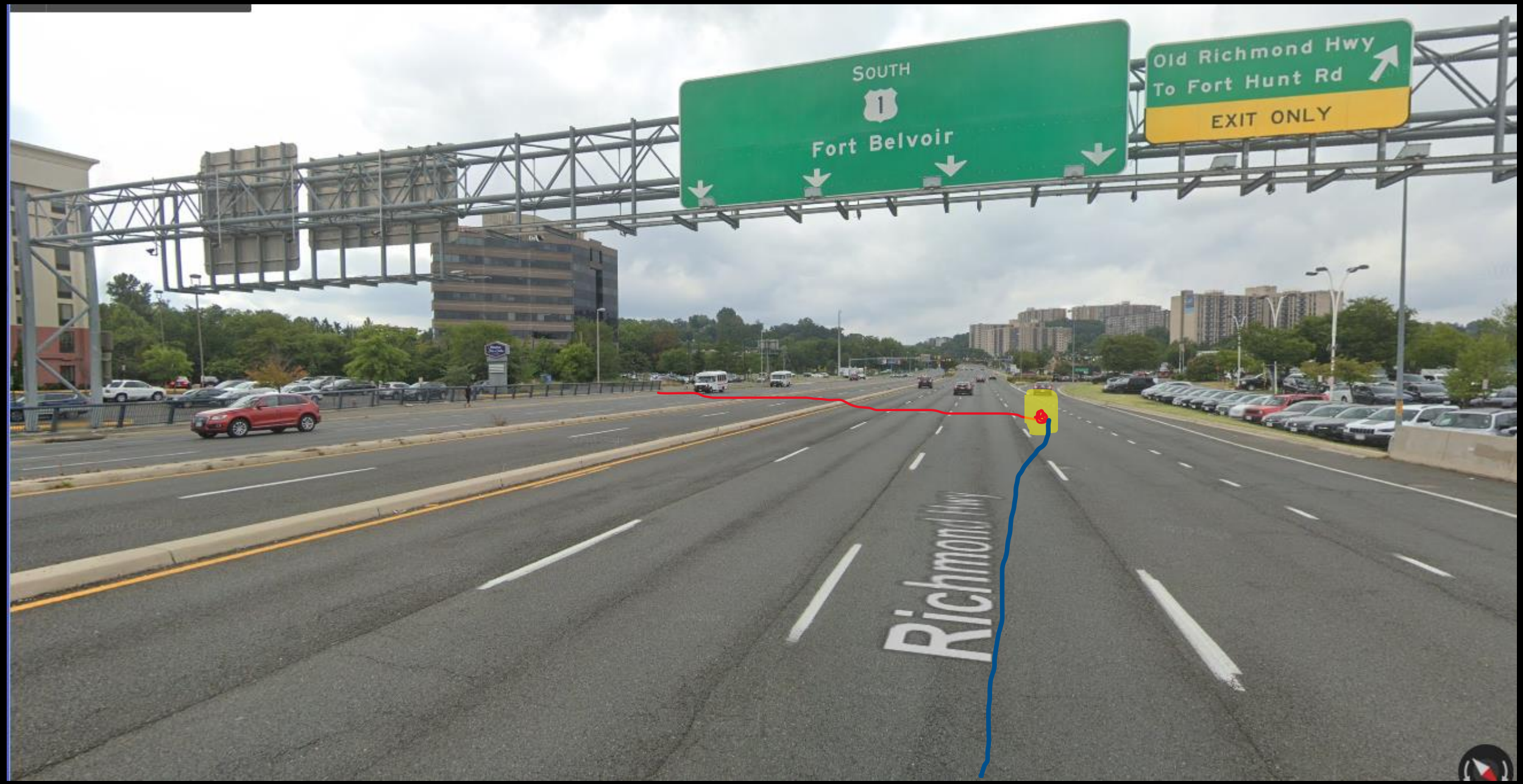
Can you find the pedestrian?


93 NORTH
LEFT LANE
Hardee's
Chevron

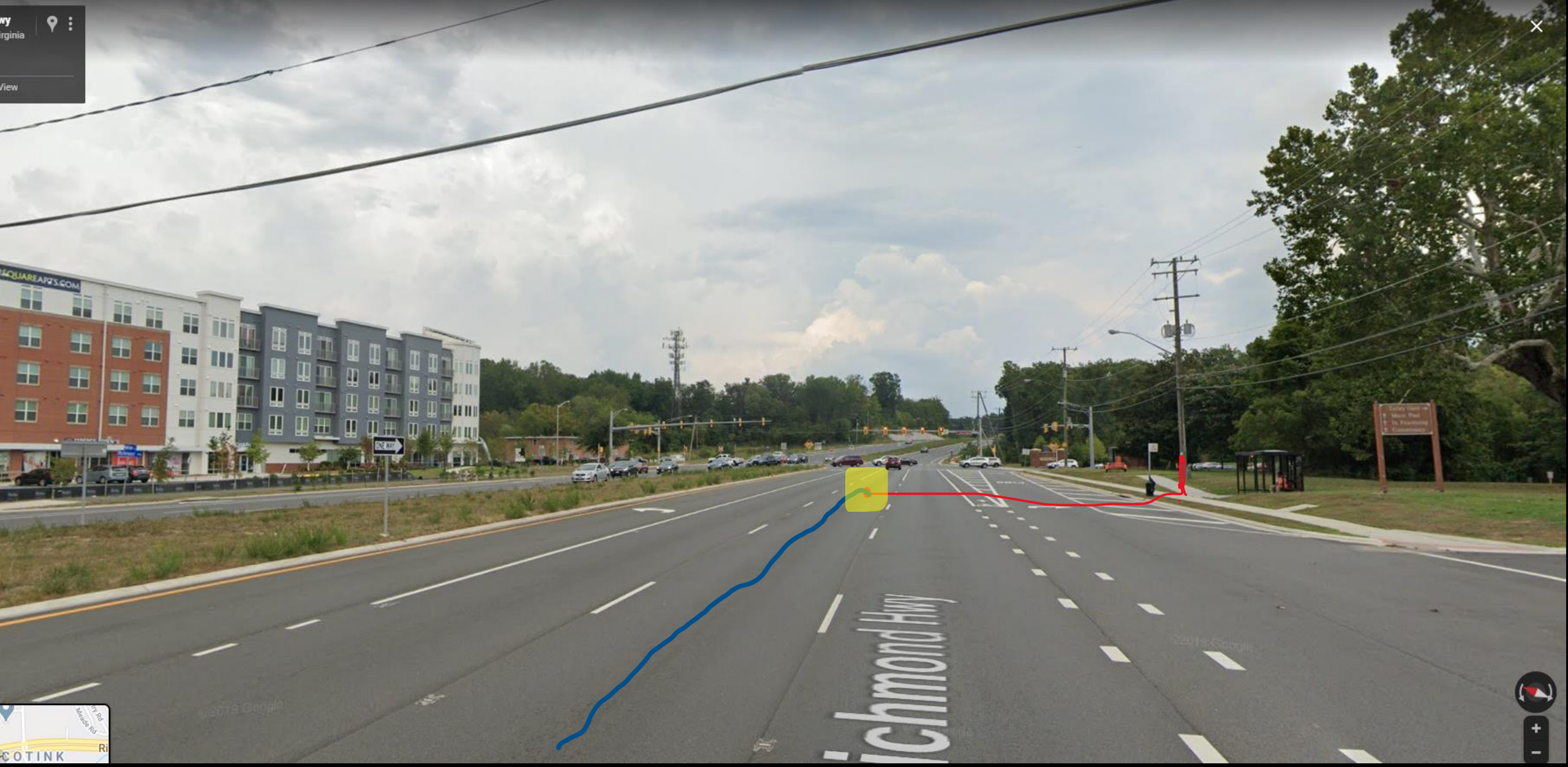
Over 40,000 people die each year in auto related accidents

The gateway to Fairfax County – Rt. 1

A suburban arterial with 11 lanes and high speeds



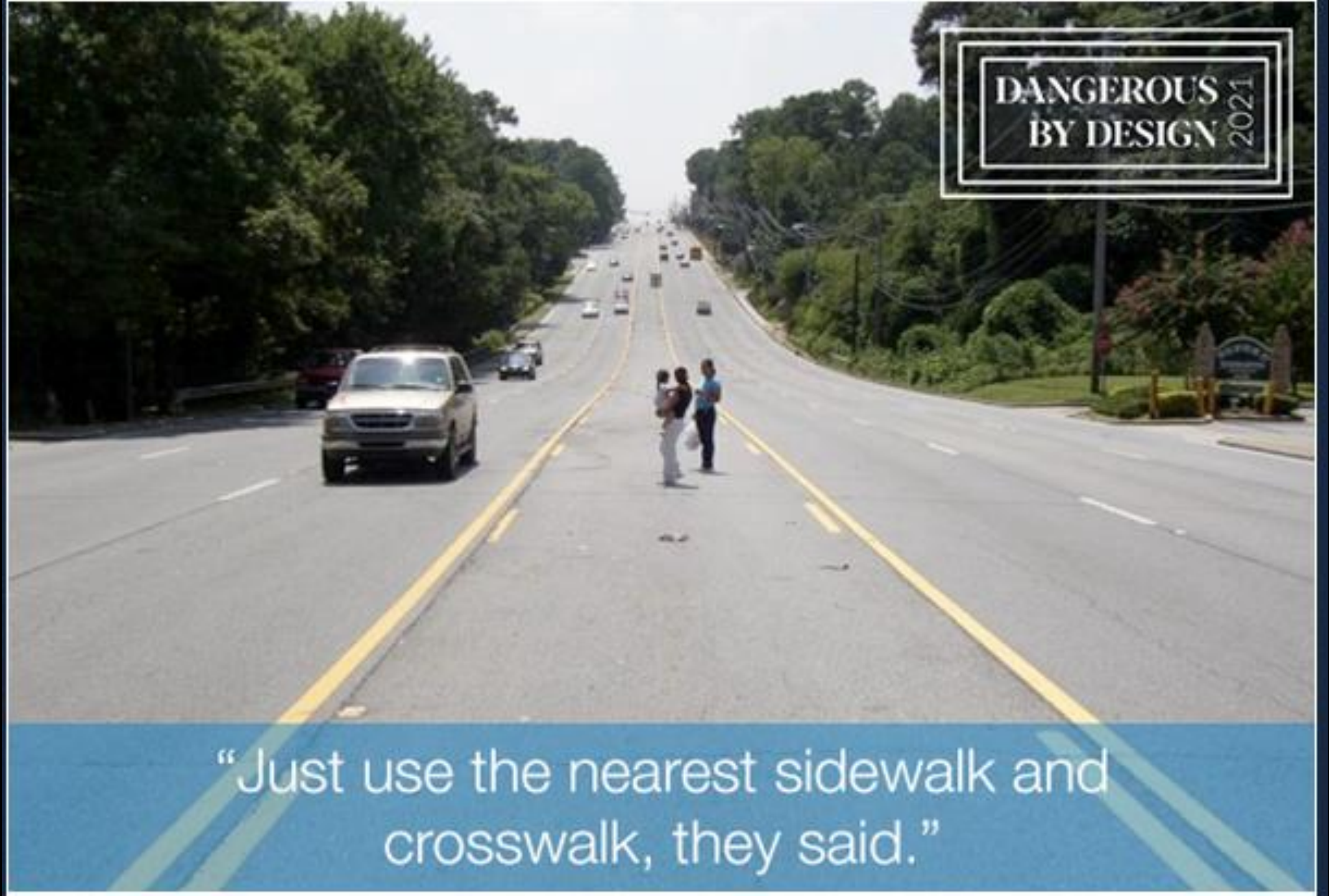
This is where Ms. Alston was killed in 2020



This is where Mr. Yeboah was killed in 2020

Notice the number of lanes & the lousy bike lane

Our residents deserve better: more humane streets


DANGEROUS BY DESIGN 2021
"Just use the nearest sidewalk and crosswalk, they said."

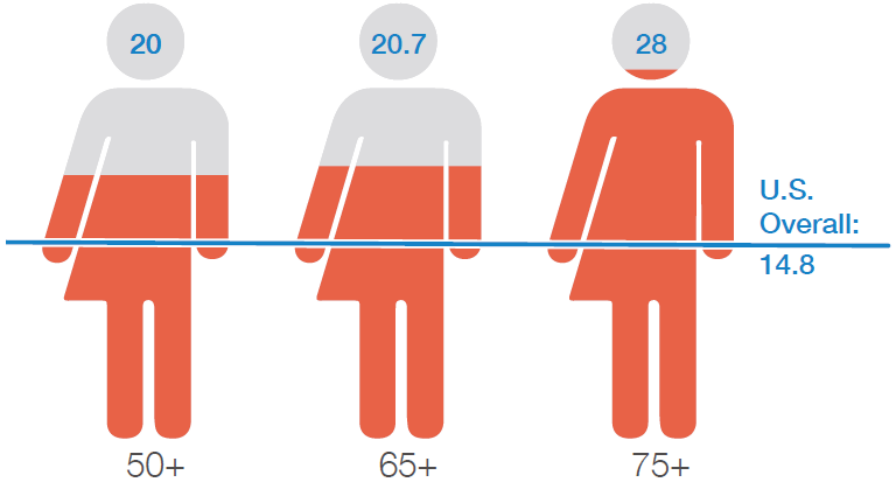
POPULATIONS

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.

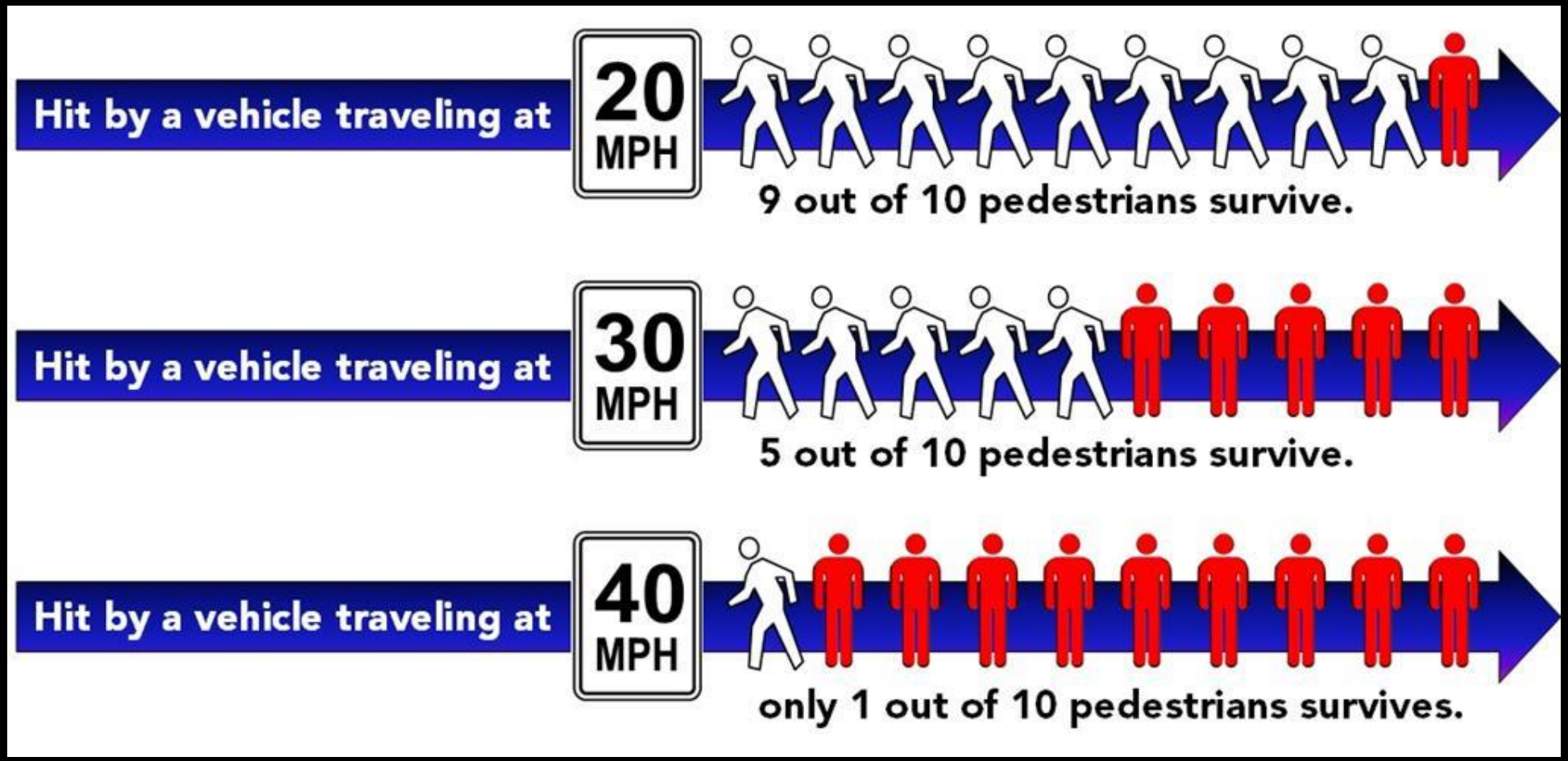
Even after controlling for differences in population size and walking rates, we see that drivers strike and kill people over age 50, Black or African American people, American Indian or Alaska Native people, and people walking in communities with lower median household incomes at much higher rates.

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

Connecticut Ave:

An urban arterial with 6 lanes, on-street parking, slow speeds, and mixed-use development

Streets & Bridges as Great Civic Places

We can:

- Create 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., **VMT**

2. Humanize our streets for ALL users:
    a. Slow speeds to **25-35 mph**
    b. Limit arterials to **6 lanes**
    d. Add **on-street parking** (and help small businesses)
    e. Add crosswalks every **300'- 500'**
    e. Add *well-designed* **sidewalks/bike lanes**
    f. Plant **shade trees**

The **Active Fairfax Transportation Plan** virtual public meetings will be held for every Supervisor District starting tomorrow. Also scheduled are two Lunch & Learn sessions and a conversation in Spanish. You can **register online** for one of the meetings. If you can't attend you can provide comments via email to **activefairfax@fairfaxcounty.gov**:

- Braddock - Mon., April 26, 2021 7 p.m.
- Dranesville - Tues., April 20, 2021 7 p.m.
- Hunter Mill - Mon., April 19, 2021 7 p.m.
- Lee - Mon., April 12, 2021 6:30 p.m.
- Mason - Thurs., April 8, 2021 7 p.m.
- Mount Vernon - Thurs., April 22, 2021 6:30 p.m.
- Providence - Wed., April 28, 2021 7 p.m.
- Springfield - Tues., April 27, 2021 7 p.m.
- Sully - Wed., April 21, 2021 7 p.m.
- Conversacion comunitaria de transporte activo en espanol Thurs., April 15, 2021 7 p.m.
- Lunch & Learn - Tues., April 13, 2021 12 p.m.
- Lunch & Learn - Fri., April 23, 2021 12 p.m.

Contact your state officials:

Ralph Northam: *Governor of Virginia*
Shannon Valentine: *Secretary of Transportation*
Nick Donovan*: Deputy Secretary of Transportation*
Stephen Brich: *VDOT Commissioner*
Barton A. "Art" Thrasher: *VDOT Chief Engineer*

Ask them to:
1. Develop Alternatives to LOS
2. Develop a Complete Streets Policy for Virginia

A Complete Street :)