



# TOWN-WIDE TRAFFIC STUDY

WORKSHOP 2: DEVELOPING ALTERNATIVES

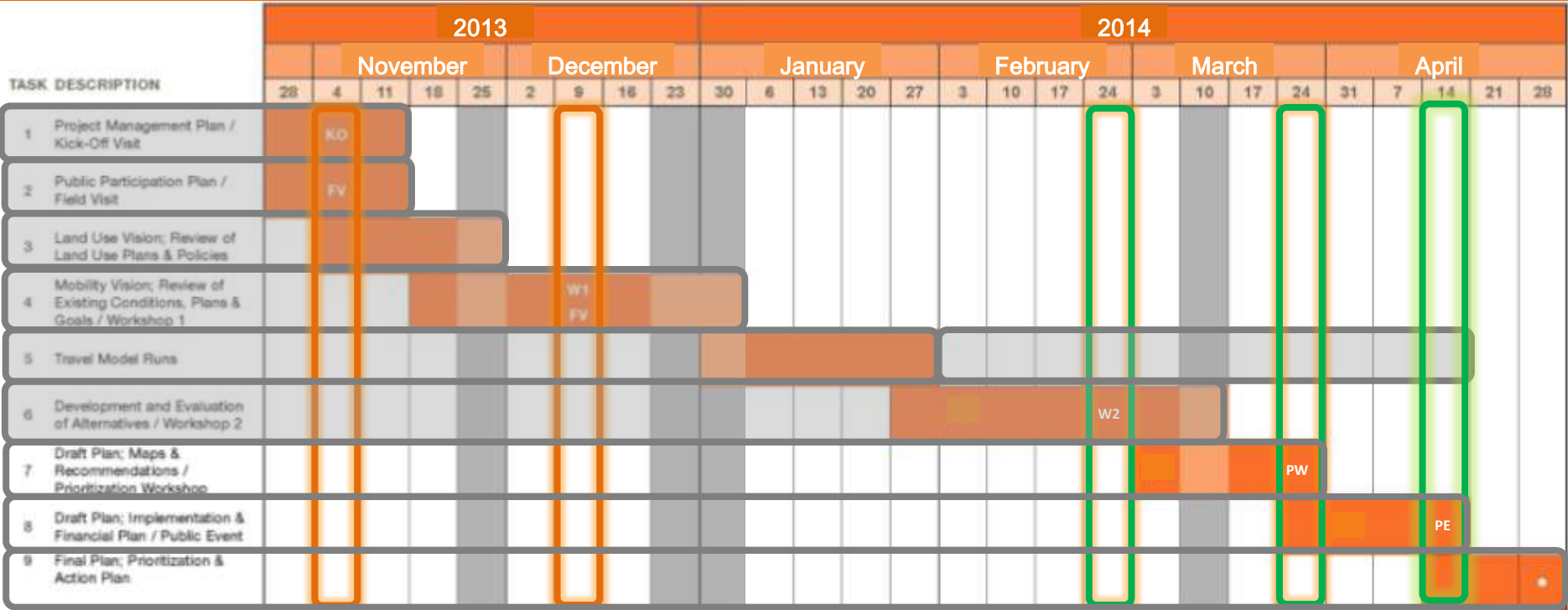
TOWN OF HIGHLAND PARK  
2/24/14



# TONIGHT'S AGENDA

1. Schedule recap and study overview
2. Survey results & neighborhood concerns
3. Existing conditions summary
4. Focus on neighborhood impacts
5. Focus on town streets/corridors
6. Focus on town-wide strategies beyond our borders
7. Q&A
8. Design session

# PROJECT SCHEDULE



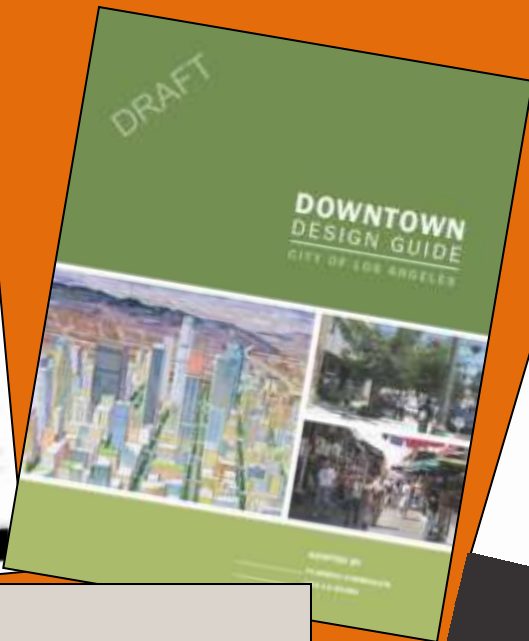
- KO Kickoff meeting / listening sessions
- FV Field visit
- W1 Workshop 1
- W2 Workshop 2
- PW Prioritization workshop
- PE Public event
- \* Final report
- School district vacation weeks

# OUR APPROACH

1. Multimodal Transportation Planning
2. Collaborative Creativity and Problem-Solving
3. Travel Demand and Operational Modeling
4. Urban Design



# LEARNING FROM BEST PRACTICES IN THE WORLD



**CONGRESS FOR THE NEW URBANISM**



# Highland Park TEXAS

*An American Community Making a Difference*

Search Highland Park...



You are here: [Home](#) > [Residents](#) > Traffic & Parking Studies



OPEN GOVERNMENT >

ONLINE SERVICES >

REPORT A CONCERN >

NOTIFY ME® >

## Traffic & Parking Studies



Residents are invited to attend one of two community workshops on the mobility study being conducted that will focus on reducing traffic and parking burdens within the Town. Please attend the meeting to contribute your thoughts, and help craft plans on the this important traffic study focused on protecting the great qualities of Highland Park.

**Monday, December 9, 2013, 4 - 7 p.m.**

**Tuesday, December 10, 2013, 8 - 10 a.m.**

Meetings will be held in the Town Council Chamber/Town Hall - 4300 MacArthur Avenue

**We Want To Hear From You!**

**Give Us Your Input  
on the Traffic Study**



# VISUAL PREFERENCE SURVEY RESULTS



... cut through neighborhood streets



... keep cars out of my neighborhood

# VISUAL PREFERENCE SURVEY RESULTS



... cut through neighborhood streets

16%



... keep cars out of my neighborhood

84%



# VISUAL PREFERENCE SURVEY RESULTS



...slower and crossable



... flowing traffic/bigger streets

# VISUAL PREFERENCE SURVEY RESULTS



...slower and crossable

**81%**



... flowing traffic/bigger streets

**19%**



# VISUAL PREFERENCE SURVEY RESULTS



Walkable, with congestion



Remove congestion, walkability declines

# VISUAL PREFERENCE SURVEY RESULTS



Walkable, with congestion

**71%**



Remove congestion, walkability declines

**29%**



# VISUAL PREFERENCE SURVEY RESULTS



**Regional bypass**



**Neighborhood streets**

# VISUAL PREFERENCE SURVEY RESULTS



Regional bypass

50%

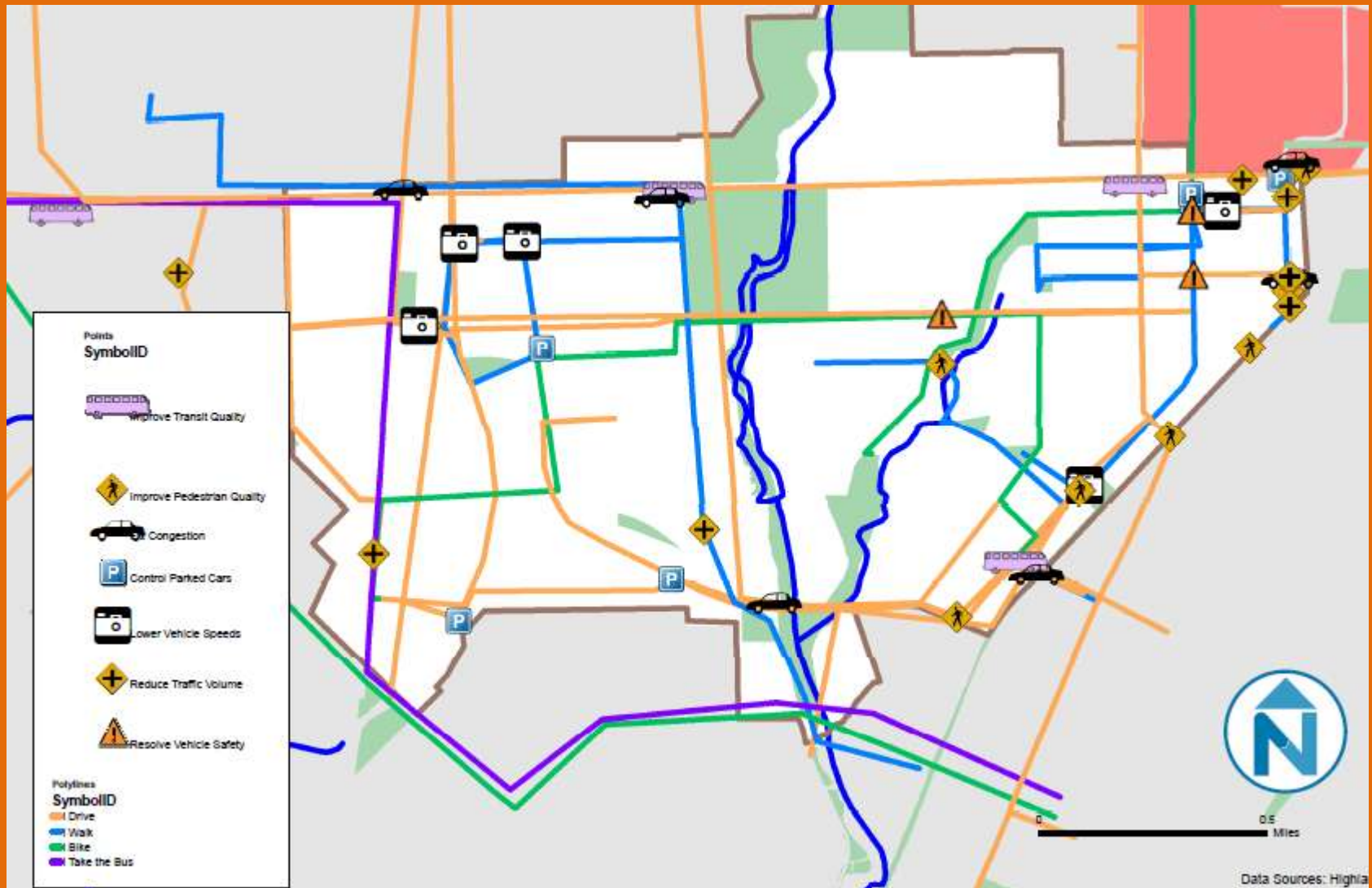


Neighborhood streets

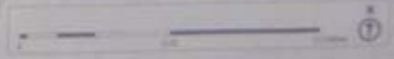
50%



# ONLINE WIKIMAPING COMMENTS

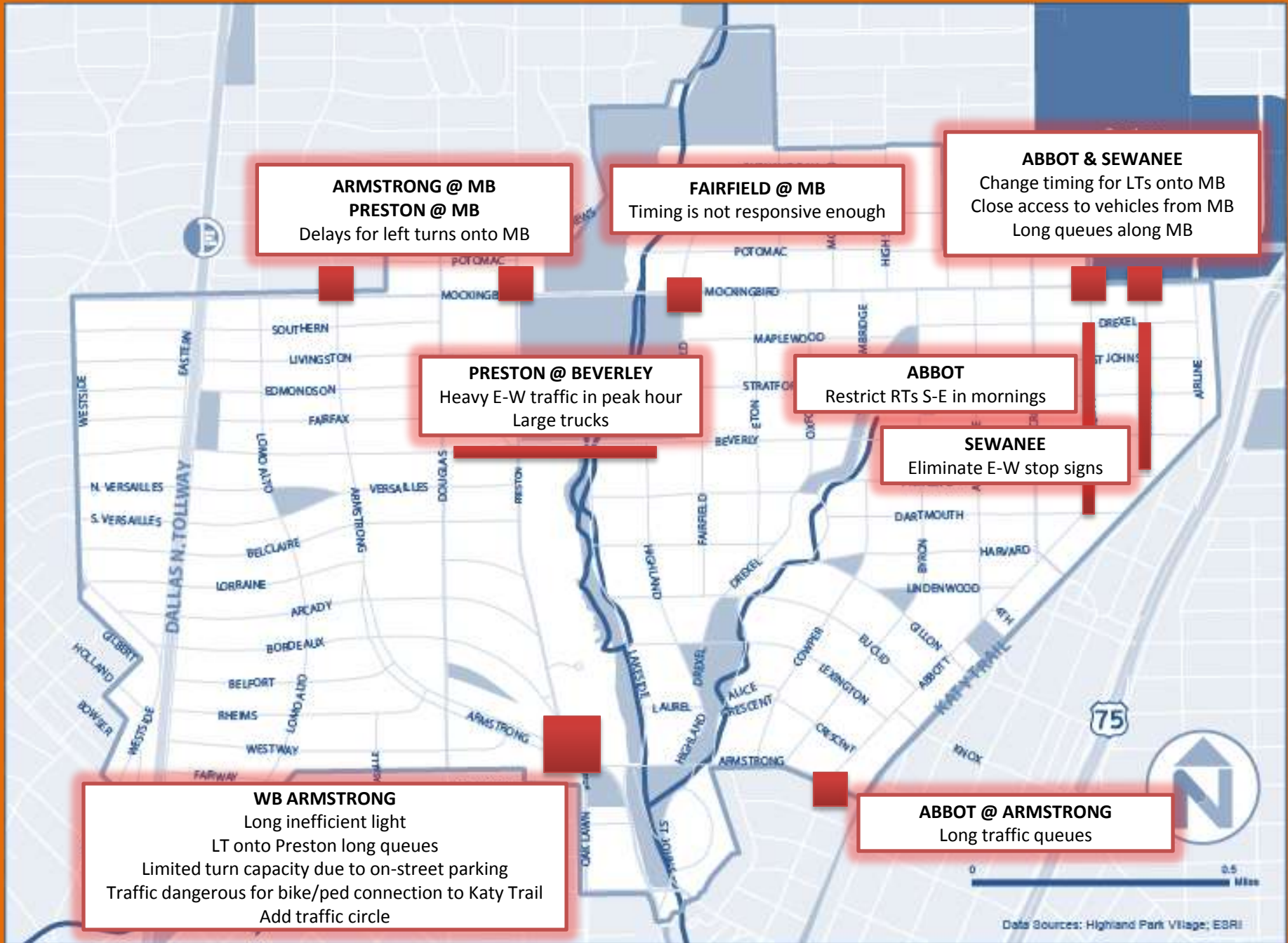


MAP # 2 (1/2/13)





# Traffic & Intersection Issues



# Safety, Bicycle & Pedestrian Issues

## GENERAL

Use radar speed limit signs  
Excessive speeds  
Lower speed limit?

**MOCKINGBIRD**  
Sidewalk too narrow

**HILLCREST & ABBOTT**  
Ped xings dangerous

**AIRLINE @ MB**  
Build ped bridge  
Improve access to  
Katy Trail

**PRESTON**  
No sidewalk

**BYRON**  
No visibility of  
pedestrians in alleys  
due to tall buildings

**HILLCREST**  
PM traffic dangerous for peds

**KATY TRAIL**  
Should be fenced off

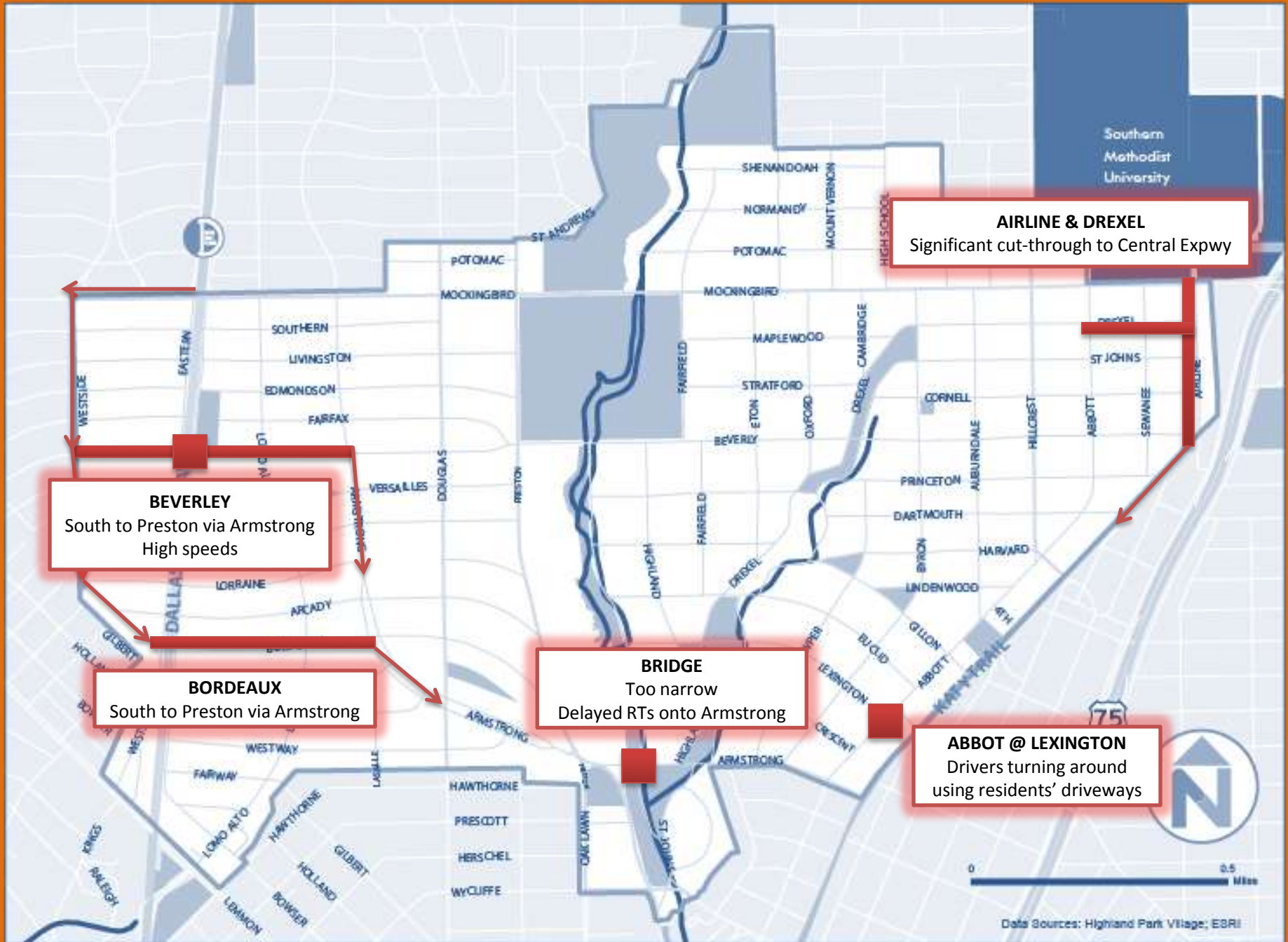
**LOMO ALTO @ WESTWAY**  
Curve has low visibility for drivers

**LAKESIDE**  
No sidewalk





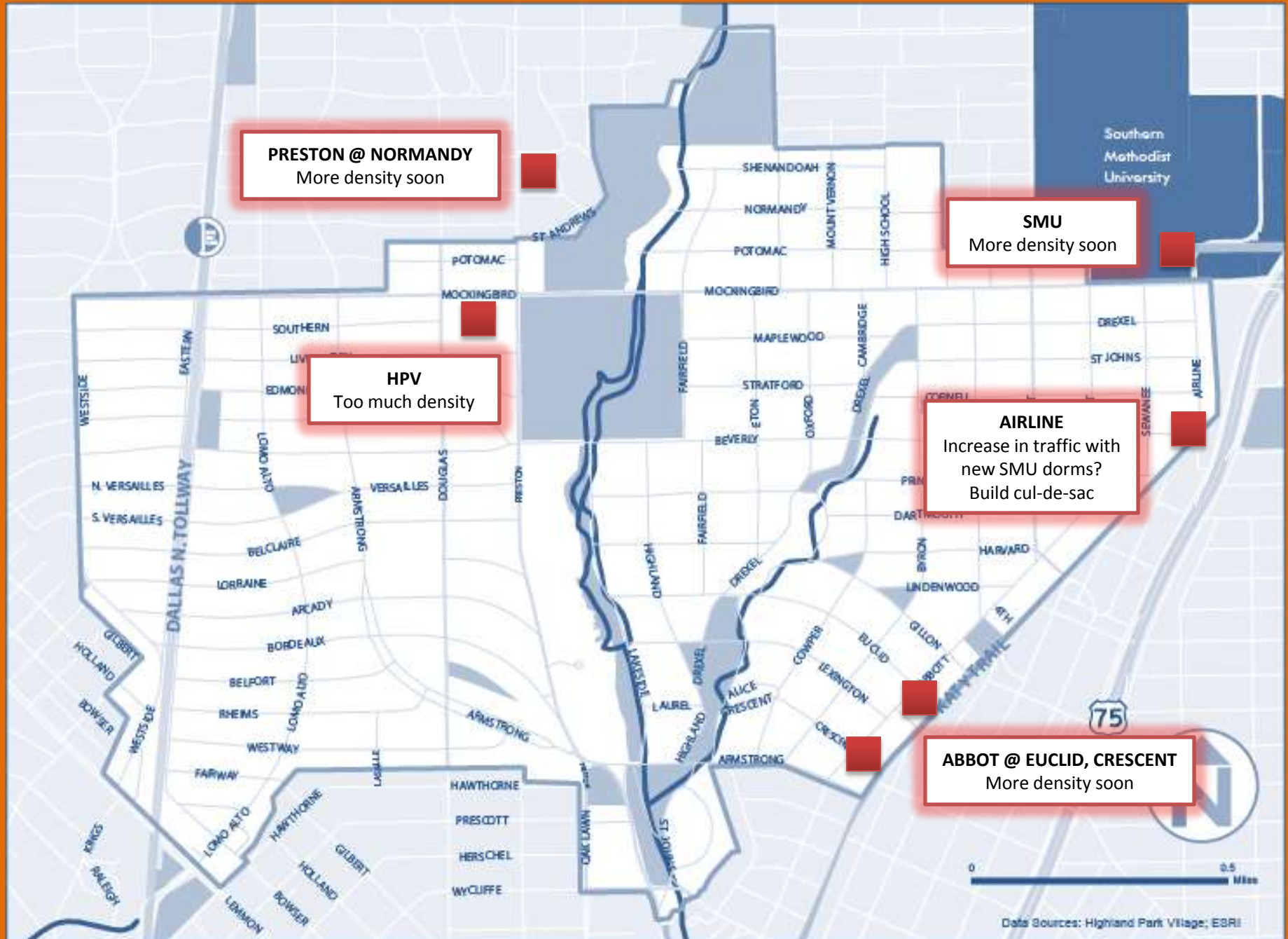
# Traffic Movement & Cut-Through Issues







# Accessibility & Land Use Issues





# HIGHLAND PARK VILLAGE

## Spillover Parking





ABBOTT & SEWANEE

Spillover Parking







# ARMSTRONG & PRESTON

Left-Turn Delay  
Queues  
Pedestrian Safety



# ARMSTRONG & MOCKINGBIRD

Delays turning left





# HILLCREST & MOCKINGBIRD

Intersection safety





# AIRLINE & MOCKINGBIRD

Intersection safety



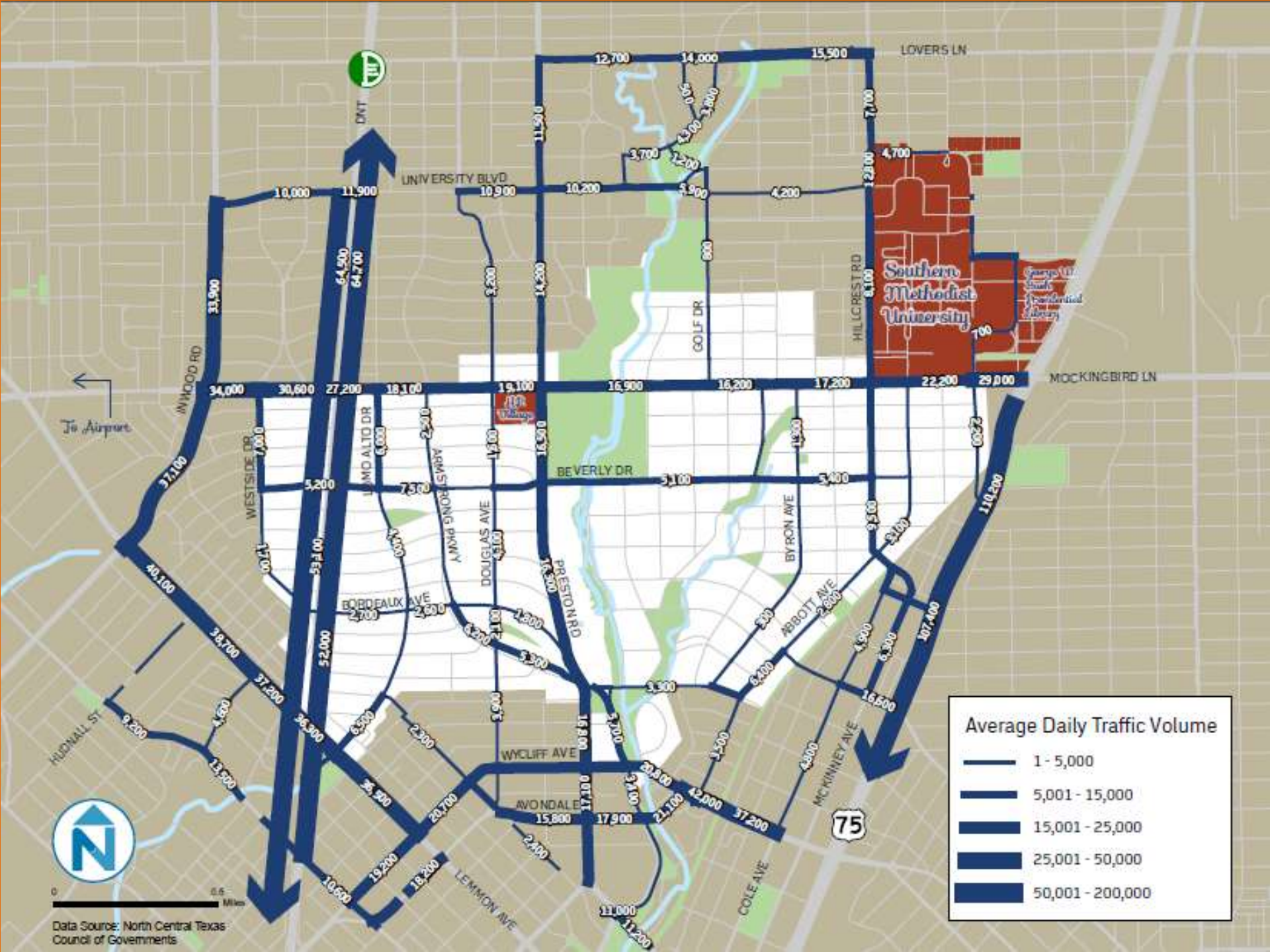


# SEWANEE & MOCKINGBIRD

- Cut-through from MB







To Airport



0.5 Miles

Data Source: North Central Texas Council of Governments



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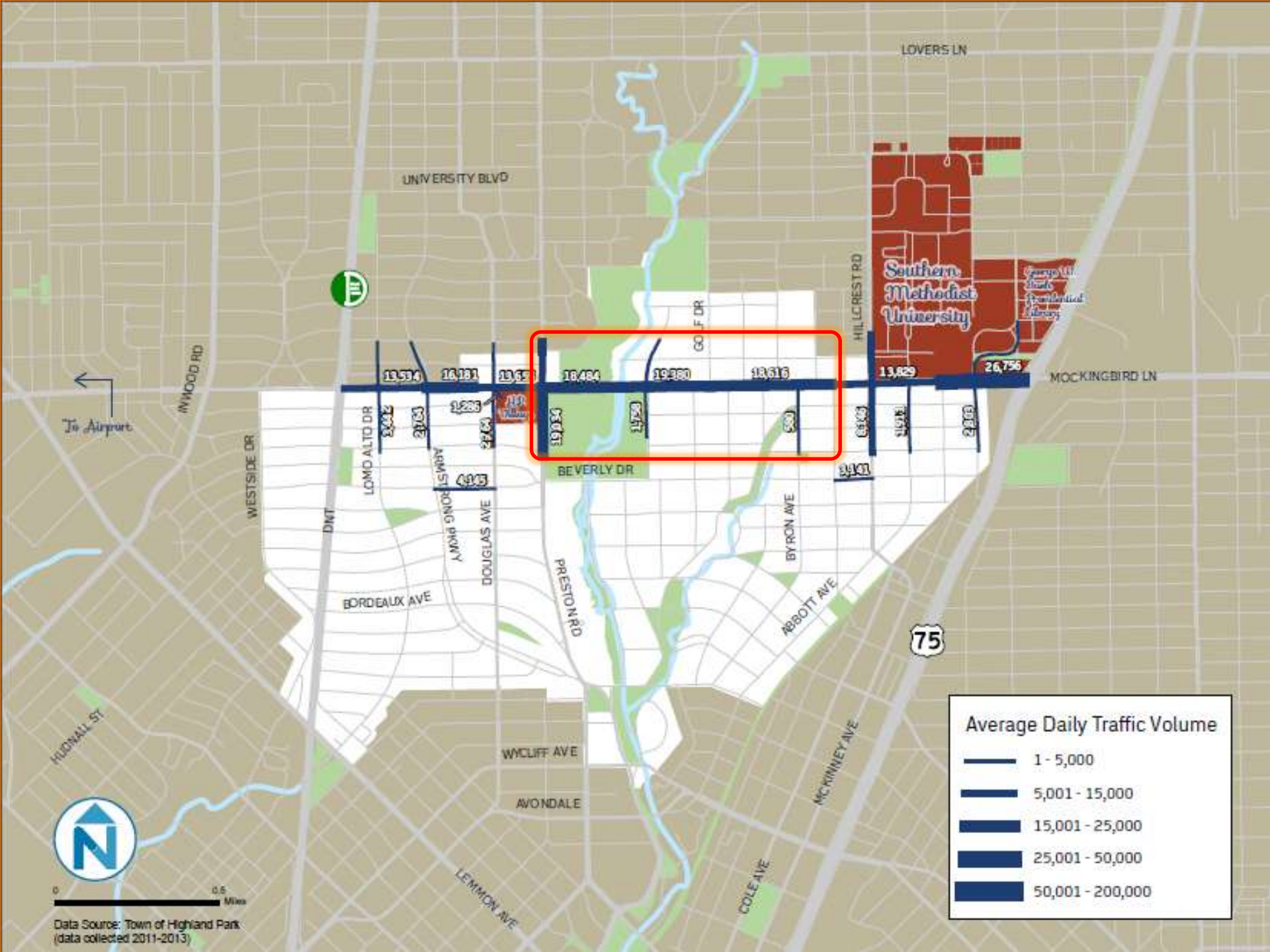
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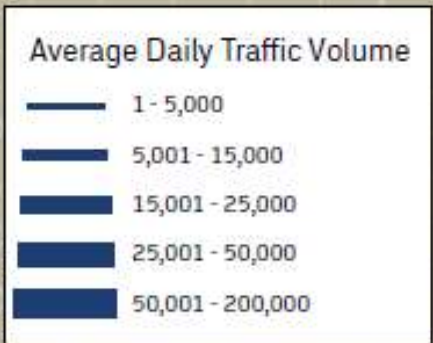
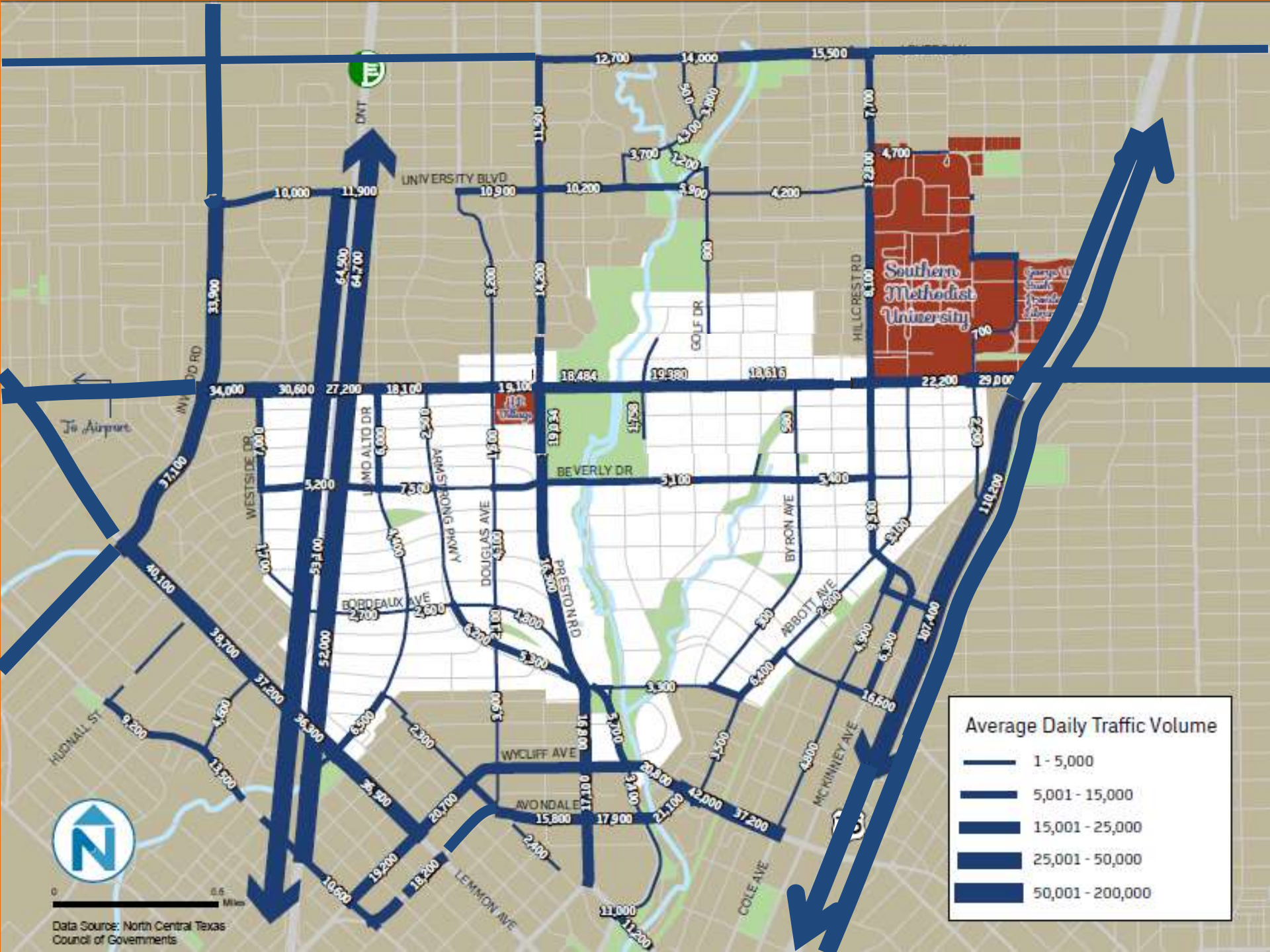
0 0.5 Miles

Data Source: Town of Highland Park (data collected 2011-2013)

To Airport

75



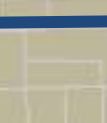


0 0.5 Miles

Data Source: North Central Texas Council of Governments

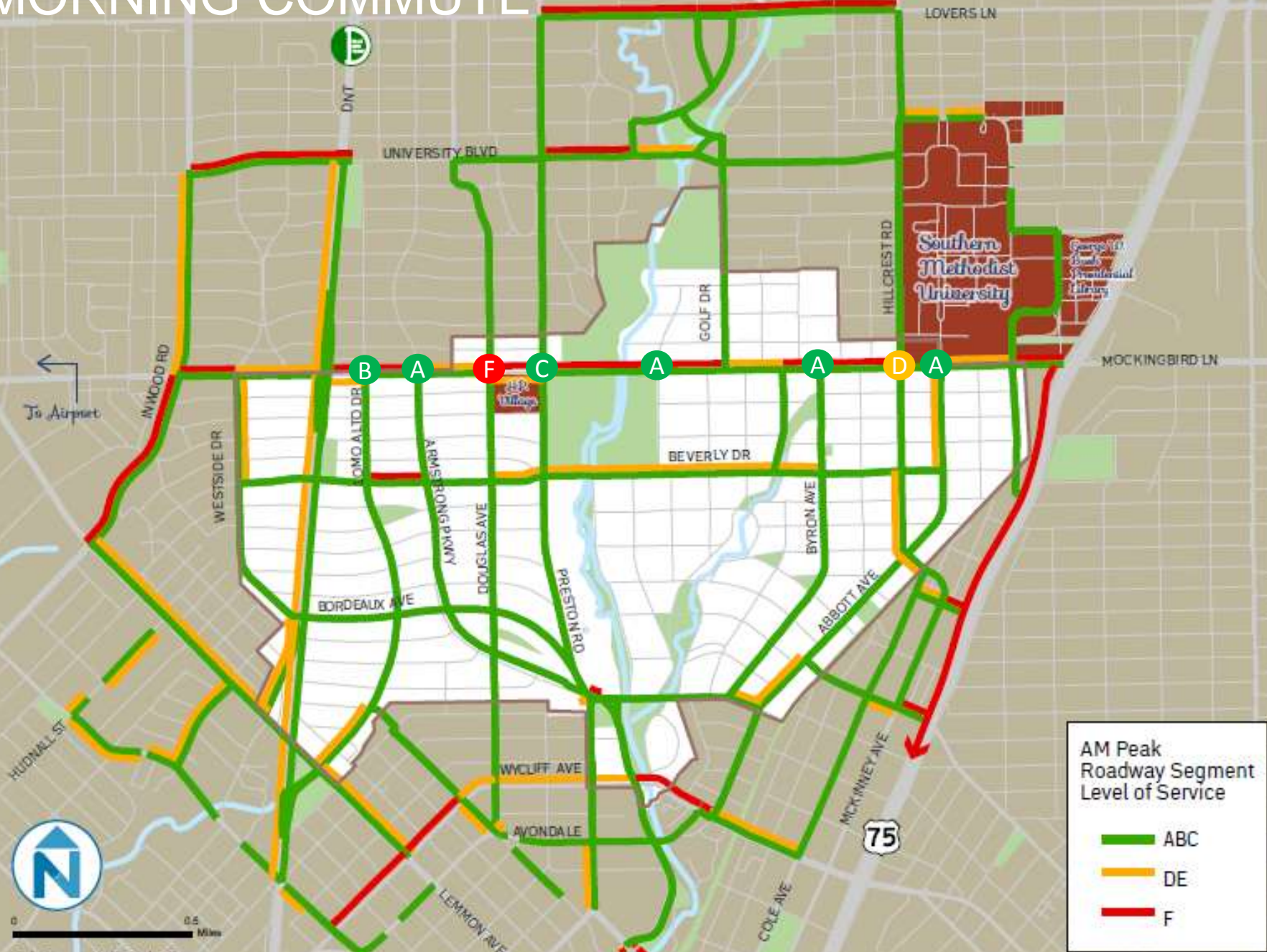
To Airport

Southern Methodist University





# MORNING COMMUTE

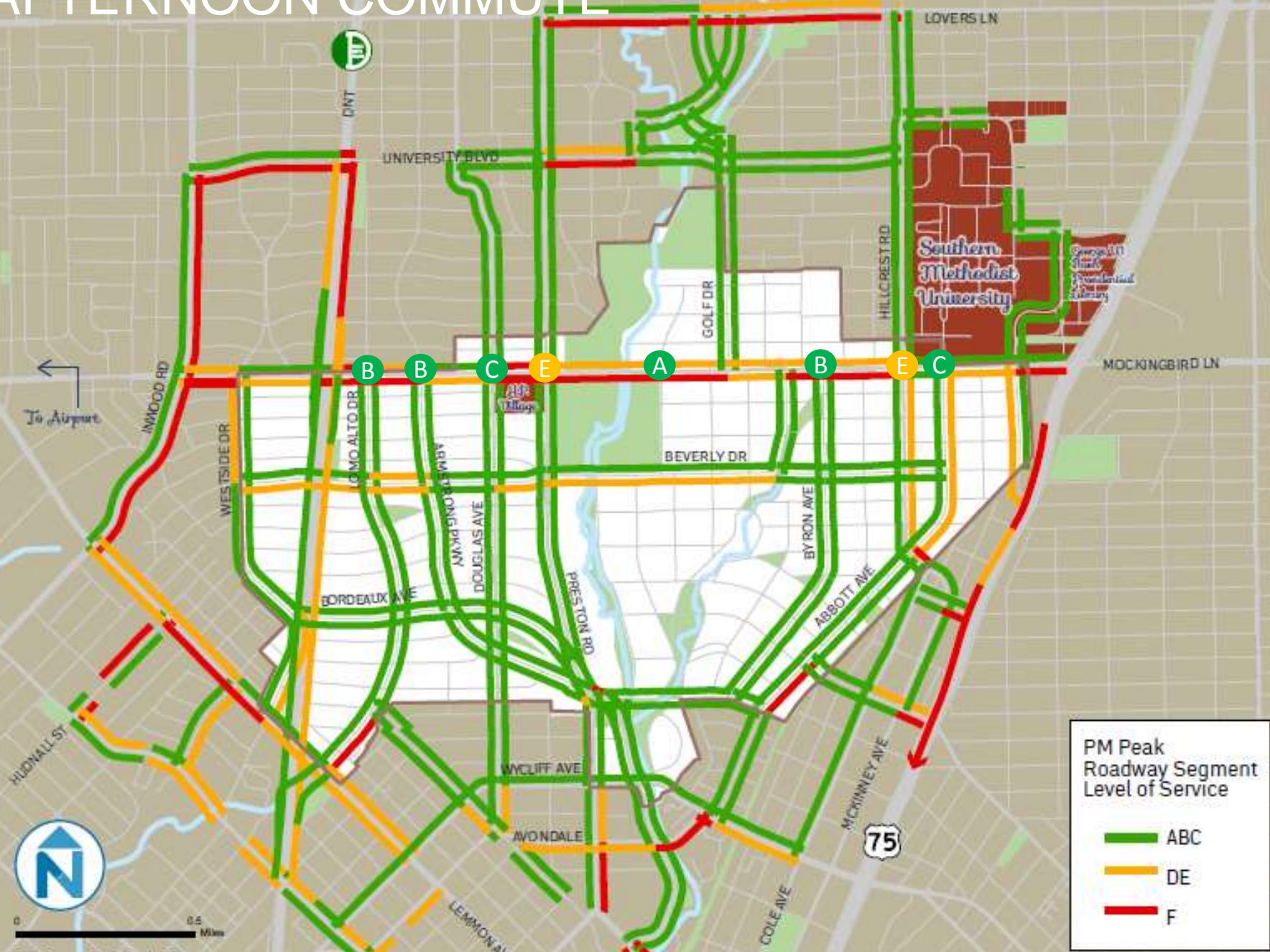


**AM Peak Roadway Segment Level of Service**

- ABC
- DE
- F



# AFTERNOON COMMUTE



**PM Peak Roadway Segment Level of Service**

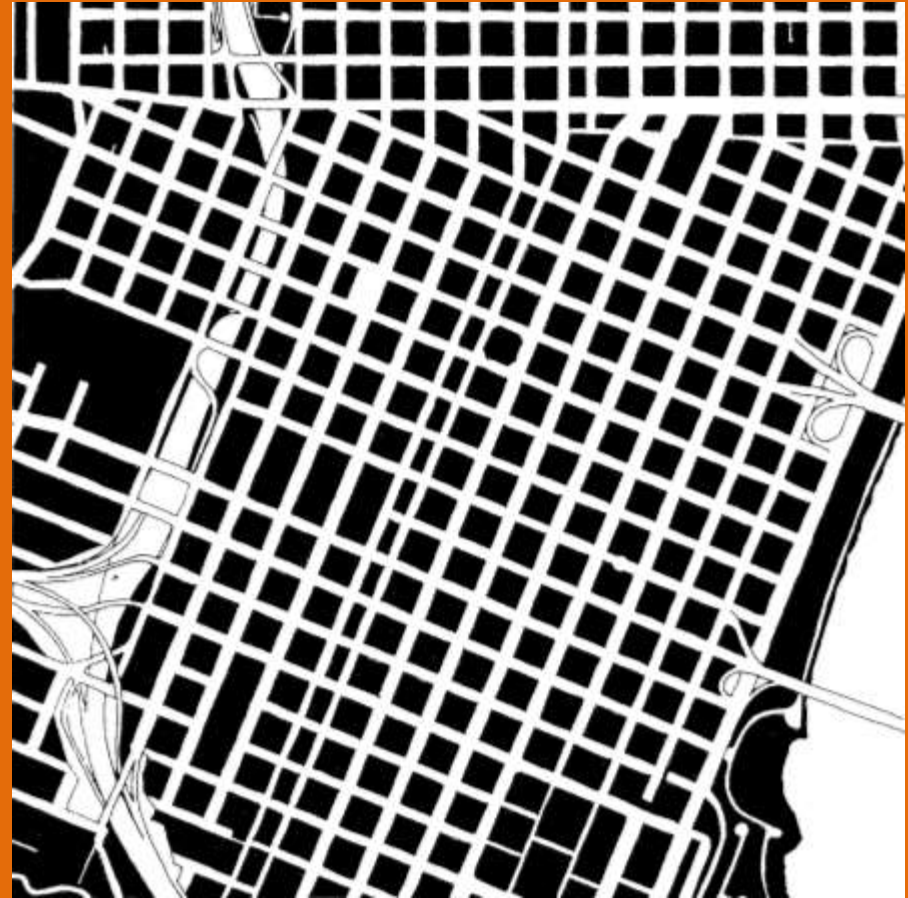
- ABC
- DE
- F



# ONE SQUARE MILE





One Square Mile, Contemporary development pattern, Irvine, CA

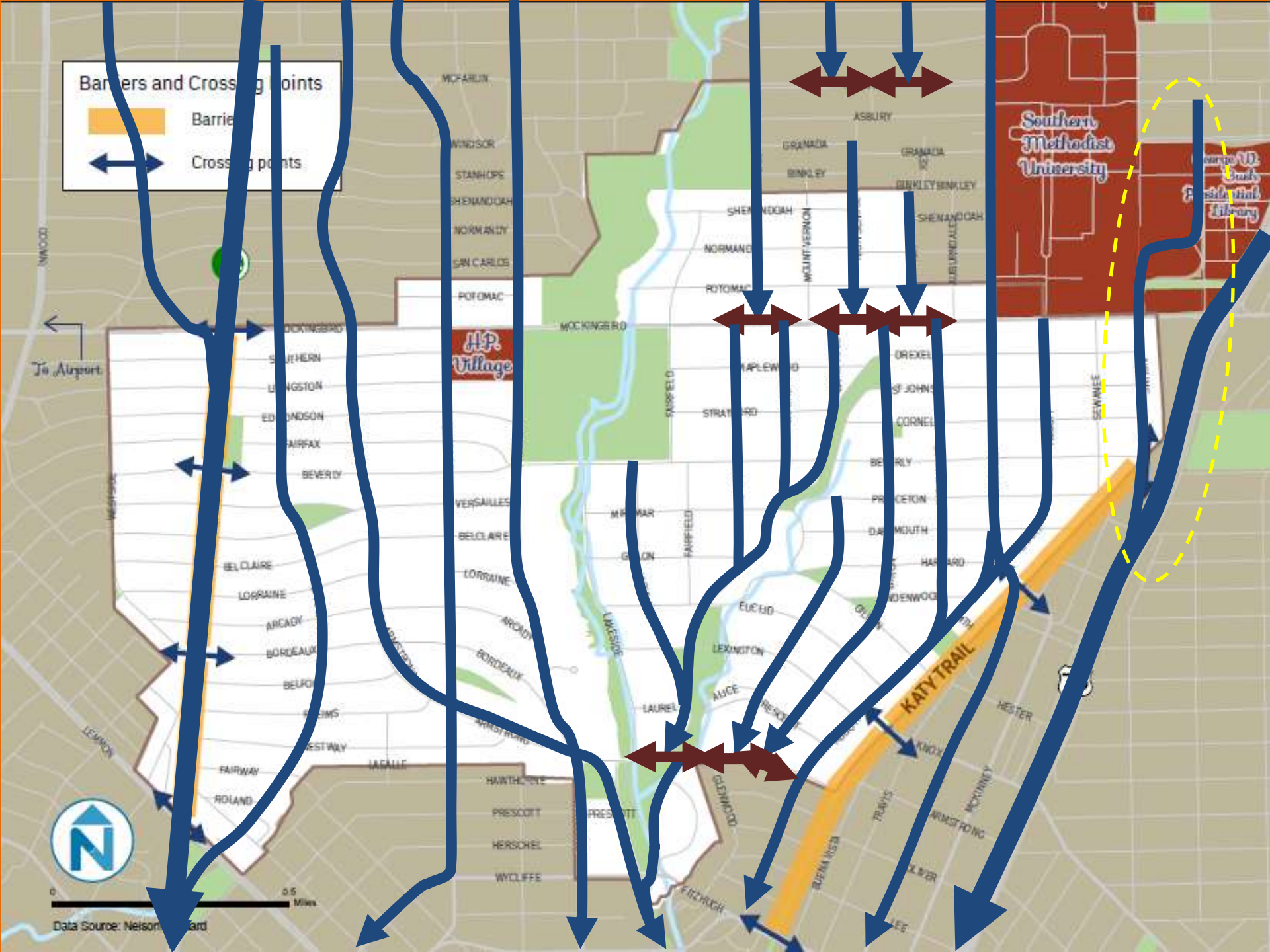


One Square Mile, Traditional development pattern, Portland OR

(Jacobs, Allan, Great Streets, MIT Press, Cambridge, MA)

**Barriers and Crossing points**

-  Barrier
-  Crossing points





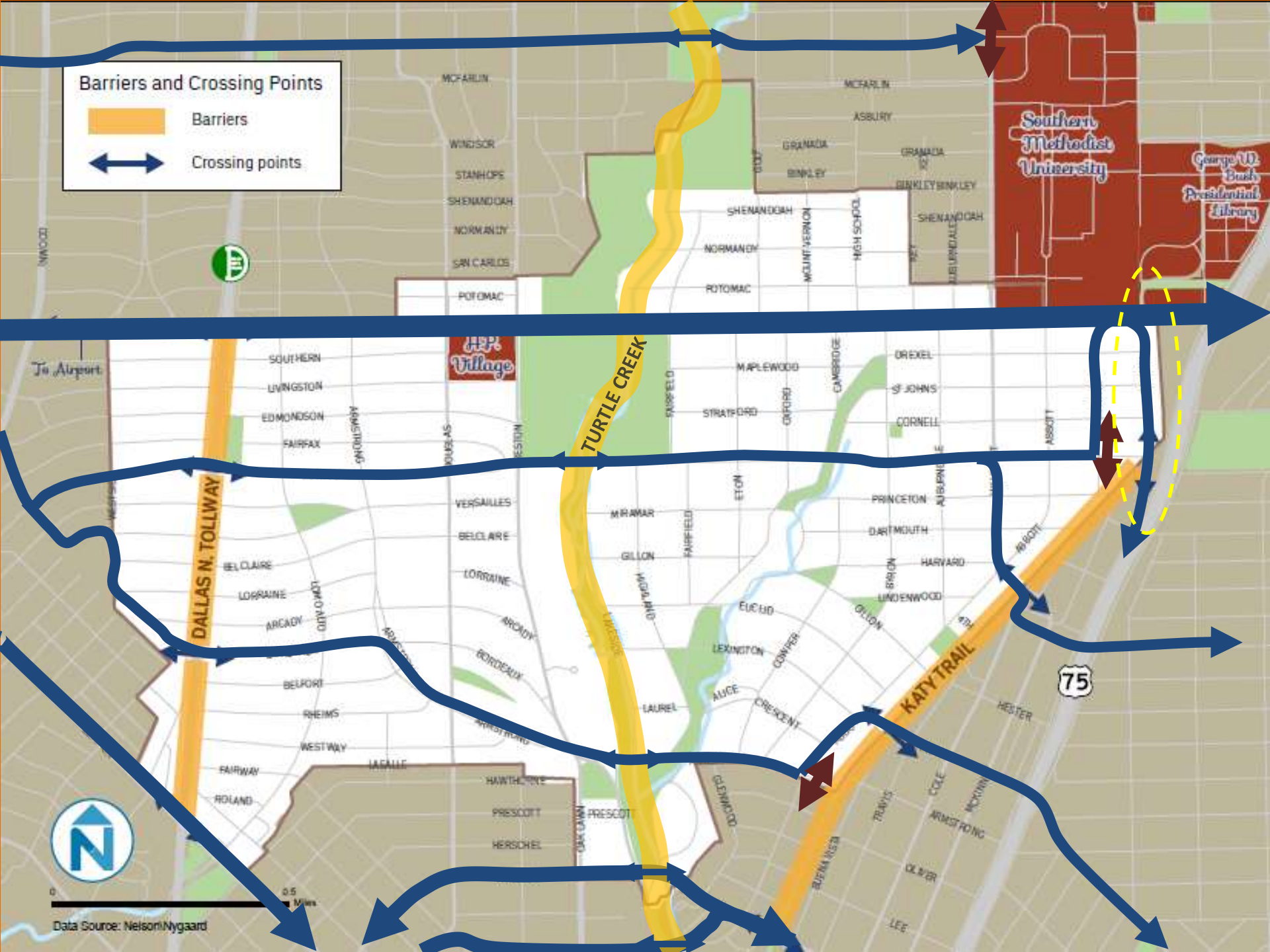
Barriers and Crossing Points



Barriers



Crossing points



To Airport



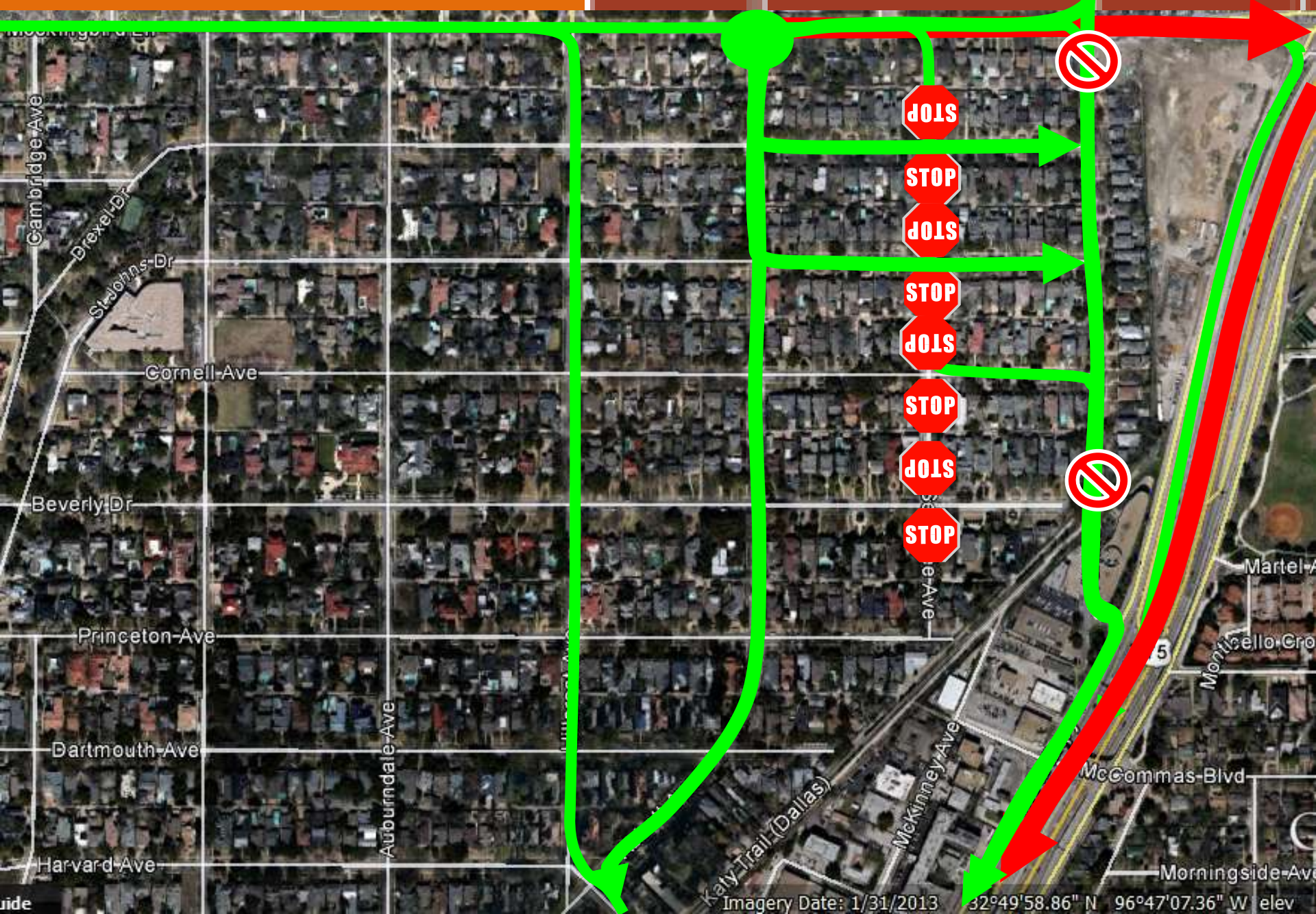
0 0.5 Miles

Data Source: Nelson\Nygaard



# FOCUS: AIRLINE ROAD

*Southern Methodist University*





World • United States • VA • Alexandria • Alexandria • Potomac West

# ALEXANDRIA, VA



50 feet

25 m

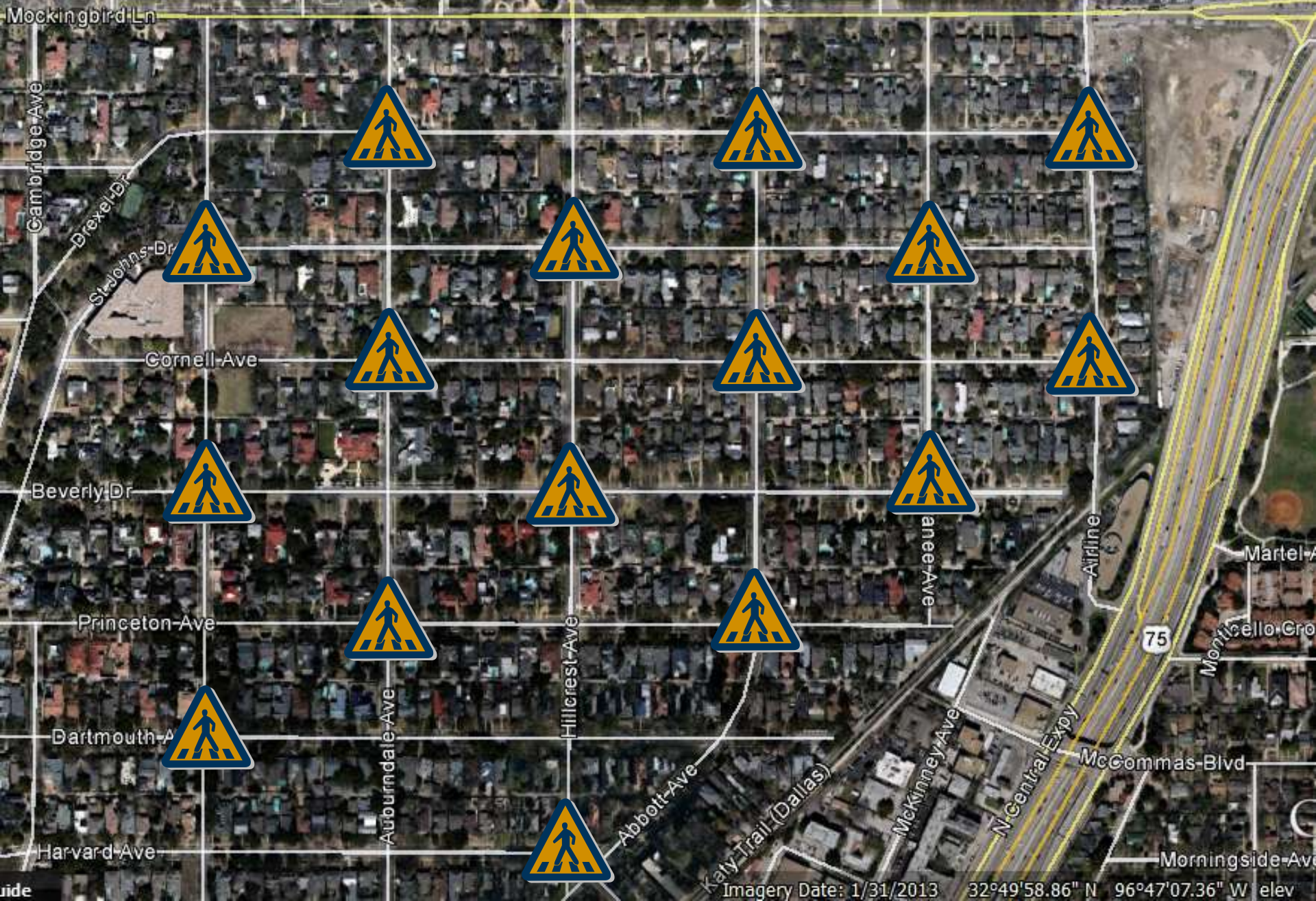




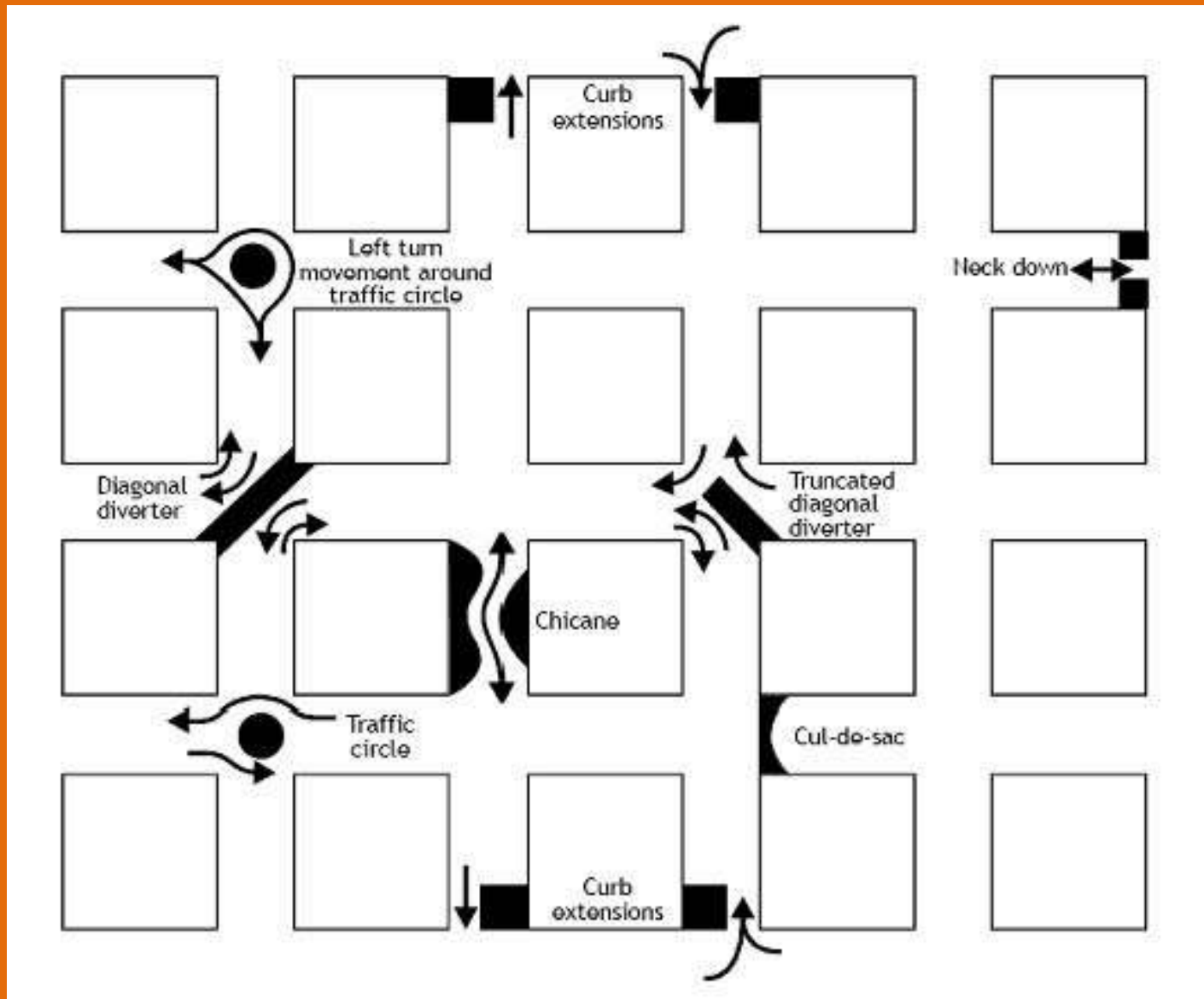


# FOCUS: AIRLINE ROAD

*Southern Methodist University*



# TRAFFIC-CALMED NEIGHBORHOODS







Location: Vancouver, British Columbia,  
Source: Richard Drdul









SPEED  
HUMP









TOWN CENTER BLVD  
NEXT SIGNAL

City Walk

Class On H...  
Ice...  
281-5...  
www.p...







4<sup>TH</sup> AVE  
13<sup>TH</sup> ST 400







MABEL





# Traffic Calming Locations of Projects

Cambridge, Massachusetts

Community Development Department  
February 2013





SEATTLE, WA

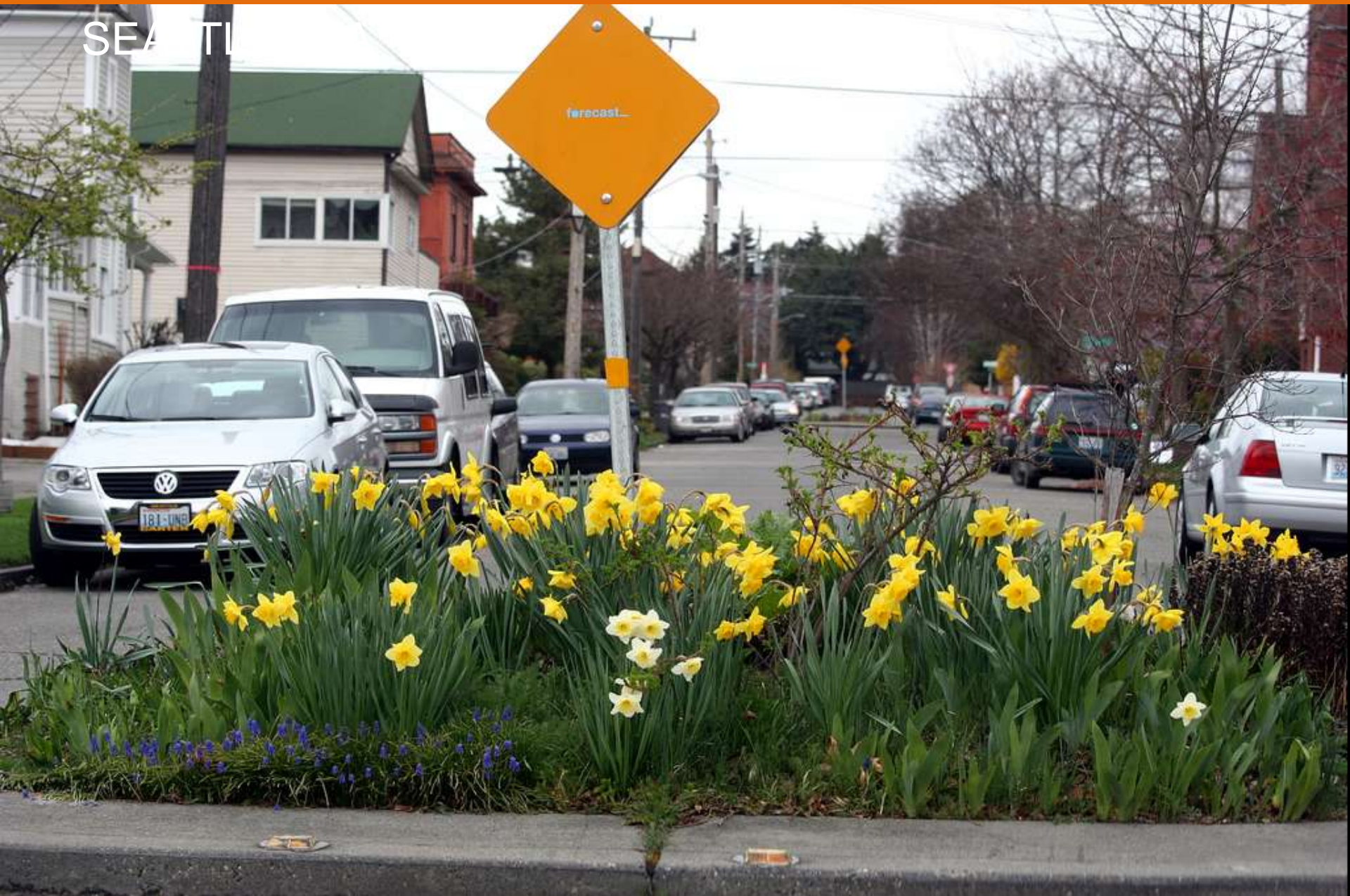


SEATTLE, WA





SEA T





SEATTLE, WA





SEATTLE, WA





SEATTLE, WA









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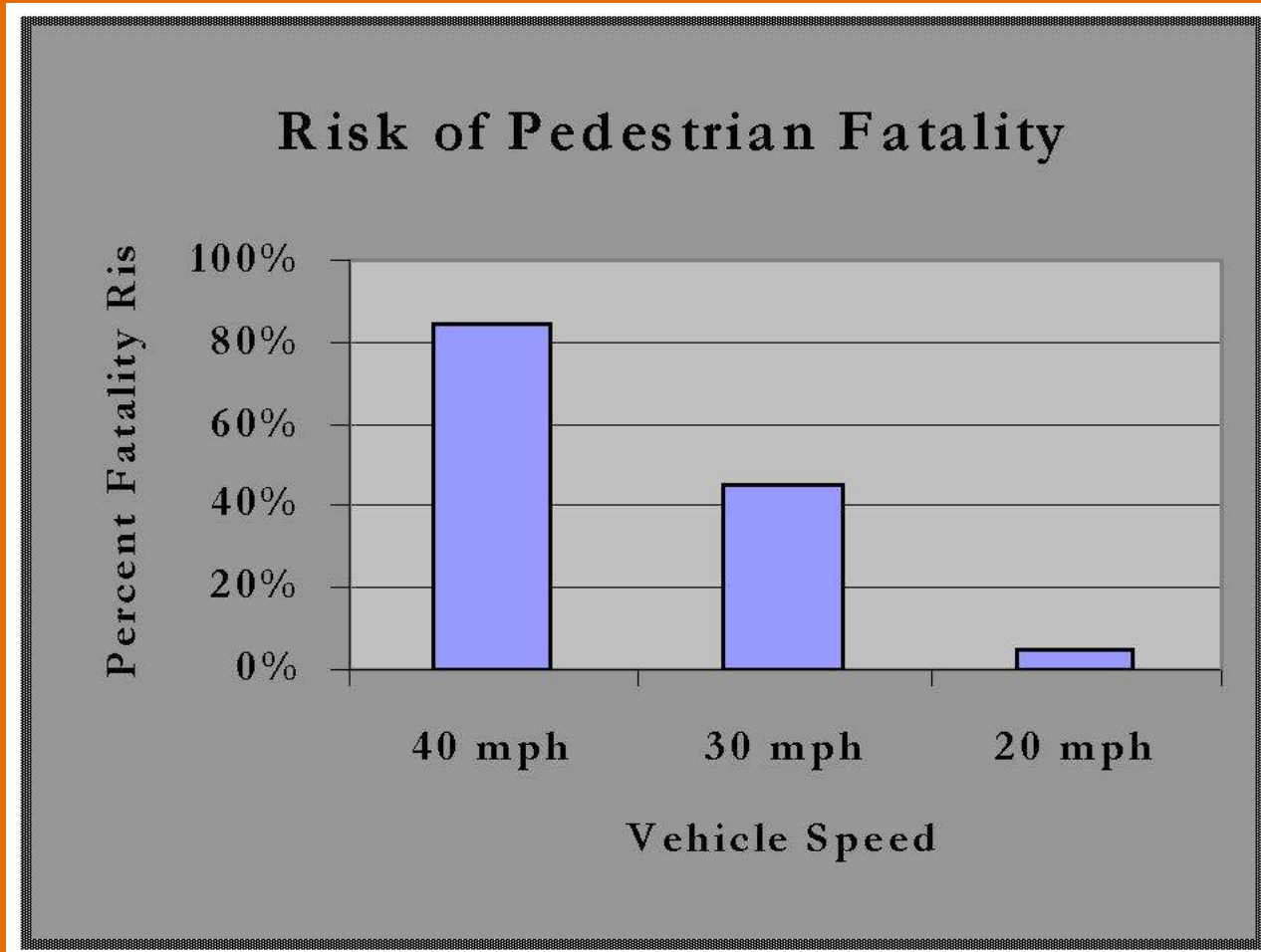


# OVERBUILT STREETS CAUSE SPEEDING





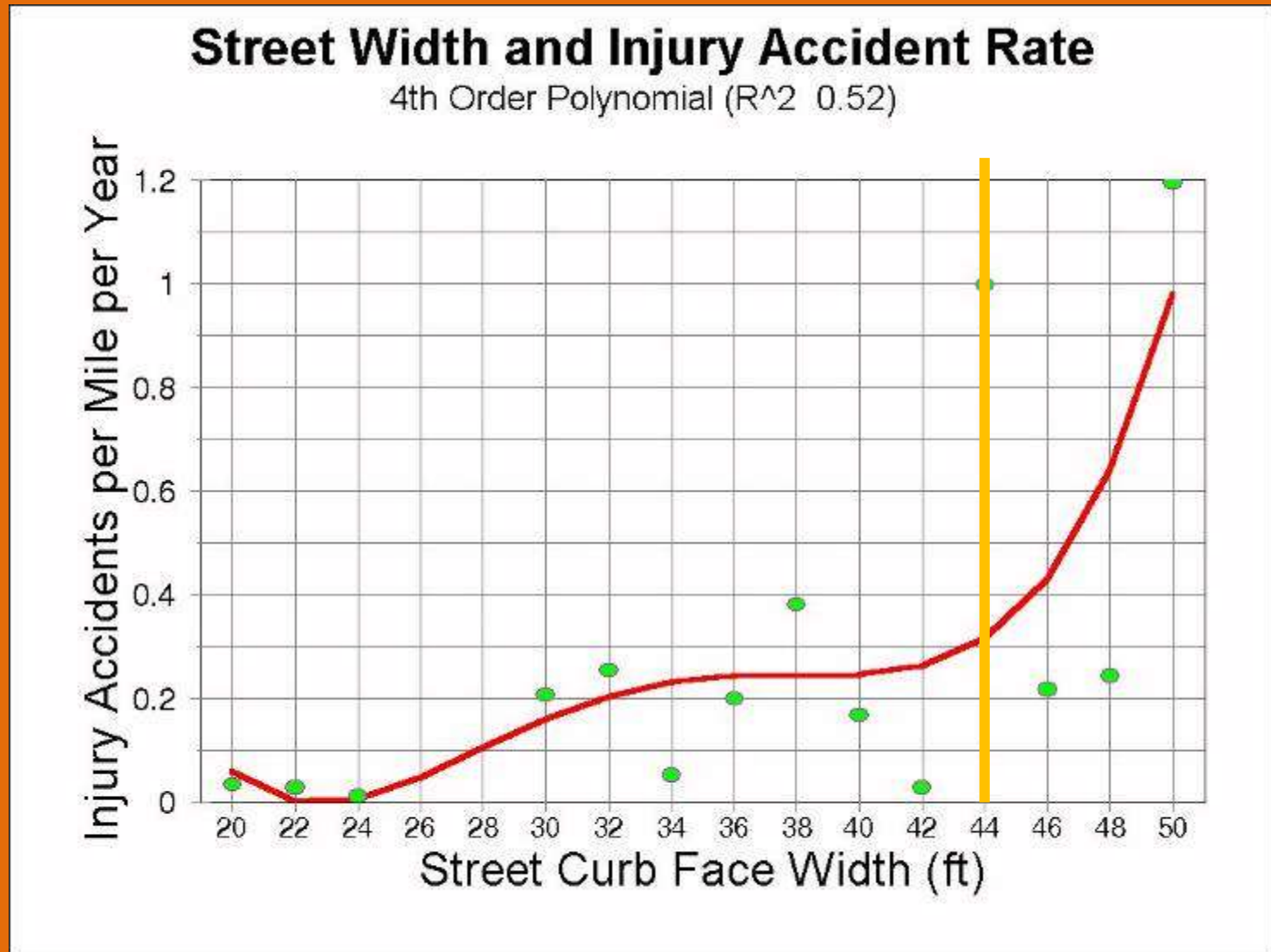
# PLANNING FOR PEDESTRIAN SAFETY: PRINCIPLES



Leaf, W. and Preusser, D. *Literature Review on Vehicle Travel Speeds and Pedestrian Injuries Among Selected Racial/Ethnic Groups*, NHTSA (USA), 1999.



# WIDE STREETS ARE LESS SAFE



Street widths and injury accident rate, graphic by Peter Swift



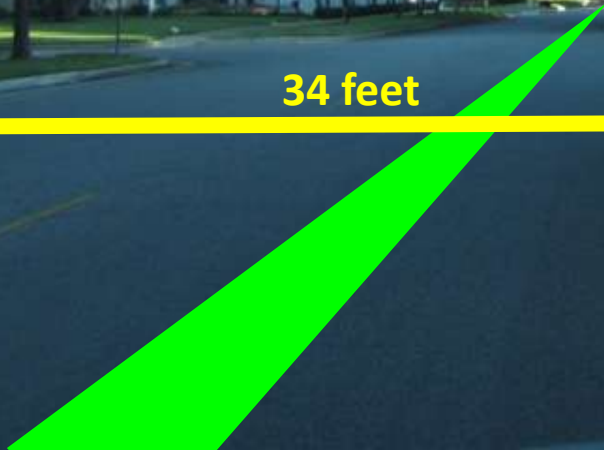
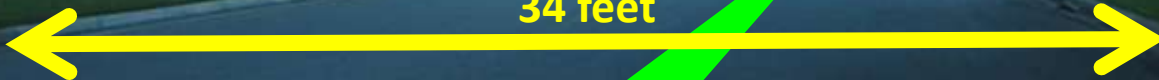


29 feet

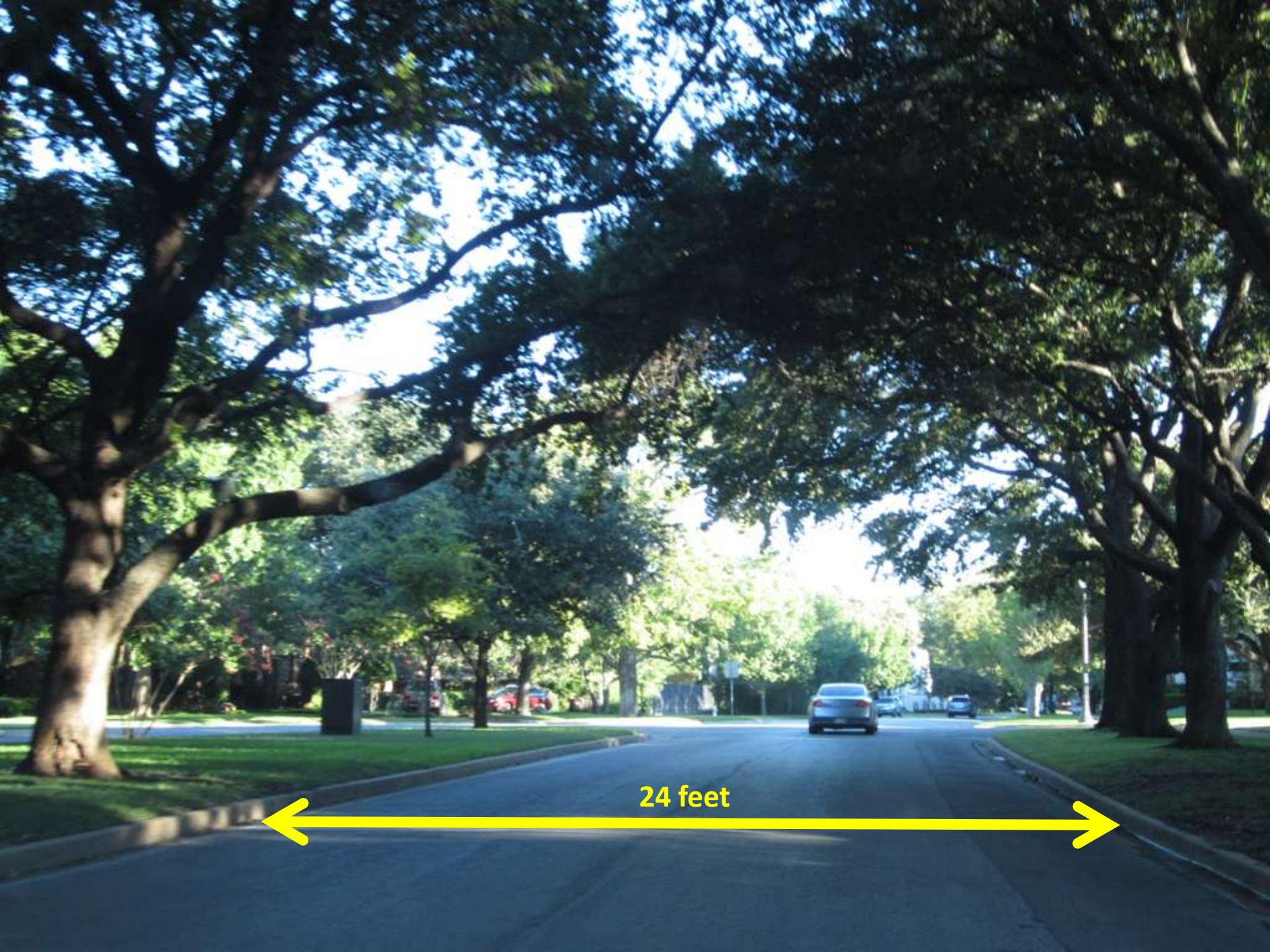


BEVERLY

34 feet







24 feet











# ARMSTRONG

41 feet

29 feet

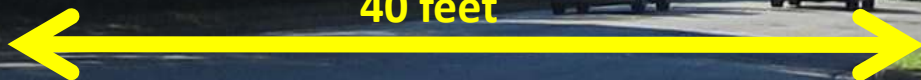




PRESTON



40 feet



30





# MOCKINGBIRD

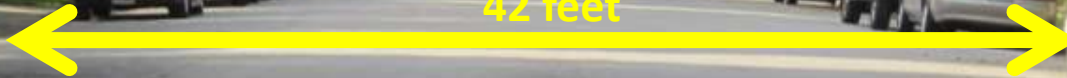


30 feet



# HILLCREST

42 feet







24 feet





29 feet









4582



























SEWANEE





SEWANEE











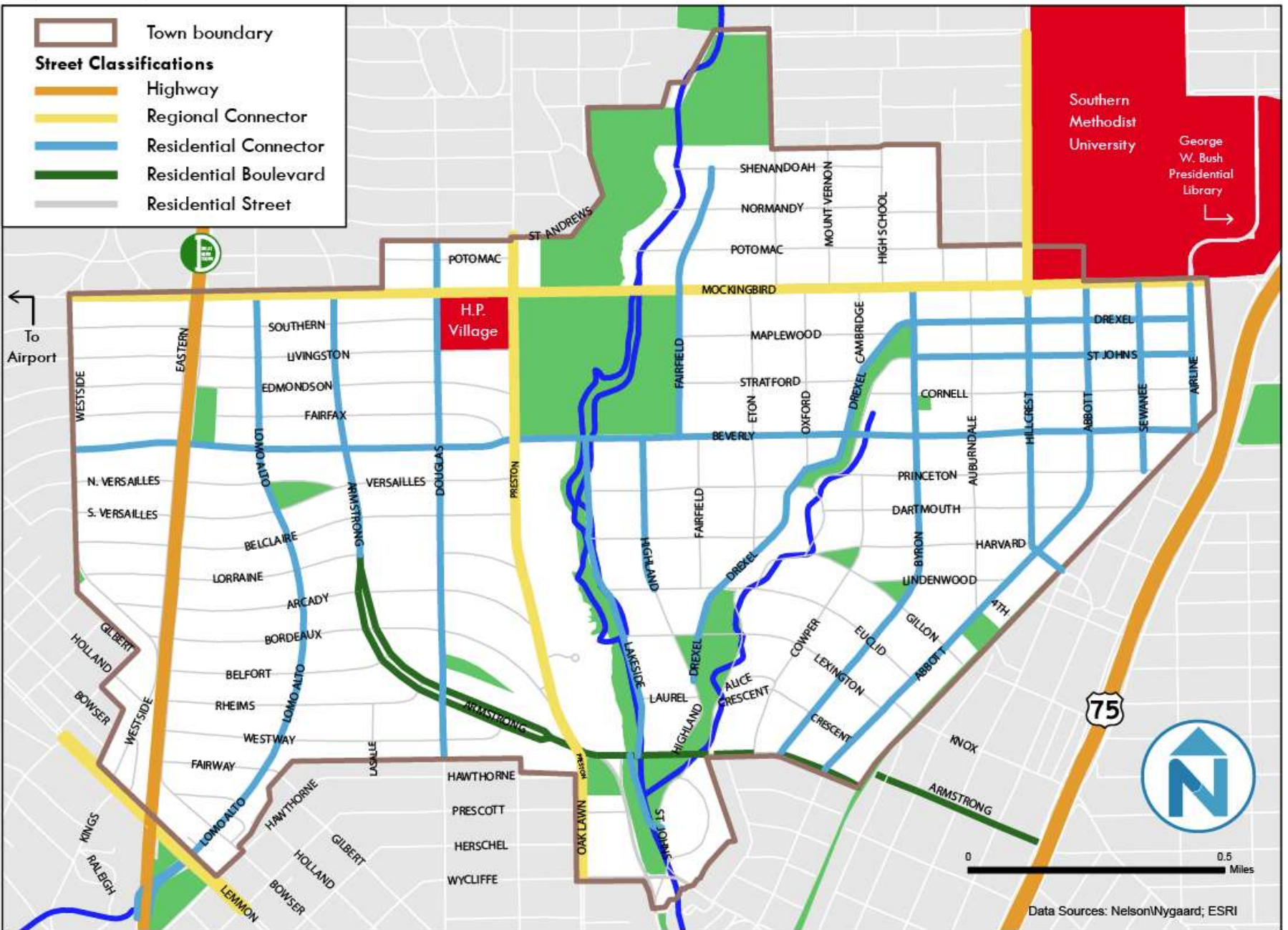


RESIDENT  
PARKING ONLY  
PERMIT REQUIRED  
MON THRU FRI  
8am To 5pm  
←→  
CITY ORD 11/05



# Highland Park Proposed Street Classifications

-  Town boundary
- Street Classifications**
-  Highway
-  Regional Connector
-  Residential Connector
-  Residential Boulevard
-  Residential Street





# GLADSTONE, MO



CITY OF GLADSTONE VILLAGE CENTER TRANSPORTATION STUDY

## Living Street

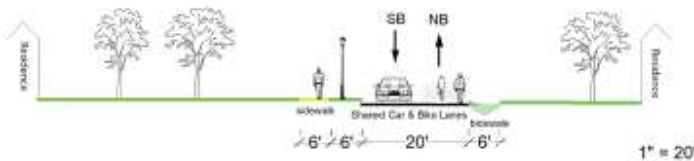
### CHARACTERISTICS

Many of Gladstone's streets, especially in the eastern half of the Village Center, are small, quiet roads with residential uses set back from the road edge. These Living Streets generally range from 18' - 30' wide.

### Example

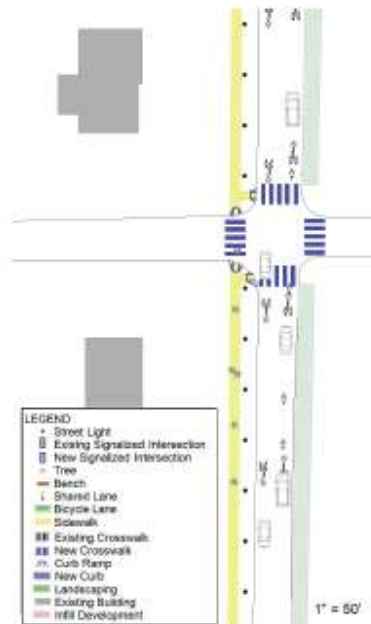
Harrison Street

### CROSS SECTION AND PLAN VIEW OF A LIVING STREET (PROPOSED)



### Lighting

Provide lighting on Living Streets similar to the style seen on Gladstone's Avenues, such as NE 70th Street, to make walking feel safe and secure.



LEGEND

- Street Light
- Existing Signalized Intersection
- New Signalized Intersection
- Tree
- Bench
- Shared Lane
- Bicycle Lane
- Sidewalk
- Existing Crosswalk
- New Crosswalk
- Curb Ramp
- New Curb
- Landscaping
- Existing Building
- Infill Development

### SIDEWALK OR BIOSWALE?

Most Living Streets in the Village Center do not have sidewalks. On low speed, low volume streets, some people may feel comfortable walking on a street without a sidewalk. On such streets, embrace the community vision of environmental sustainability by creating bioswales. The decision to build sidewalks or bioswales should be left up to the community.

### Examples



Diagram of a bioswale



Living Streets do not always require sidewalks to make walking comfortable



Bioswales line a quiet residential street to increase environmental sustainability



The community should decide whether sidewalks are needed

### Example Dimensions for Living Street

	MINIMUM	OPTIMAL	MAXIMUM
Edge	0.5'	0.5	1'
Furnishing	0.5'	Depends on context	8'
Through	6'	Community Decision	8'
Frontage	0	Depends on context	3'
Bike Lane	0'	0'	6'
Curb Lane	9'	10'	11'
Inner Lane	0	0	0
Median	0	0	6'
Total (one side)	16'	Varies	43'



# GLADSTONE, MO



CITY OF GLADSTONE VILLAGE CENTER TRANSPORTATION STUDY

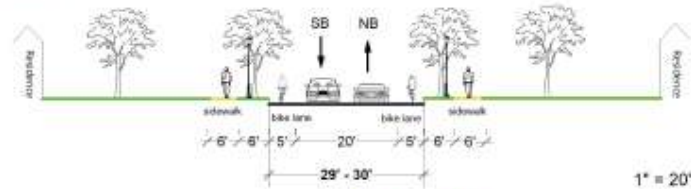
## Living Avenue

### CHARACTERISTICS

Living Avenues consist of primarily residential land uses surrounding a medium-sized road. Gladstone's Living Avenues range from 27' - 38' from edge to edge with setbacks of 30' - 60'.

Example  
Troost Avenue

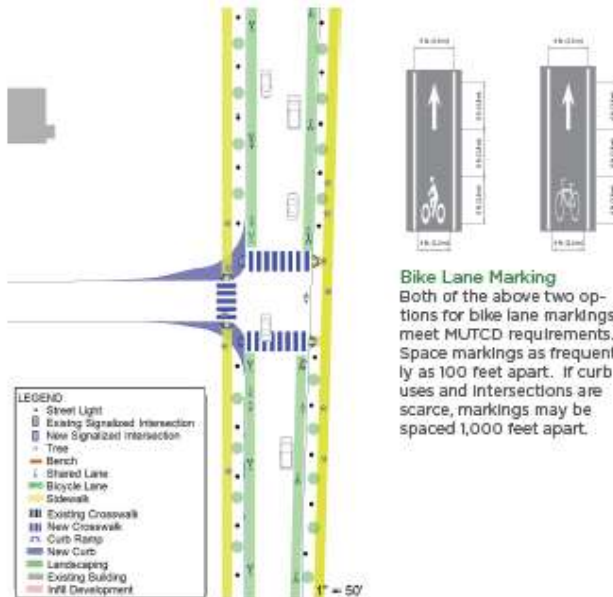
### CROSS SECTION AND PLAN VIEW OF A LIVING AVENUE (PROPOSED)



1" = 20'



Reduce turning radii  
Retrofit corners that allow wide turns with smaller radii.



1" = 50'

### Bike Lane Marking

Both of the above two options for bike lane markings meet MUTCD requirements. Space markings as frequently as 100 feet apart. If curb uses and intersections are scarce, markings may be spaced 1,000 feet apart.

The following images show how a bicycle lane on a Living Avenue might look.

### Examples



Bicycle lane striped against roadway edge



Bicycle lane paired with a sidewalk

The following chart gives an example of how the walking, streetscape, cycling, and driving elements of the street can range in sizes. For example, the furnishing zone on a low-speed avenue can range from 1' with just enough room for street signs, up to an 8' space with landscaping.

### Example Dimensions for Living Avenue

	MINIMUM	OPTIMAL	MAXIMUM
Edge	0.5'	0.5	1
Furnishing	1'	4'	8'
Through	6'	6'	8'
Frontage	0	Depends on context	4'
Bike Lane	5'	6'	8'
Curb Lane	9'	10'	11'
Inner Lane	0	0	0
Median	0	0	6'
Total (one side)	21.5'	26.5'	46'



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SMU









# MOCKINGBIRD STATION





# KATY TRAIL





# KATY TRAIL









# KATY TRAIL





# KATY TRAIL





# CORNER BAR & GRILL

Mckinney St 1836

POOL TABLES

JUKE BOX BEER BIG SCREEN

JOE  
75

ROAD WORK AHEAD





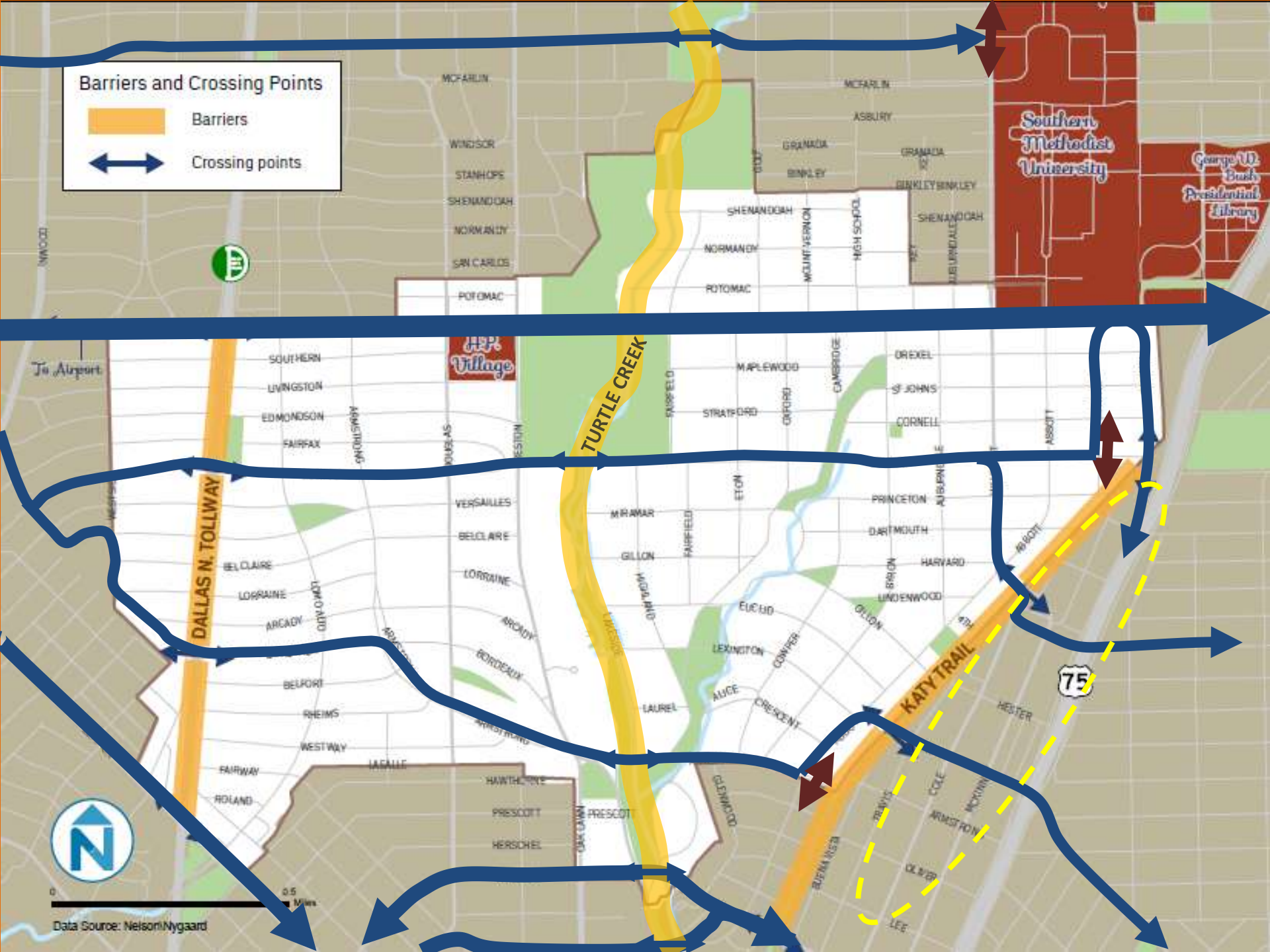
Barriers and Crossing Points



Barriers

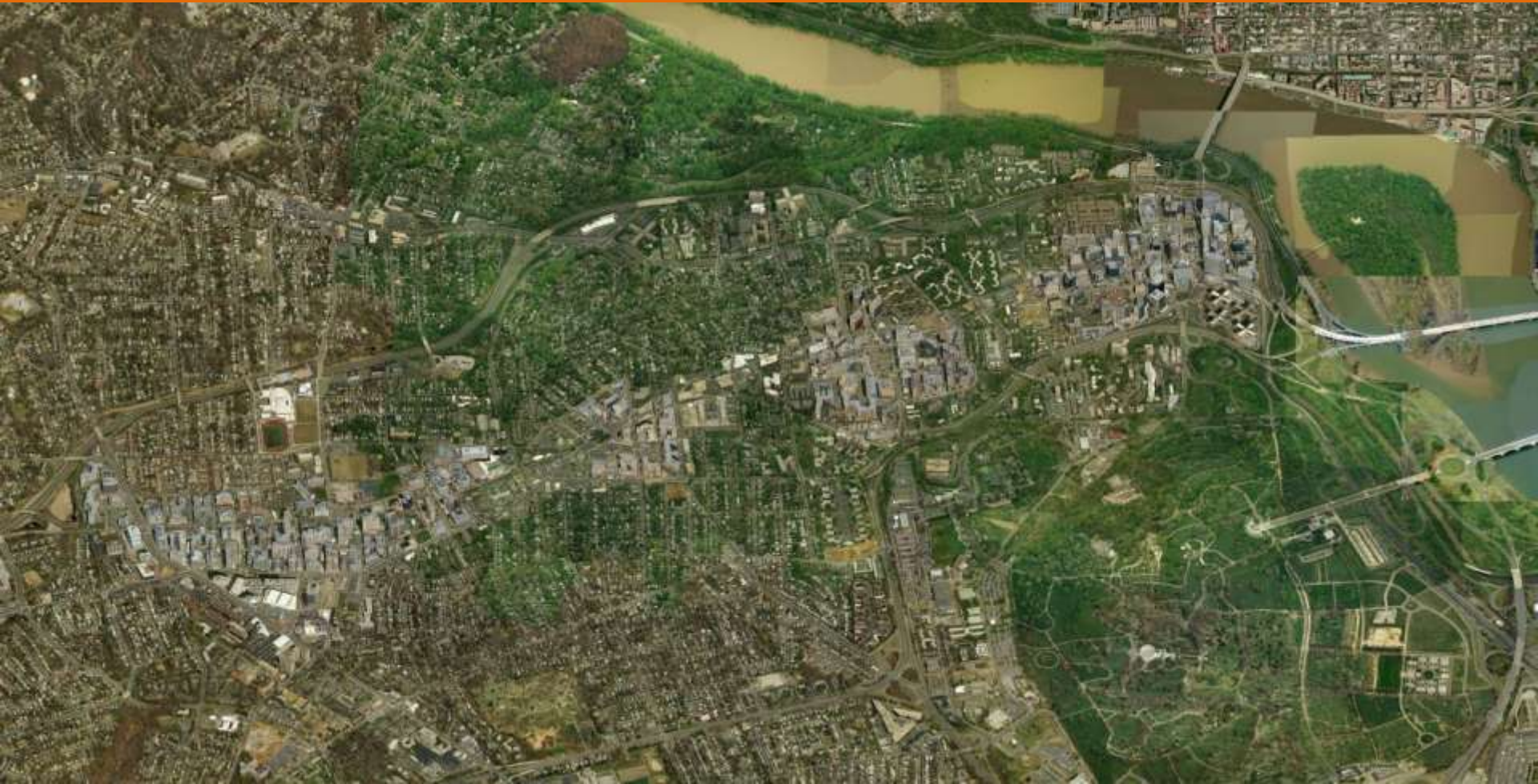


Crossing points





# ARLINGTON VA – ROSSLYN-BALLSTON CORRIDOR





# ARLINGTON VA – ROSSLYN-BALLSTON CORRIDOR





# SINGLE FAMILY HOMES IN ARLINGTON COUNTY



Credit: Arlington County Flickr



Credit: Flickr User Roger Wolls



# CLARENDON STATION



Credit: Flickr User Ron Cogswell



# ROSSLYN









# COURTHOUSE STATION ARLINGTON VA – ROSSLYN-BALLSTON CORRIDOR



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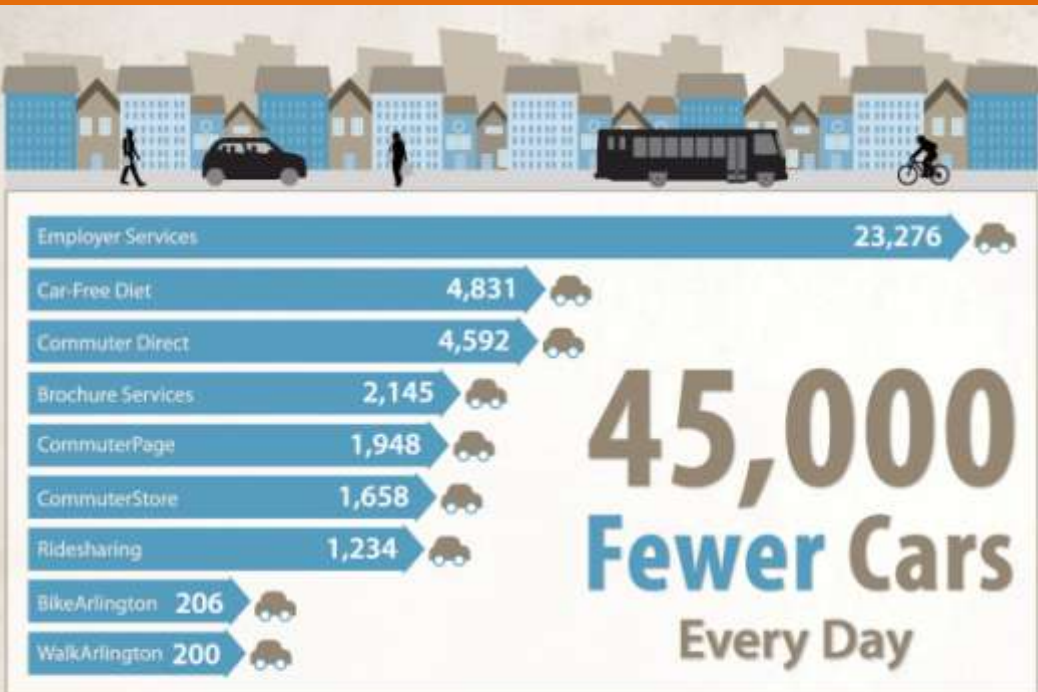


# HEIGHT BUFFER





# ARLINGTON COUNTY TDM



45,000 car trips are shifted each work day into other forms of transportation in Arlington, Virginia. The mobility-management programs of Arlington County Commuter Services work to relieve congestion and save energy, improve health and the environment, and boost economic prosperity and tourism revenue. Arlington's practices and policies can be translated as a game plan for anywhere else in the world.



<b>Customer Information, Retail and Operations (Commuter Store)</b>	Responsible for the distribution of information and sale of fare media to customers through retail outlets in Arlington (including the Commuter Stores and Mobile Commuter Store), and online.
<b>Sales, Outreach, and Research (Arlington Transportation Partners, Walk Arlington, Bike Arlington, The Mobility Lab, Research and Administration)</b>	Through ATP, ACCS provides employer outreach, research on the return on investment for Arlington's investment, and services to increase bicycling and walking in Arlington. The Mobility Lab was established in 2010 to provide a forum for the development of innovative TDM technologies and research, with a focus on external partnerships.
<b>Communications</b>	The Communications and Marketing team manages the development of ACCS general marketing campaigns.
<b>Web Development</b>	Web Development is responsible for maintaining and improving the ACCS family of websites.
<b>TDM for Site Plan Development</b>	ACCS is responsible for managing the implementation and enforcement of Arlington County's Site Plan TDM requirements.
<b>GoDCGo</b>	GoDCGo is the District of Columbia's TDM program, managed by Arlington through ATP.

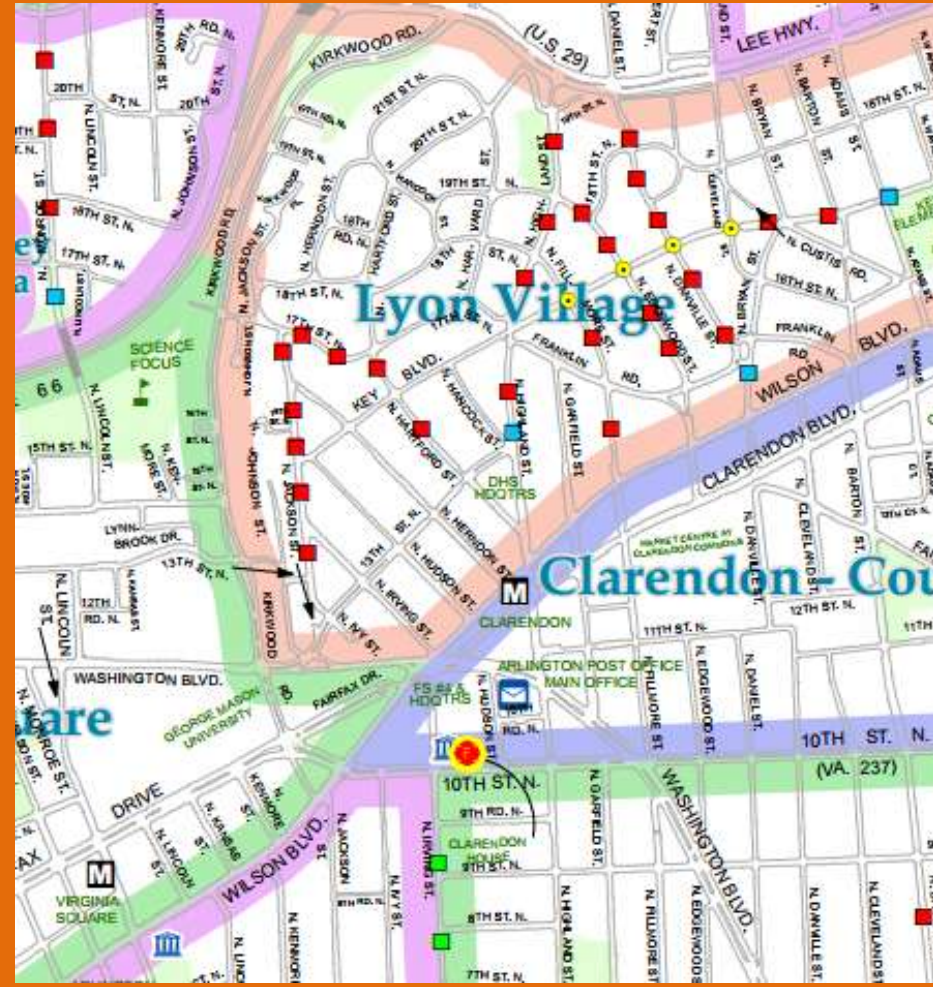
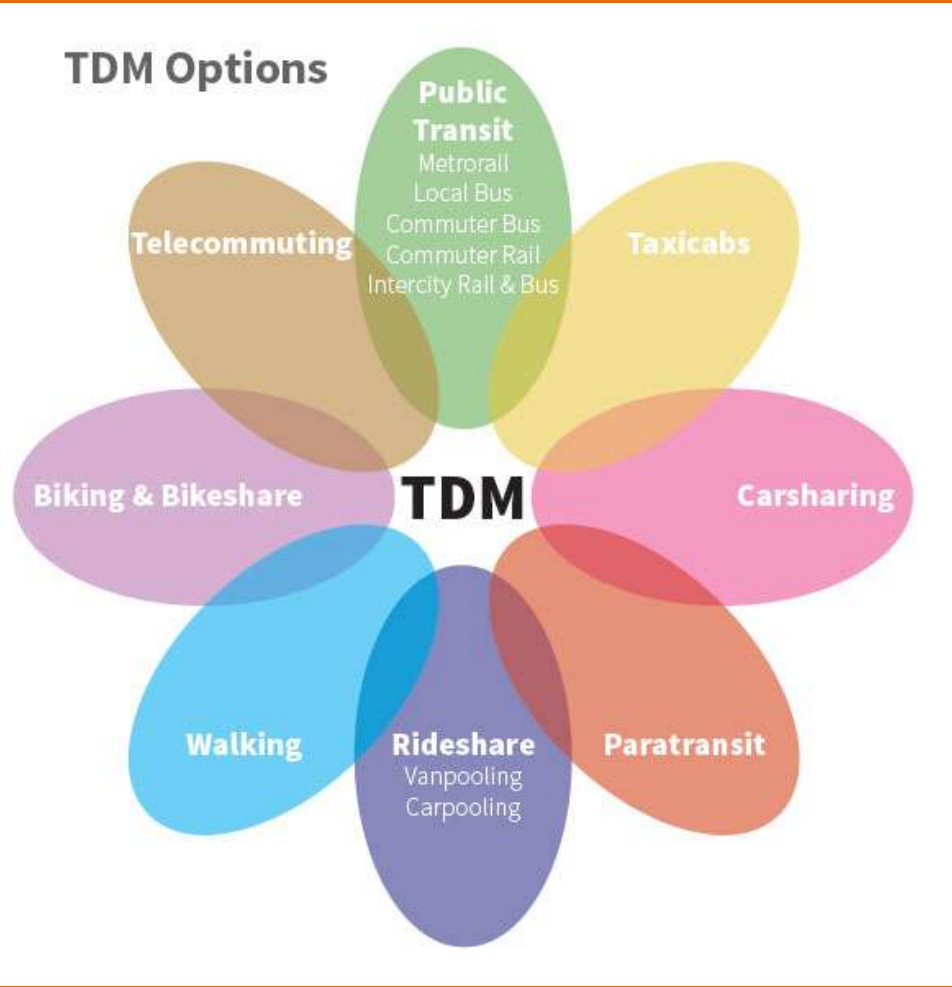
Credit: MobilityLab.org





# TDM AND TRAFFIC CALMING PROJECTS

Incentives and Promotion of Other Mode Options \$5M in Traffic Calming in County since 1999



Credit: MobilityLab.org

Credit: Arlington County



# KEY BOULEVARD





# BIKE BOULEVARDS





# SQUARE FOOTAGE AND TRAFFIC

**Table 1**

Projects Completed 2002-2009	Office (sq.ft.)	% of Total	Retail (sq.ft.)	% of Total	Residential (units)	% of Total
Rosslyn	967,871	21%	32,333	5%	1,691	22%
Court House	247,995	6%	53,414	8%	1,426	19%
Clarendon	449,565	10%	383,230	58%	2,174	28%
Virginia Square	835,716	18%	70,772	11%	1,216	16%
Ballston	2,026,558	45%	120,454	18%	1,116	15%
<b>Totals</b>	<b>4,527,705</b>	<b>100%</b>	<b>660,203</b>	<b>100%</b>	<b>7,623</b>	<b>100%</b>

Source: Arlington County Department of Community Planning, Housing and Development

**Table 2: Percentage Change in Traffic, 1996-2006**

Clarendon Blvd., Clarendon	George Mason Drive	Glebe Road, Ballston	Lee Highway, Rosslyn	Washington Blvd. Virginia Square	Wilson Blvd., Clarendon
4%	16%	1%	-14%	-12%	-16%

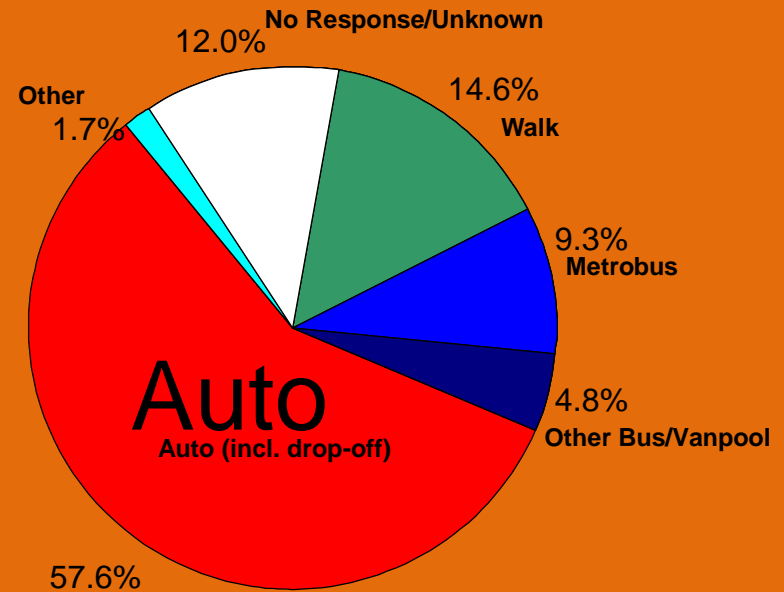
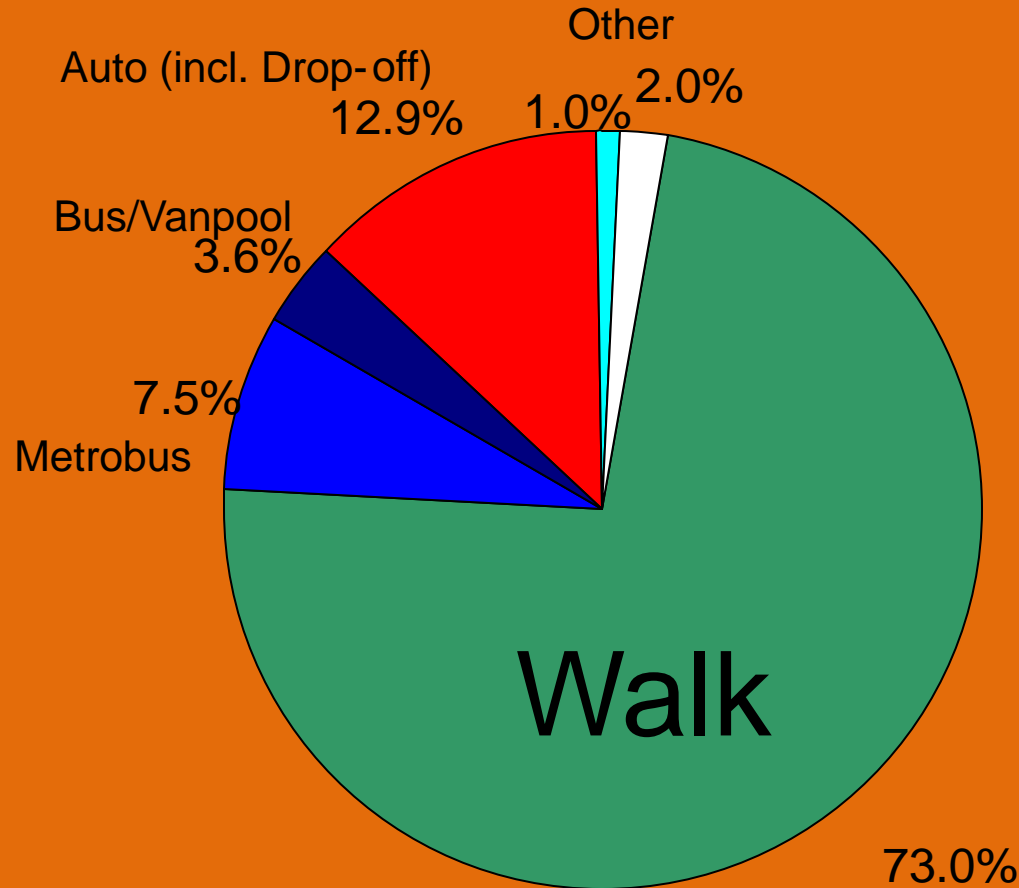
Source: Arlington County Department of Community Planning, Housing and Development, Planning Division



# ARLINGTON CORRIDOR VS. FAIRFAX COUNTY

39,500 daily boardings

29,250 daily boardings



Source: WMATA May 2002 weekday Metrorail ridership and access data



# DEMOGRAPHICS & PROPERTY VALUES

	Arlington County, VA	Rosslyn-Ballston Station Areas				
		Rosslyn	Court House	Clarendon	Virginia Square	Ballston
2010 Population (Estimated)	212,472	2,563	5,682	3,345	3,752	7,711
Percentage 25-44 Years of Age	36.4	51.4	54.3	45.3	42.6	33.4
Median Age	38.8	39.52	35	38.5	48.5	36.7
Percent Holding BA or Higher Degree	68.7	86.3	78.3	86.6	73	87.5
Median Household Income	\$93,724	\$79,359	\$96,725	\$114,396	\$105,642	\$101,086
Percentage Housing Units Built 1980 or Later	33.4	46.8	71.9	71.1	76.4	85.4
Median Year Structure Built	1964	1974	1992	1999	2001	1993
Median Value Owner Occupied Housing	\$484,887	\$493,182	\$376,250	\$677,591	\$389,594	\$434,897

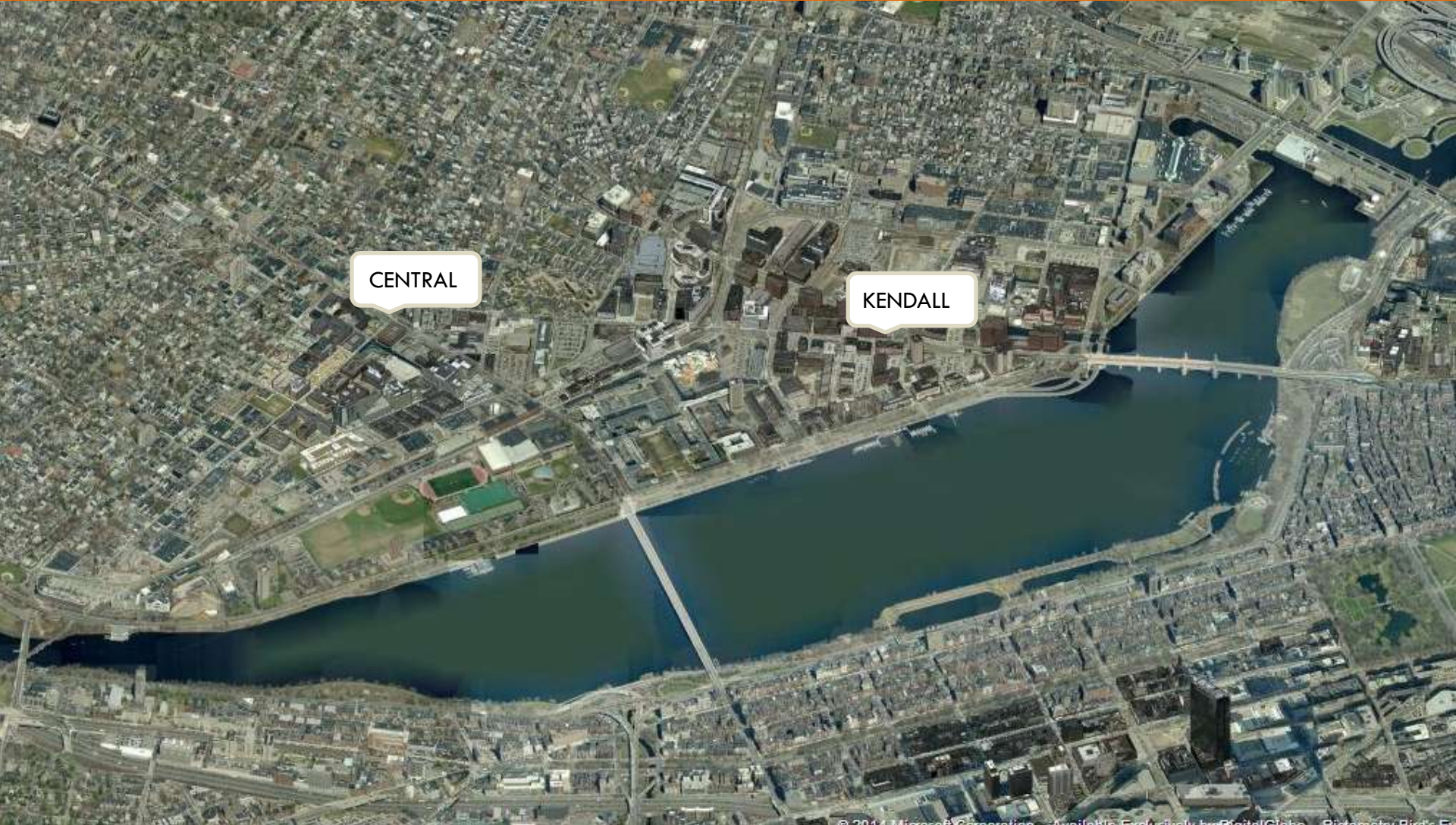


# ARLINGTON COUNTY STATS

- Growth Since Metro Extension:
  - 24.3% Population Increase in County
  - 107% Population Increase in Quarter Mile Station Areas
  - 6 Million Square Feet of Office Space
  - 1 Million Square Feet of Retail
  - 11,00 Housing Units
- Traffic and Value Impact
  - Property taxes have remained low compared to the DC Area
  - More local job opportunities and job density
  - Traffic has dropped 10-25%  
(Aside from 11-14% Increase on Major Arterials)
  - TDM Takes as many as 45,000 Cars off the road everyday

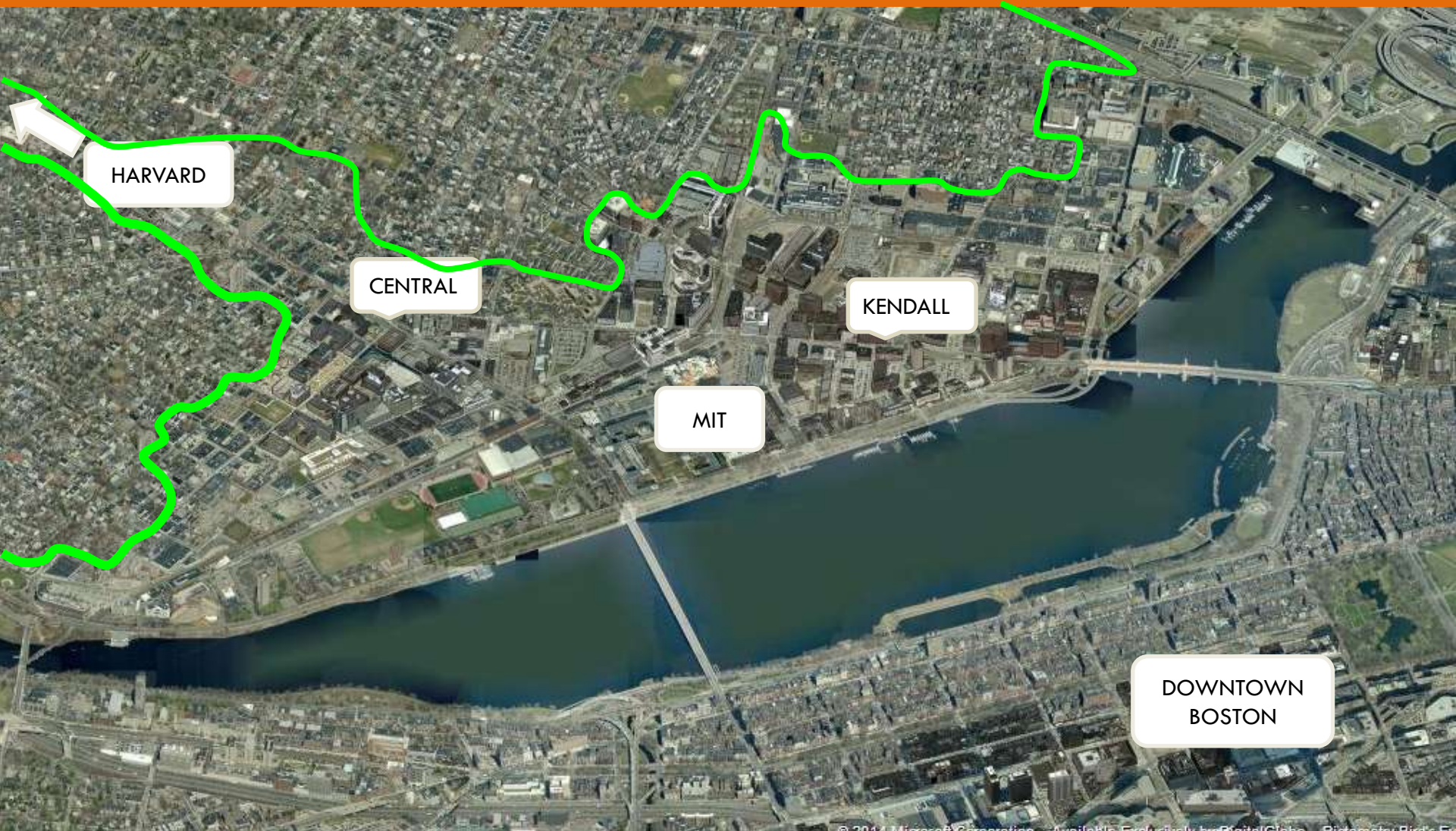


# CAMBRIDGE MA, CENTRAL-KENDALL





# CENTRAL-KENDALL



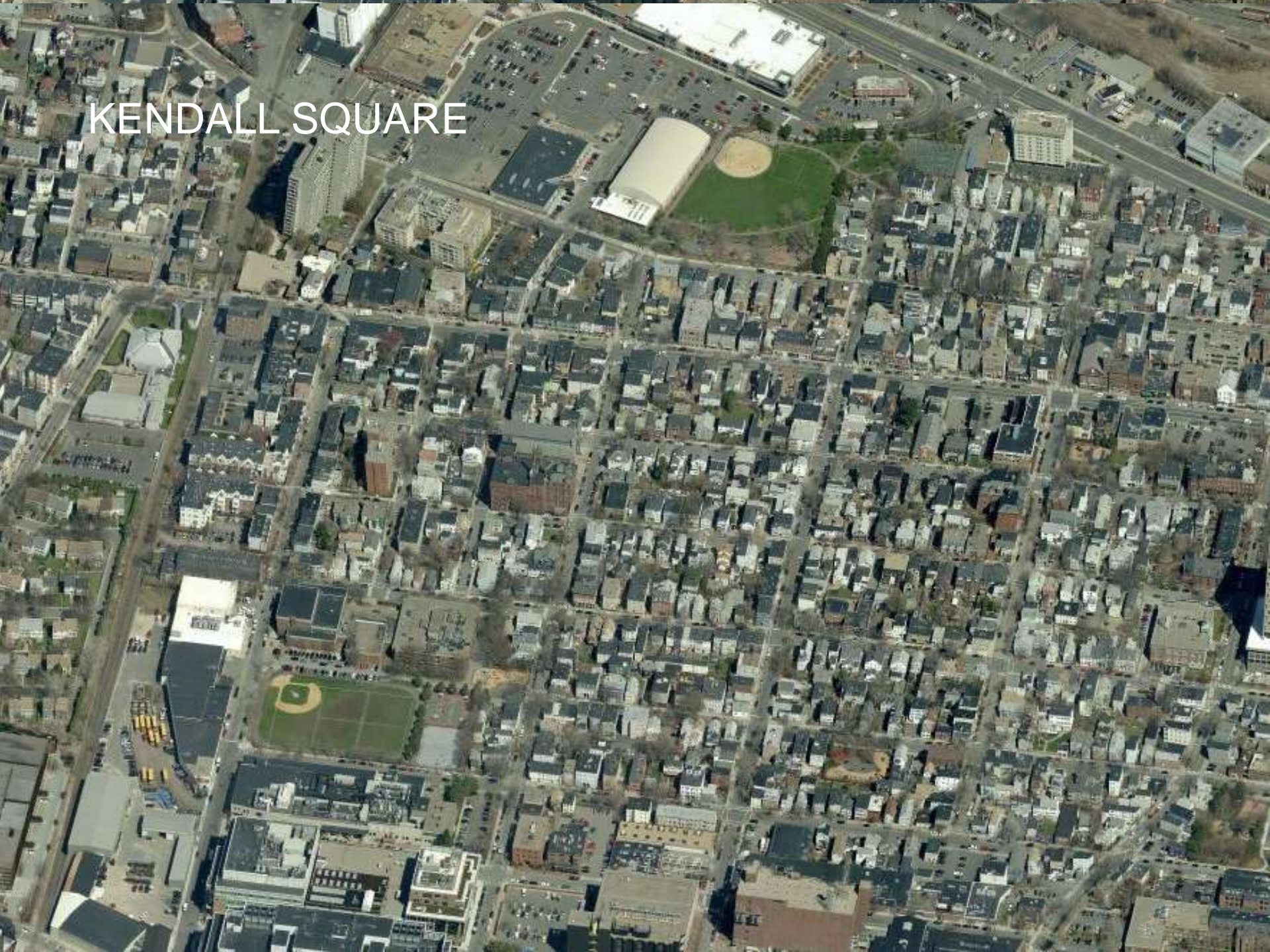


# CENTRAL SQUARE





# KENDALL SQUARE





# FREEWAY REVOLT





# CENTRAL SQUARE





# KENDALL SQUARE





# CENTRAL-KENDALL

More Tech and Biotech/Sq Mile than Anywhere

## number of biotech + IT firms per square mile

Research Triangle Park, NC

1

Berkeley Area, CA

2

Austin, TX

8

South San Francisco, CA

11

Harvard Sq & Longwood Area, MA

21

Palo Alto, CA

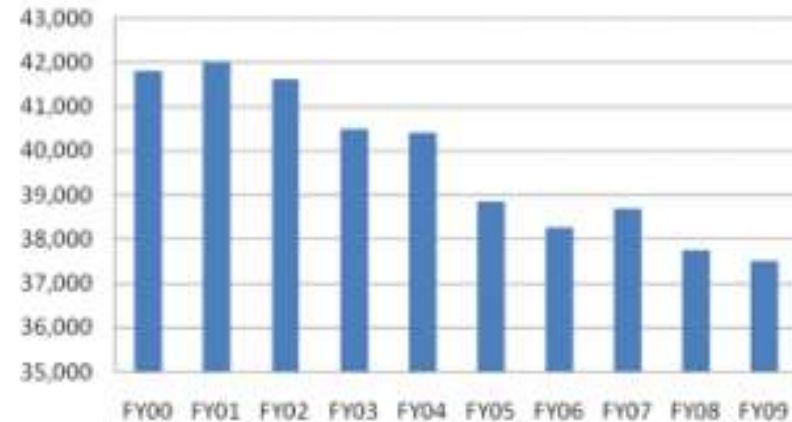
36

Kendall Sq, MA

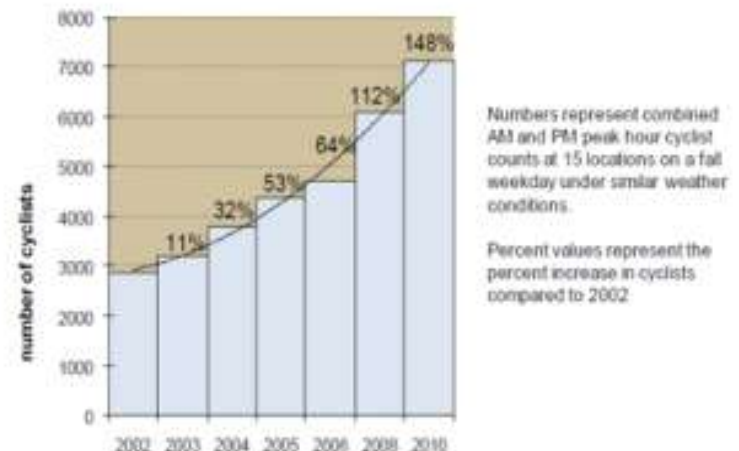
163

Car Ownership Down, Bike Riding Up

## Resident Parking Permits

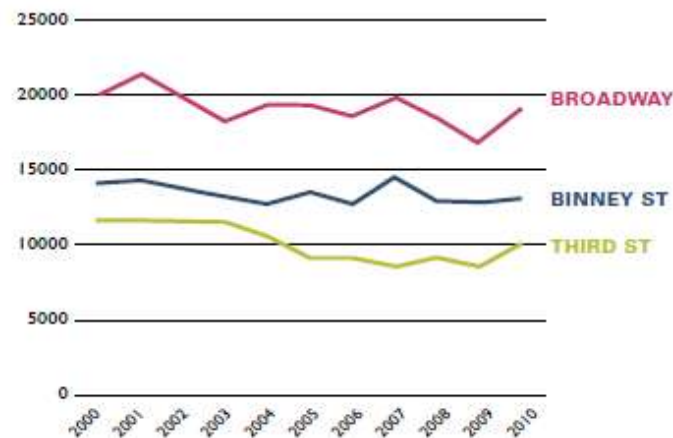
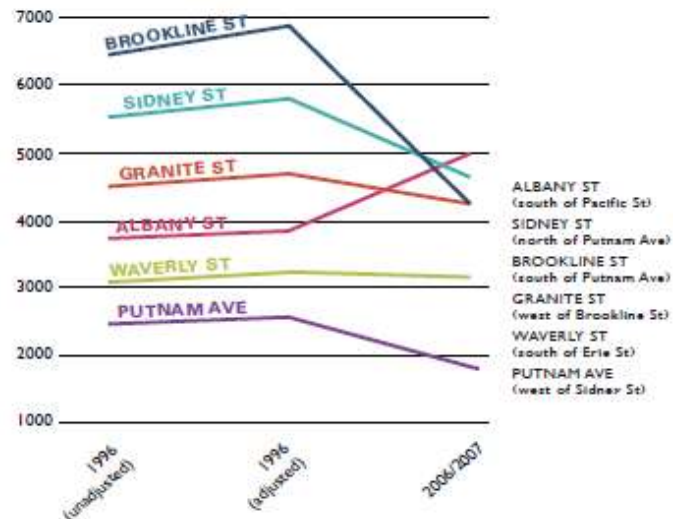


## Cambridge Bicycle Counts 2002-2010





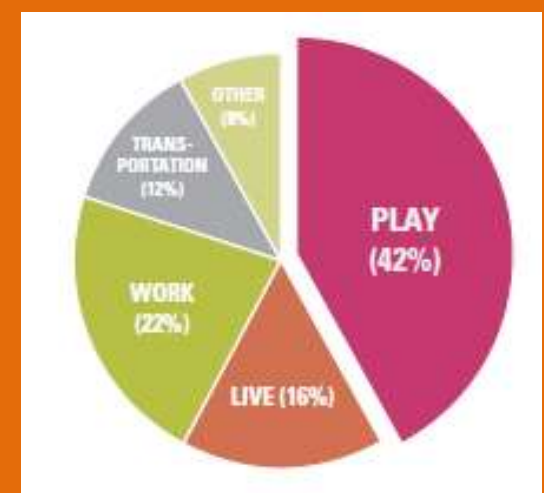
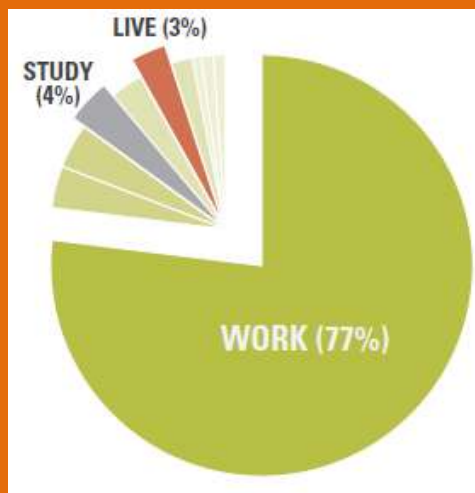
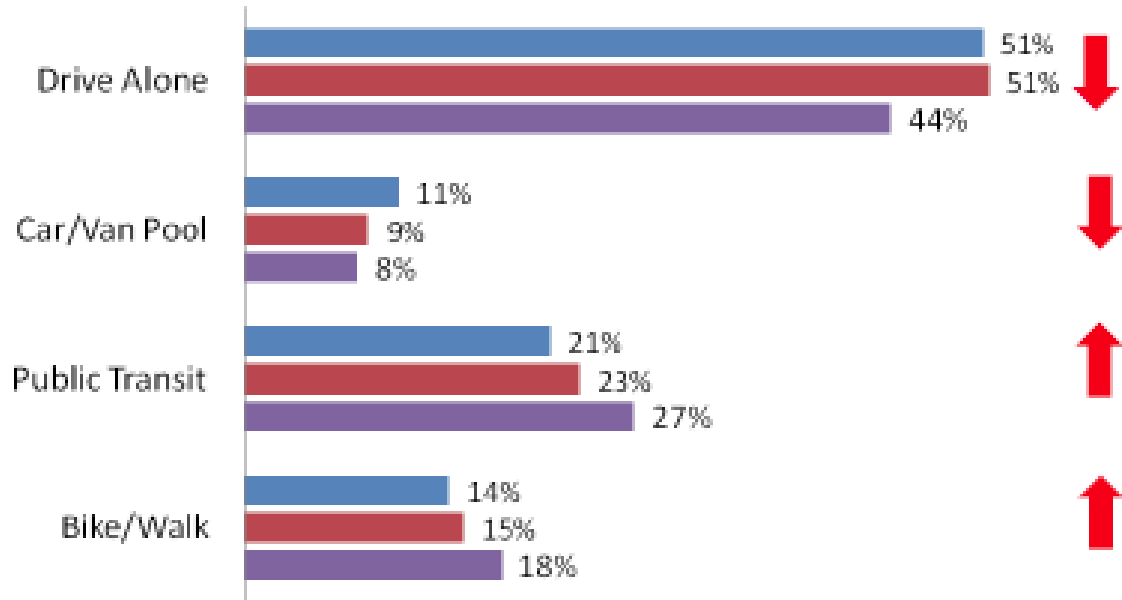
## Central Square & Kendall Square Average Daily Traffic Trend Lines



(top) Central Square Average Daily Traffic Trend Lines  
Source: City of Cambridge. The "adjusted" 1996 figures refer to adjustments made to account for seasonal fluctuations in traffic. The adjusted figures are higher to eliminate winter weather and school vacation schedules.  
(bottom) Kendall Square Average Daily Traffic Trend Lines  
Source: Cambridge Redevelopment Authority

## Cambridge Workers Means of Commute to Work

■ 1990 ■ 2000 ■ 2010





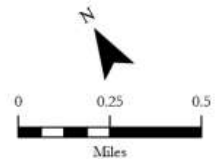
# Traffic Calming Locations of Projects

Cambridge, Massachusetts

Community Development Department  
February 2013



- Raised Crosswalks or Intersections**
  - Built
  - Upcoming
- Traffic Calming along Roadways**
  - Built
  - - - Upcoming
- 🏫 Public School Locations



Map prepared by Brendan Monroe on February 21, 2013. CDD GIS C:\Projects\Env. Trans\Traffic Calming\Traffic Calming\Projects.mxd



# CENTRAL-KENDALL

1

140' with special permit  
use over 80' limited to residential

140' with special permit  
use over 80' limited to residential

80' with  
special permit

15' step-back  
at 65'

80' with  
special permit

55' as of right

55' as of right

20' min.  
side yard

35'

80'

45'

35'

Auburn St

Franklin St

Green St

Mass Ave

Ishop Allen Dr

C-1 Zone

C-3 Zone

BB Zone

BB Zone

BA Zone

B & C-1  
Zones

Central Square Overlay District



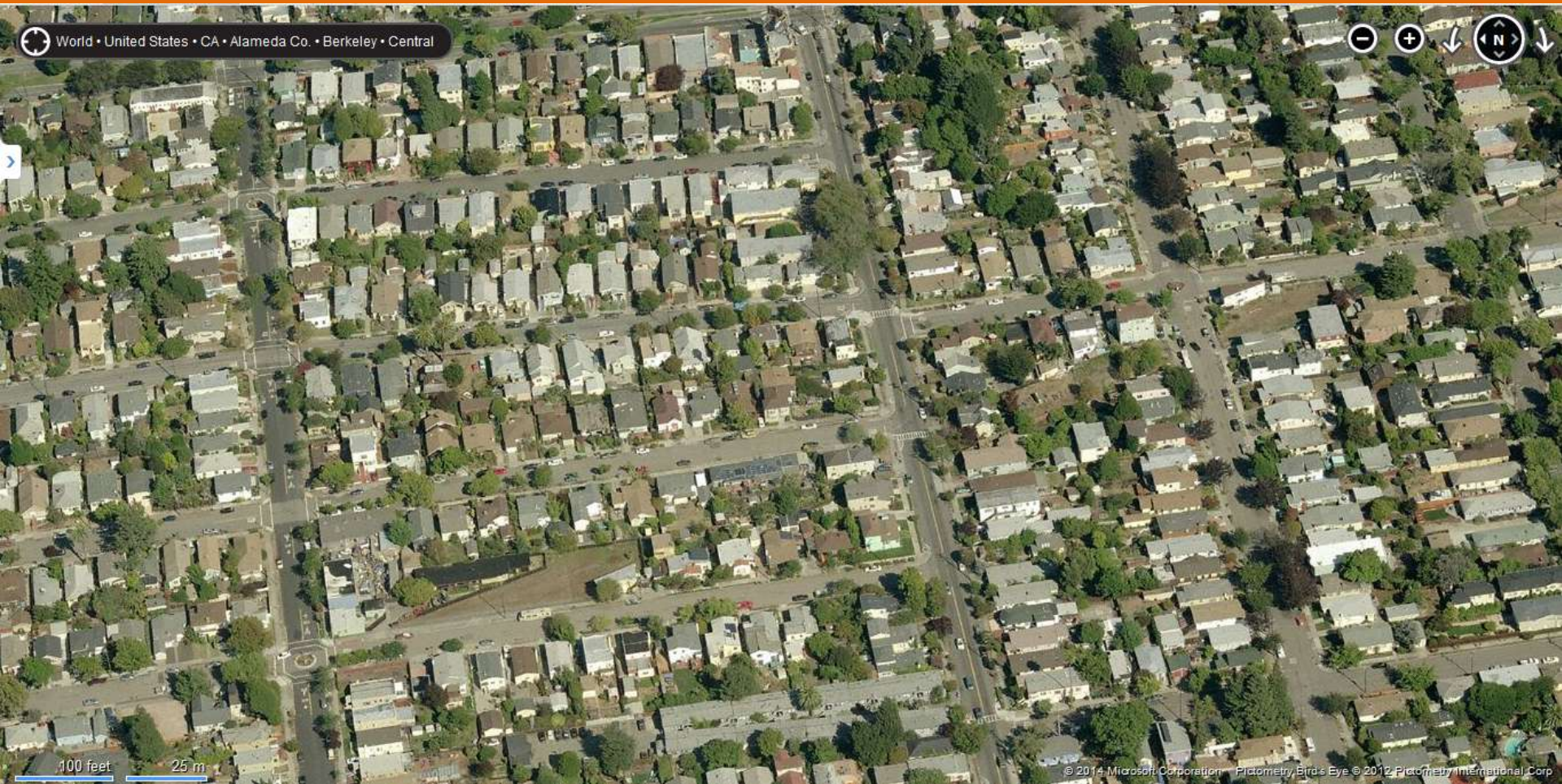


# CENTRAL-KENDALL STATS

- Recent Growth
  - IT and Biotech Boom has brought 40% Increase in Commercial and Institutional Space (4.6 Million Square Feet of Development)
  - Density raised to 80-100 Feet, around neighborhoods with 45' Height Limit
- Traffic and Value Impact
  - Vehicle counts down by as much as 14%
  - Vehicle speeds in the 85<sup>th</sup> percentile down by as much as 5-20%
  - Car ownership down (10% Decrease in Residential Permits), biking counts up
  - 50% of Homes within quarter mile of subway stations don't own cars



# BERKELEY, CA



World • United States • CA • Alameda Co. • Berkeley • Central

100 feet 25 m

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BERKELEY, CA





# BERKELEY, CA





BERKELEY CA





BERKELEY, CA





BERKELEY, CA





VANCOUVER, BC

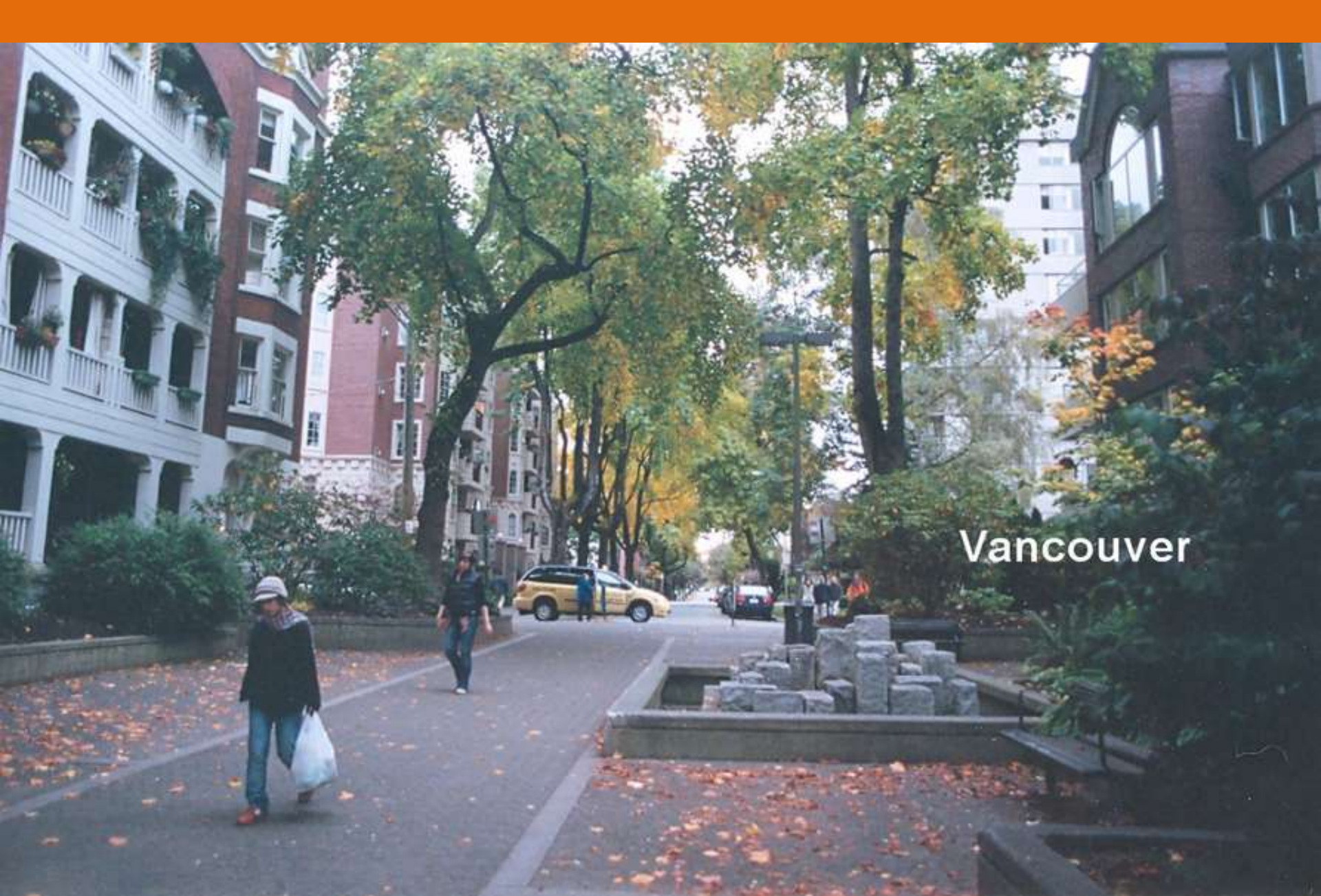


# VANCOUVER, BC



Credit: Flickr User Payton Chung

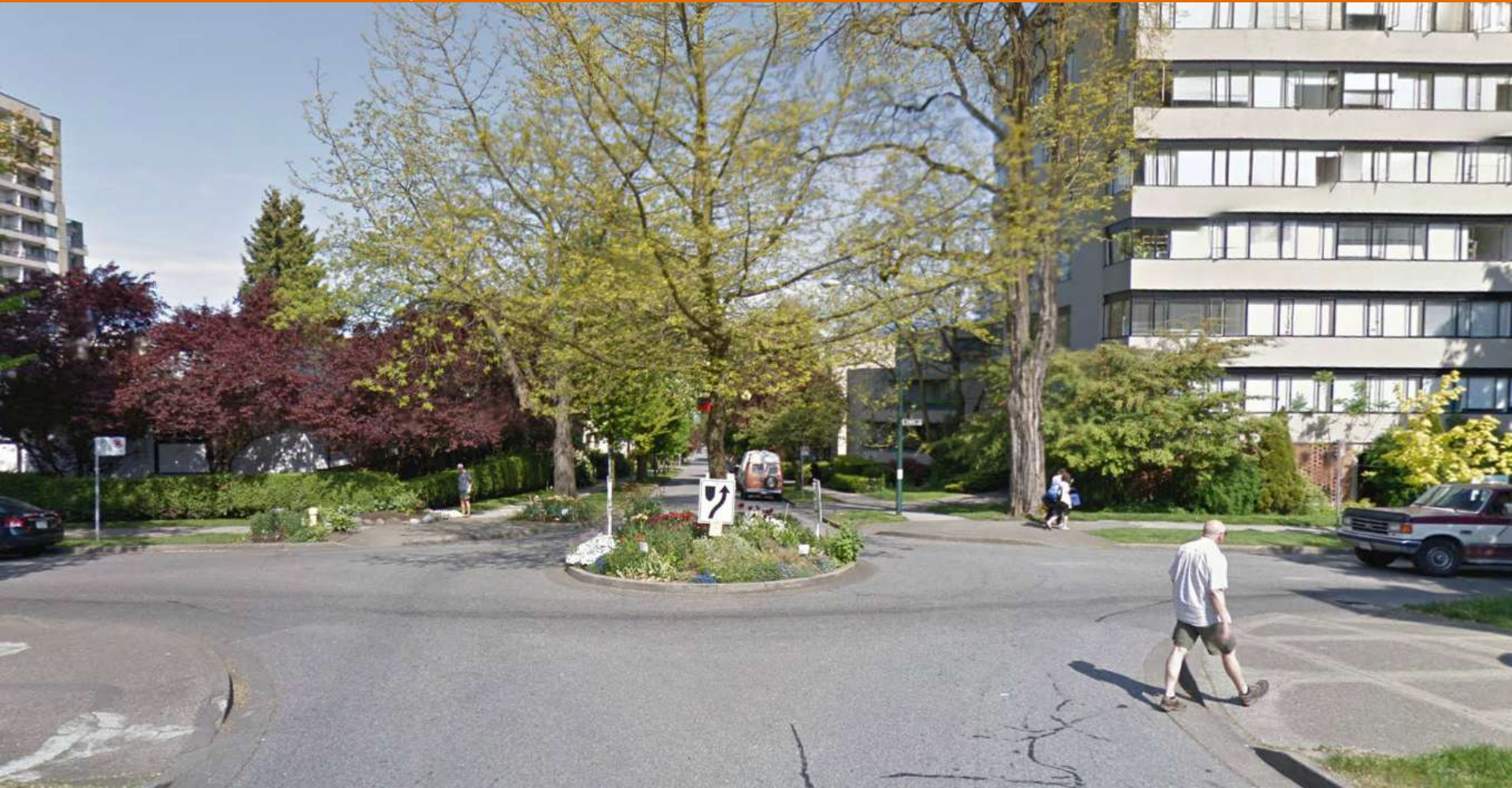




# Vancouver



# VANCOUVER, BC



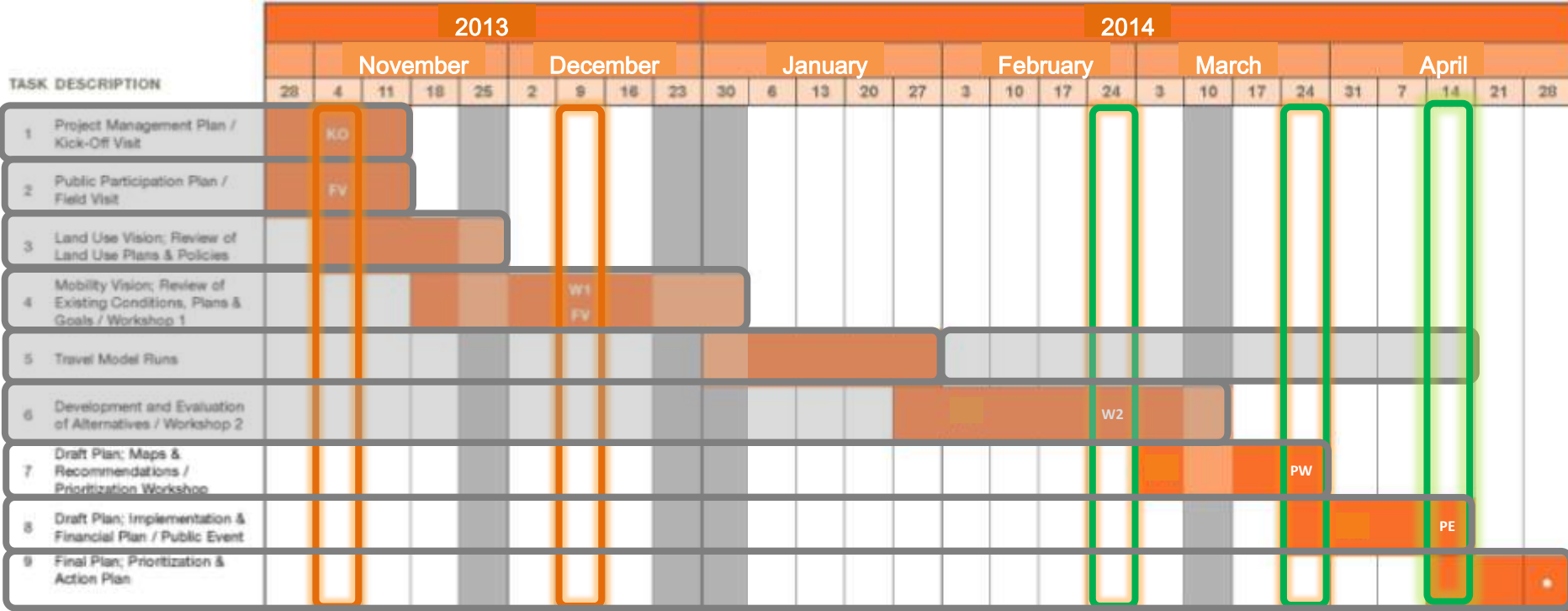


# TONIGHT'S AGENDA

1. *Schedule recap and study overview*
2. *Survey results & neighborhood concerns*
3. *Existing conditions summary*
4. *Focus on neighborhood impacts*
5. *Focus on town streets/corridors*
6. *Focus on town-wide strategies beyond our borders*
7. Q&A
8. Design session



# PROJECT SCHEDULE



- KO Kickoff meeting / listening sessions
- FV Field visit
- W1 Workshop 1
- W2 Workshop 2
- PW Prioritization workshop
- PE Public event
- \* Final report
- School district vacation weeks





# TOWN-WIDE TRAFFIC STUDY

WORKSHOP 2: DEVELOPING ALTERNATIVES

TOWN OF HIGHLAND PARK  
2/24/14