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# **Vehicle Miles Traveled**

# File # 13815 Enacted 8/5/2009

AMENDED THIRD SUBSTITUTE - Stating that the policy of the City of Madison is to encourage or, where appropriate, require that seek policies and incremental changes to the built environment, as well major new policies and public works projects, shall that in the aggregate cause vehicle miles traveled (VMT) per capita to decrease by 25 percent, as compared with a 2005 baseline, by 2020 and that this goal shall be incorporated into the City's Comprehensive Plan allow citizens to minimize motor vehicle travel. To create an interagency staff team to present annual reports describing trends in traffic and mass transit volumes, including, to the extent possible, aggregate vehicle-miles traveled (VMT).

**Vehicle miles traveled (VMT)** is a measure used in transportation planning for a variety of purposes. It measures the amount of **travel** for all **vehicles** in a geographic area over a period of time, typically a one-year period. It is calculated as the sum of the number of **miles traveled** by each **vehicle**.

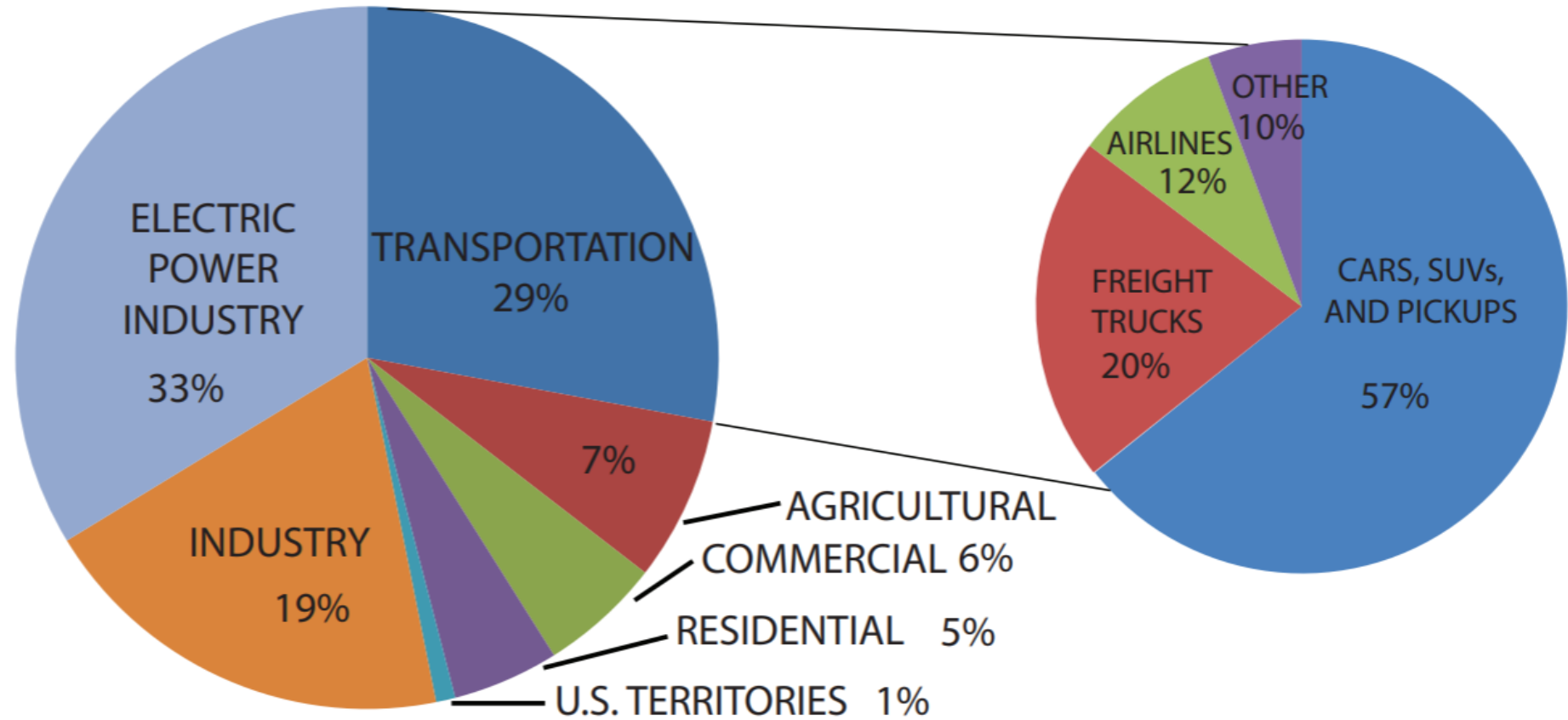
**Its a metric that reflects**

- **Congestion on streets and highways**
- **Fuel expended – greenhouse gas emissions**

# FIGURE 1

## Transportation Accounts For 29% of U.S. Greenhouse Gas Emissions.

Source:  
U.S. Environmental Protection Agency, *Inventory of Greenhouse Gas Emissions and Sinks: 1990-2007*, April 2009.



# Determined by fuel purchased, fleet average MPG, and collected volumes

[DOWNLOAD](#)

Observation:

Aug 2020: **2,934,617** (+ more)

Updated: Oct 19, 2020

Units:

Millions of Miles,  
Not Seasonally Adjusted

Frequency:

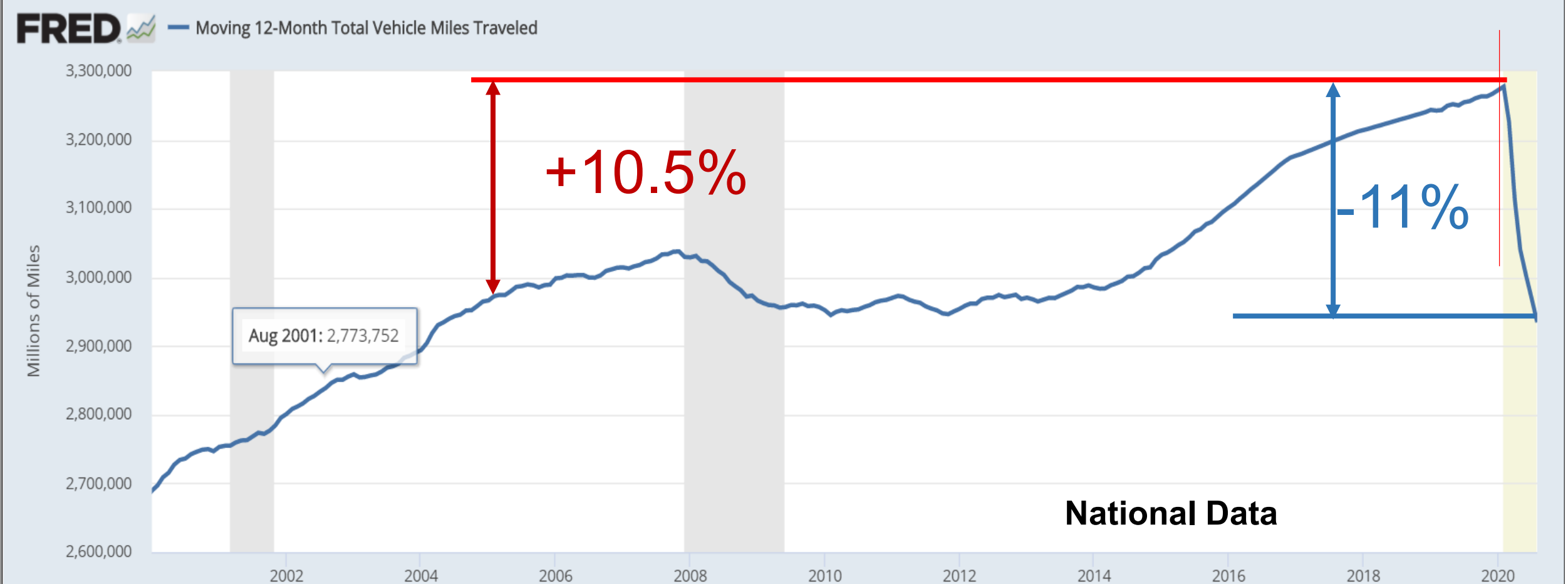
Monthly

1Y | 5Y | 10Y | Max

2000-01-01

to

2020-08-01

[EDIT GRAPH](#)

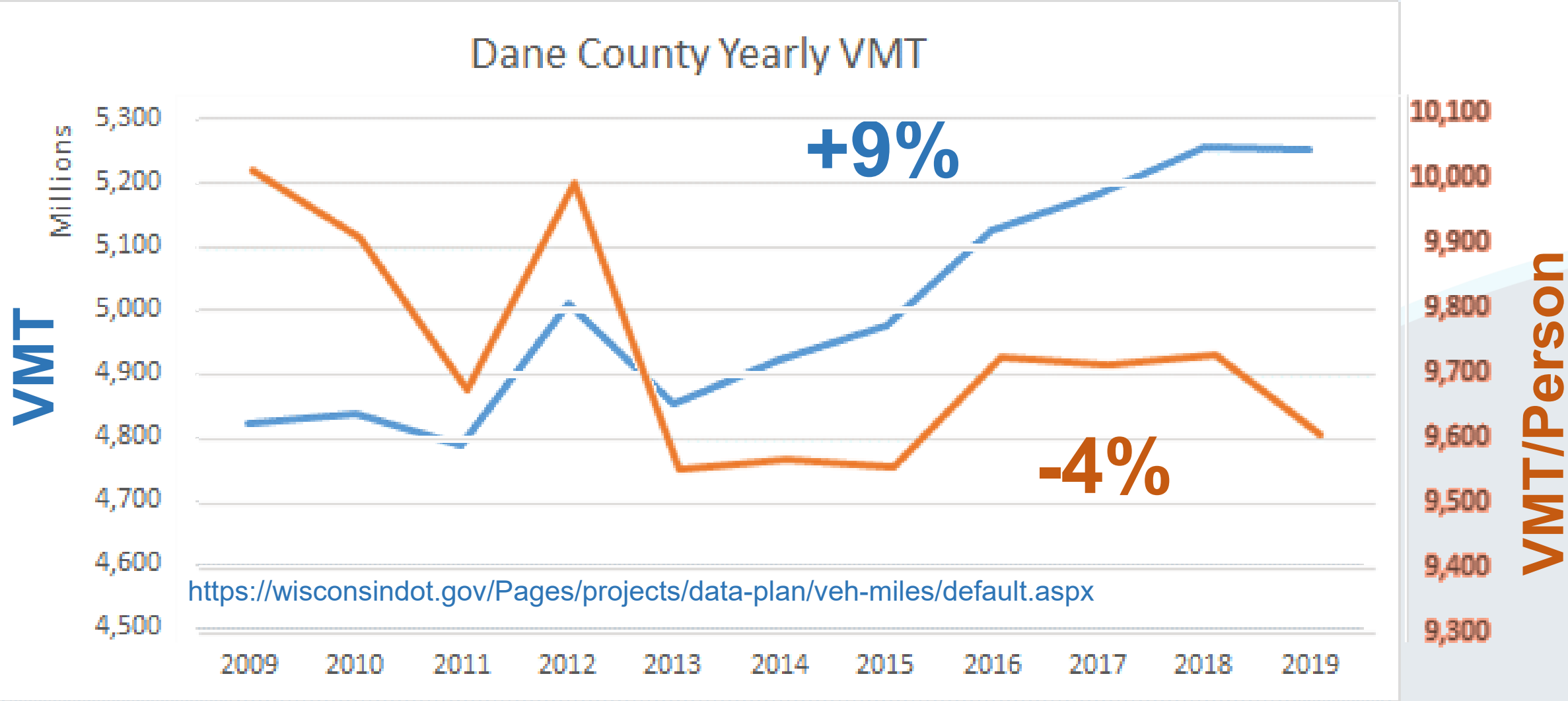
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# Ways to Measure VMT

- **County Level – performed by WisDOT**
- **City Level – performed by TE and GMMPO**
- **Traffic Volume – Surrogate**
- **Street Light**



# TE-GMMPO Efforts

City of Madison 2008 Average Weekday VMT (Arterials and Collectors)					
<b>FUNCT_CLAS</b>	<b>Functional_Class</b>	<b>Sum_Miles</b>	<b>Sum_VMT</b>	<b>Percent_Miles</b>	<b>Percent_VMT</b>
1	Principal Arterial	44.0	1,569,122	12.3%	32.5%
2	Primary Arterial	58.1	1,421,413	16.3%	29.4%
3	Standard Arterial	84.0	1,178,730	23.5%	24.4%
4	Collector	171.2	663,429	47.9%	13.7%
<b>TOTAL</b>		<b>357</b>	<b>4,832,693</b>		
Using Traffic Engineering 2008 Traffic Flow Data.					
WDOT (2008) Traffic Data used for Interstate and Beltline.					

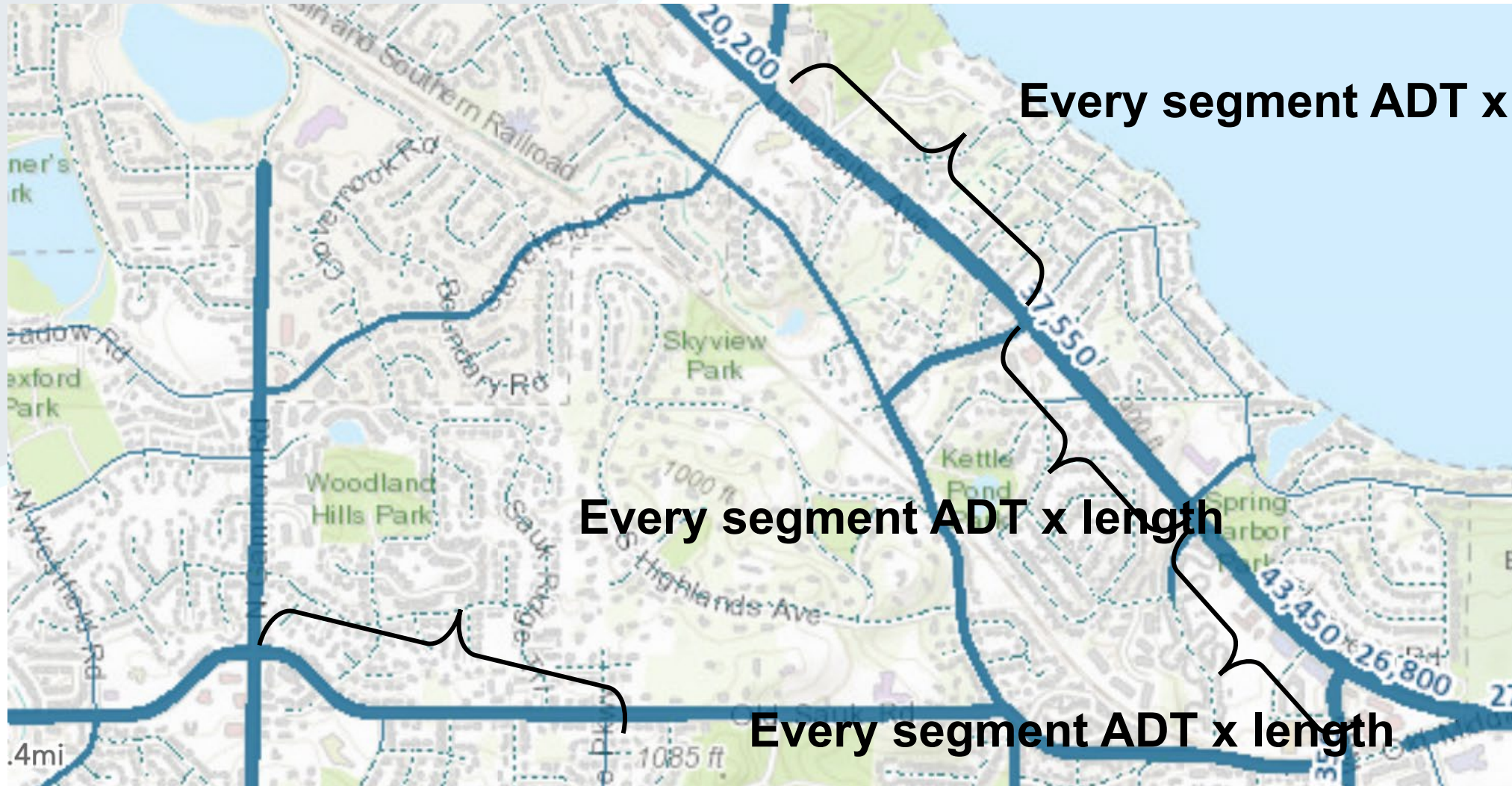
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## Labor Intensive – Counts only taken every 2- 3 years

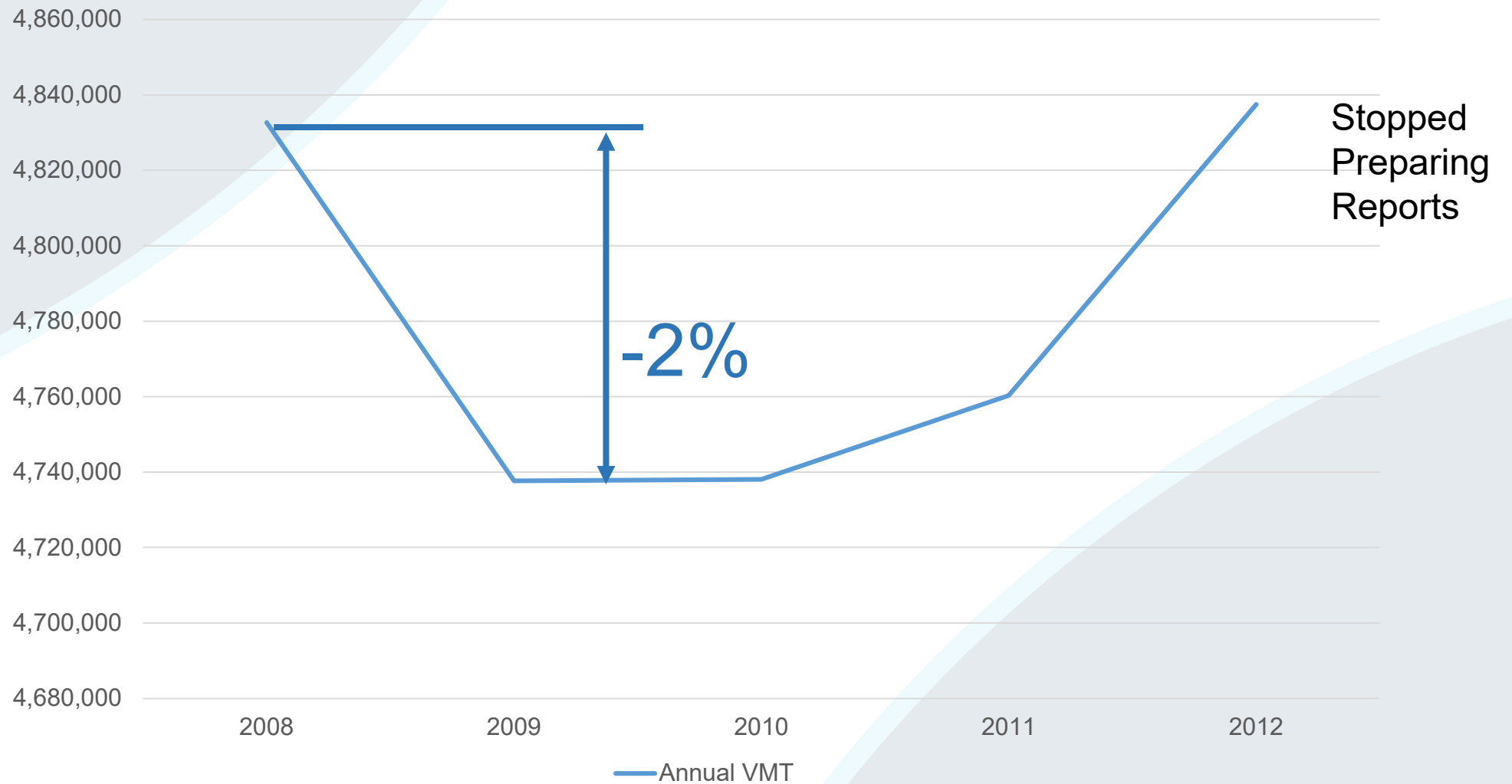


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## Madison Annual VMT



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# **2019**

# **TRAFFIC VOLUME**

# **REPORT**

DEPARTMENT OF TRANSPORTATION  
TRAFFIC ENGINEERING DIVISION  
Planning & Design Section

## **Traffic Volumes Surrogate**

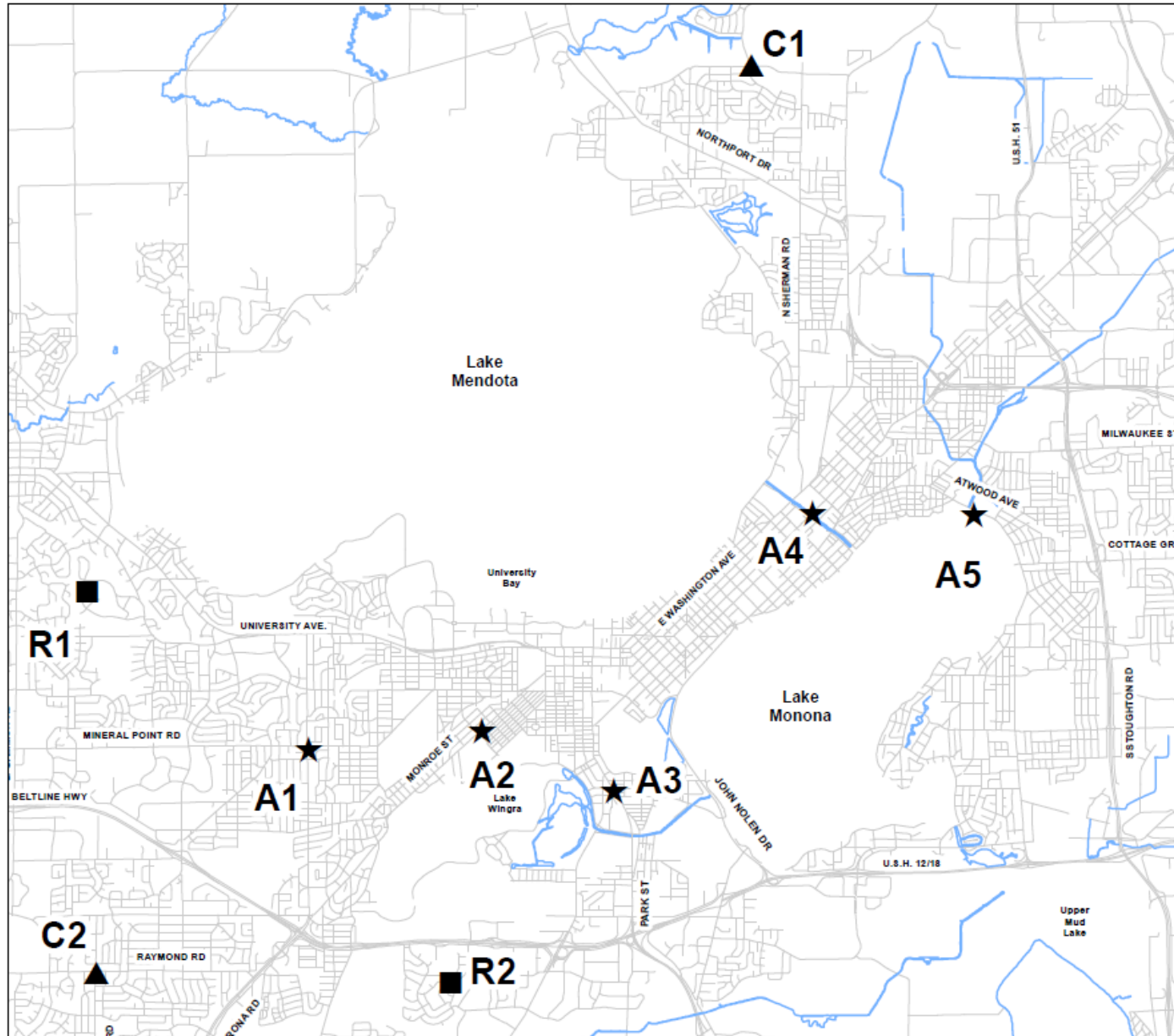
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# City of Madison - Traffic Engineering

## Monthly Vehicle Count Stations



### ★ Arterial Stations

- A1) 400 S. Midvale Blvd.
- A2) 2100 Monroe St.
- A3) 1100 S. Park St.
- A4) 1600 E. Washington Ave.
- A5) 3400 Atwood Ave.

### ▲ Collector Stations

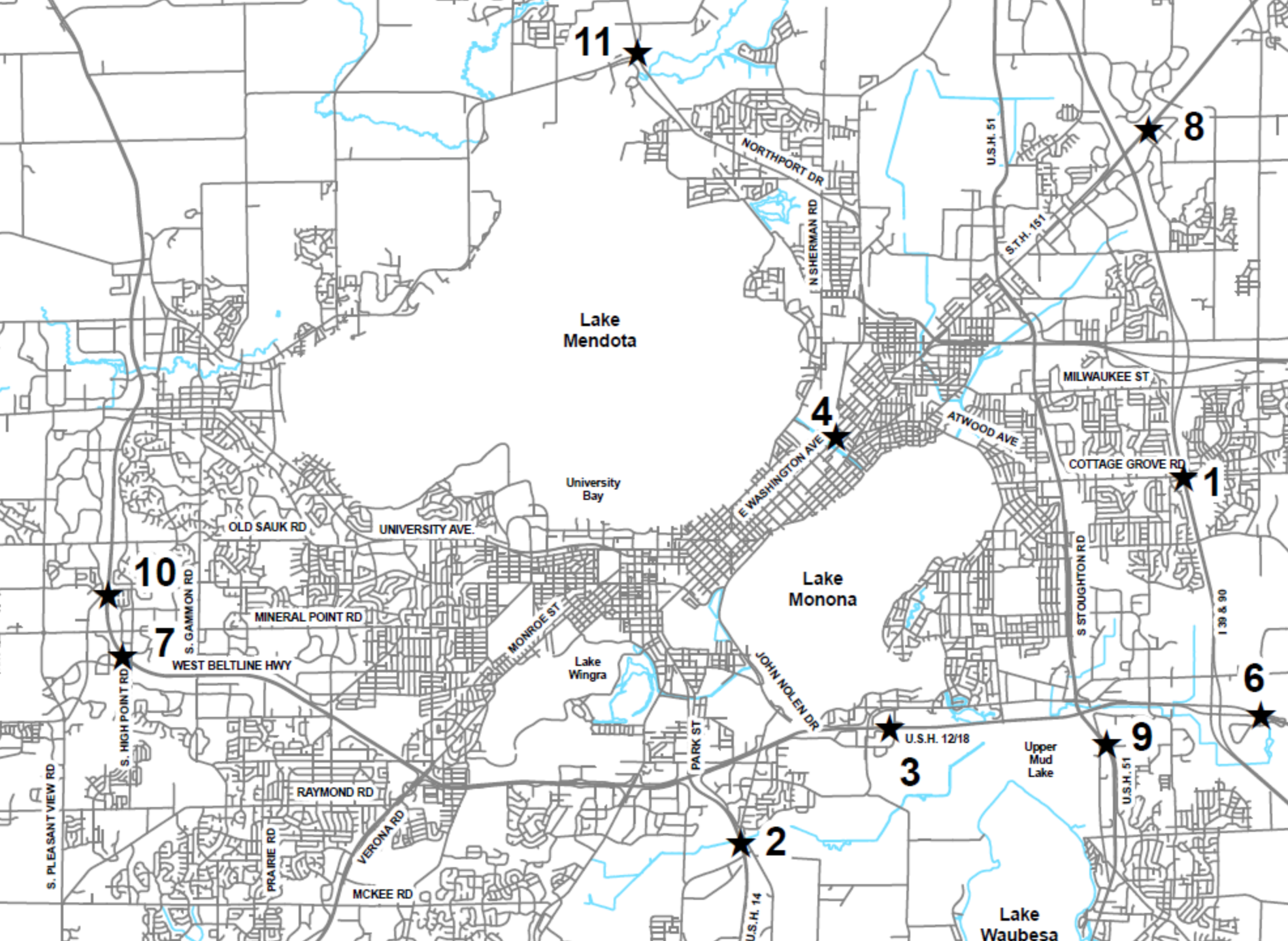
- C1) 5000 Comanche Way
- C2) 2000 Prairie Rd

### ■ Residential Stations

- R1) 7000 Farmington Way
- R2) Pelham Rd



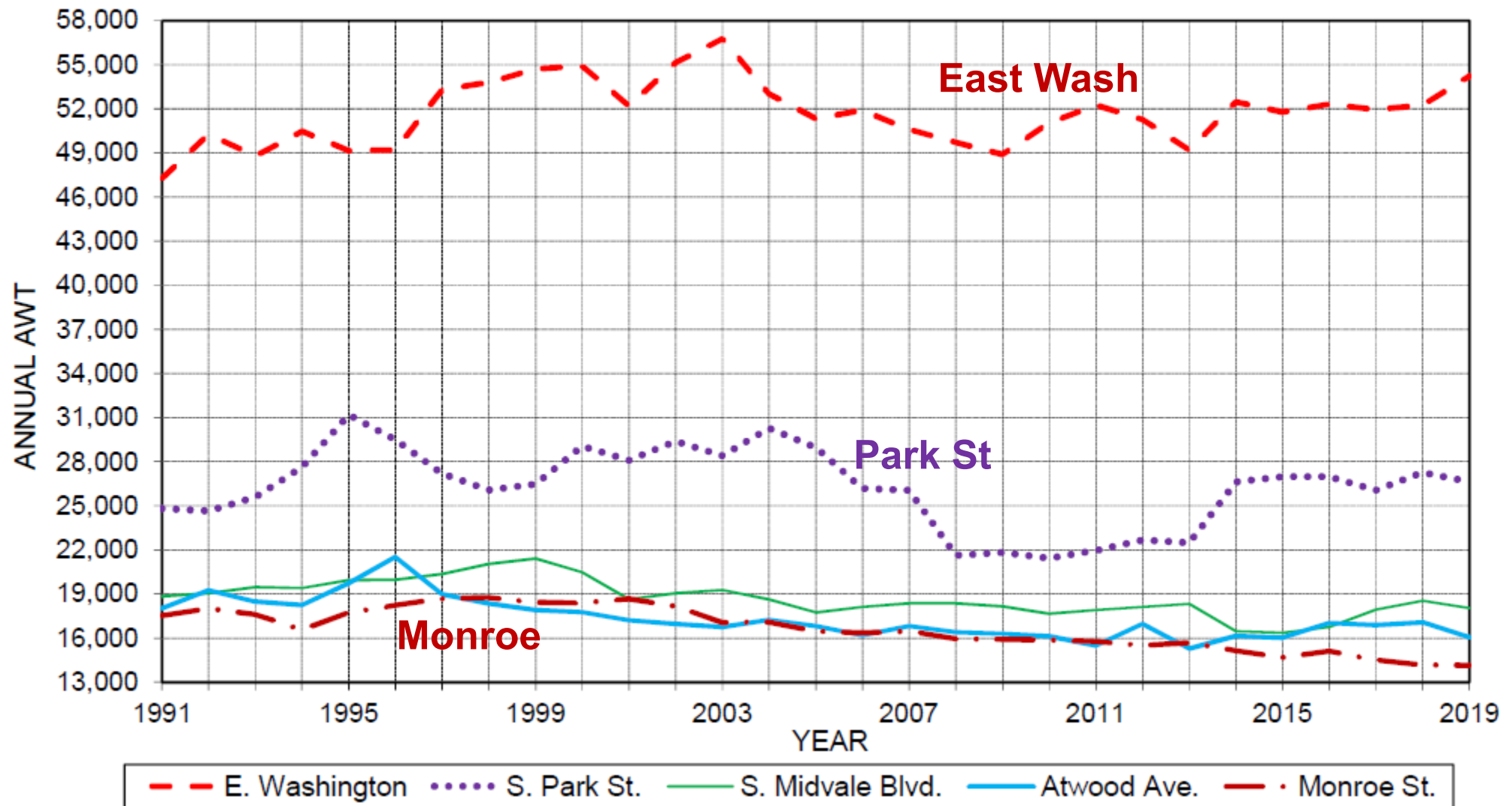




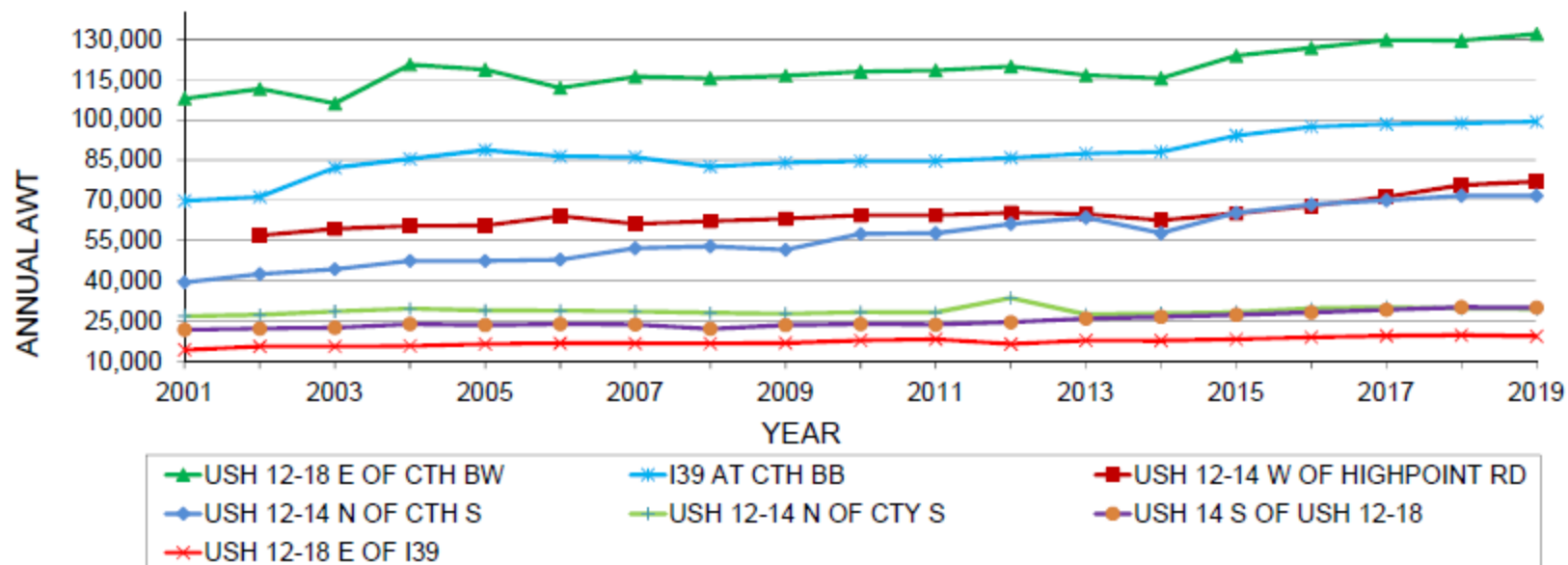
## ★ D.O.T. Count Locations

- 1) I-39 at CTH BB #130004
- 2) USH 14 south of USH 12 #130010
- 3) USH 12-18 east of CTH BW #13001
- 4) USH 151 east of Yahara River #1300
- 5) USH 18-151 west of CTH PD #1301
- 6) USH 12-18 east of I-90 & AB #1303
- 7) USH 12-14 west of High Point #130
- 8) USH 151 north of I-39 & I-94 #1360
- 9) USH 51 south of USH 12 & 18 #136
- 10) USH 12-14 north of CTH S #136113
- 11) STH 113 south of CTH M #136130

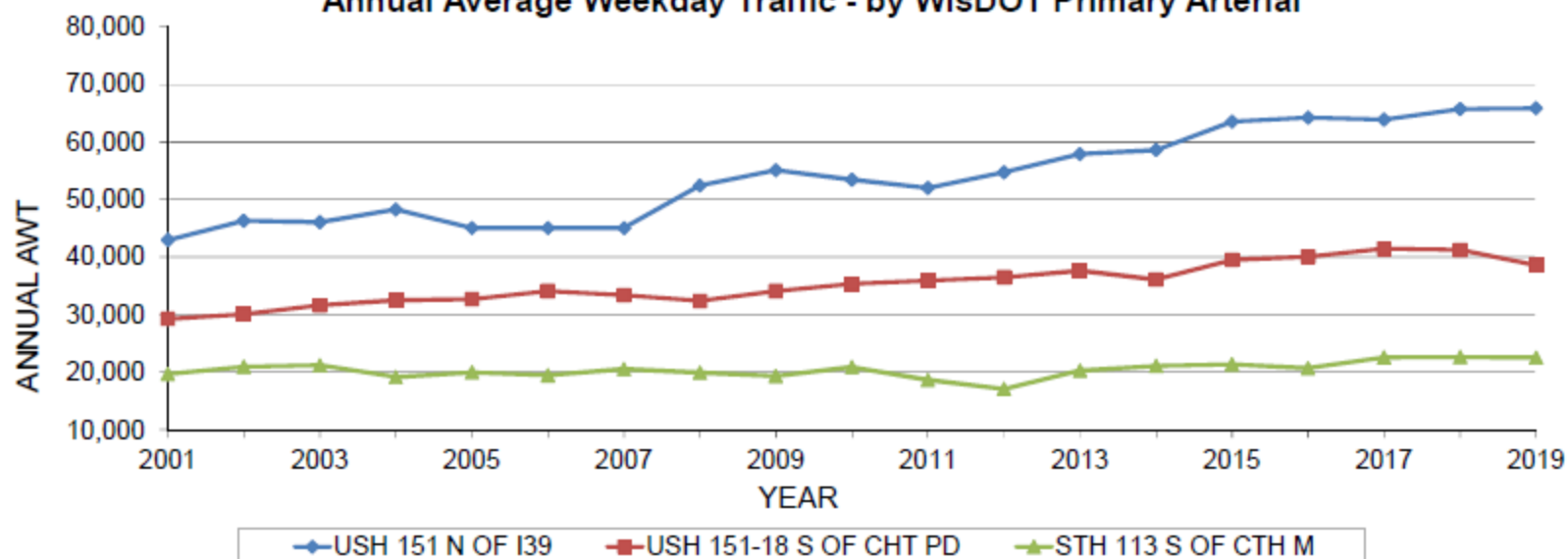
## Average Weekday Traffic - by Arterial Stations



### Annual Average Weekday Traffic - by WisDOT Principal Arterial

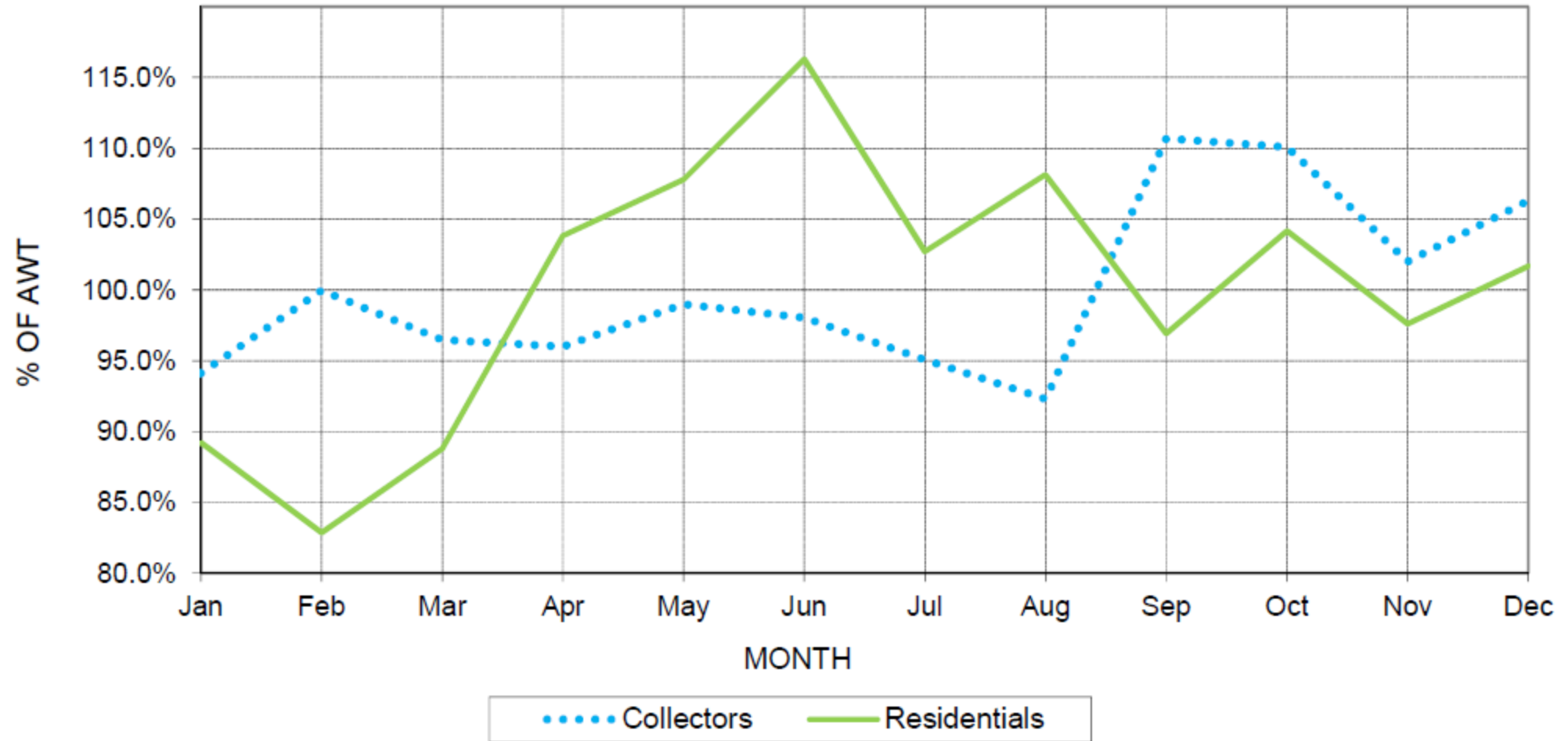


### Annual Average Weekday Traffic - by WisDOT Primary Arterial



Percent Average of Weekday Traffic - by Month

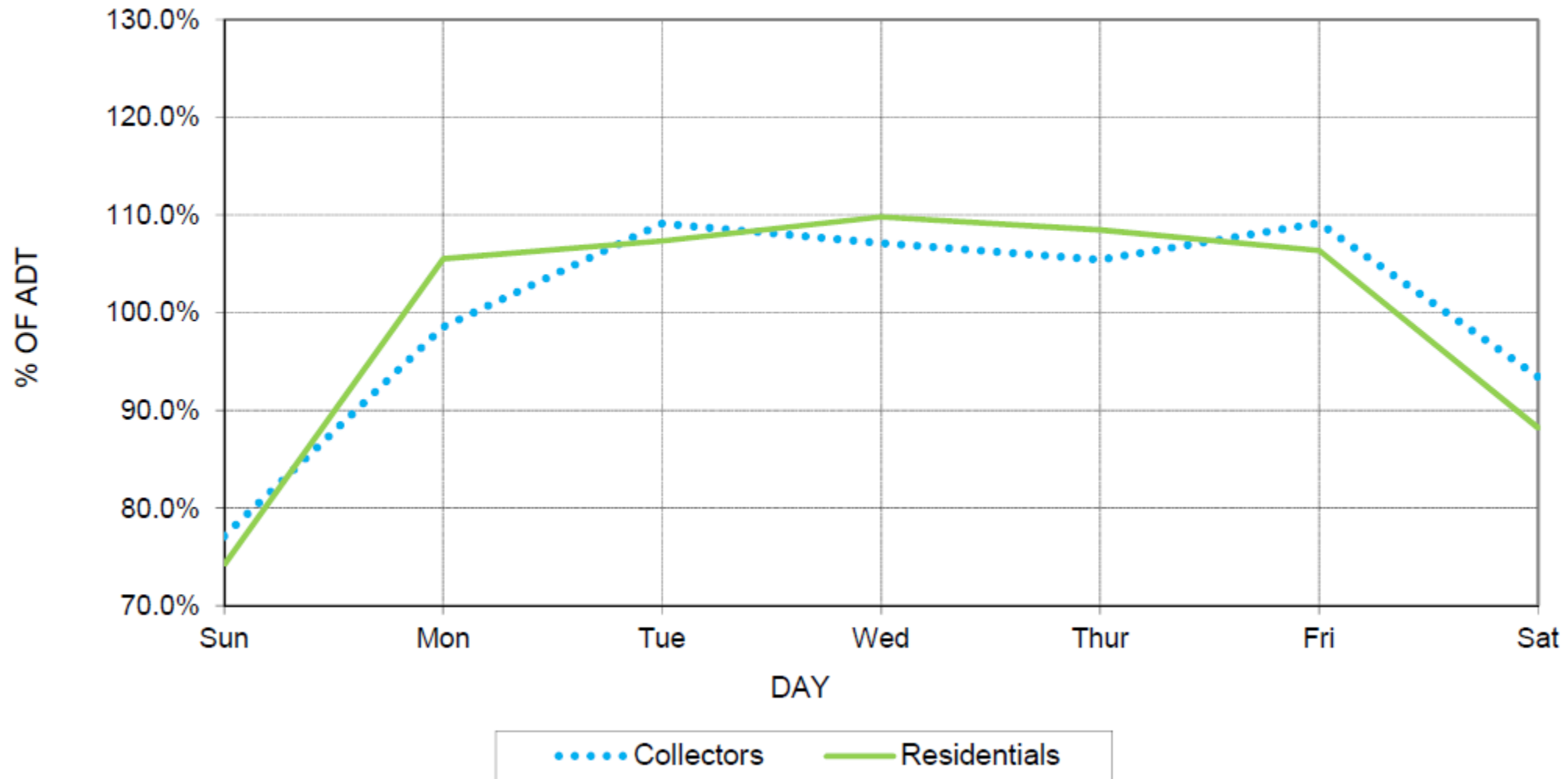
Variation





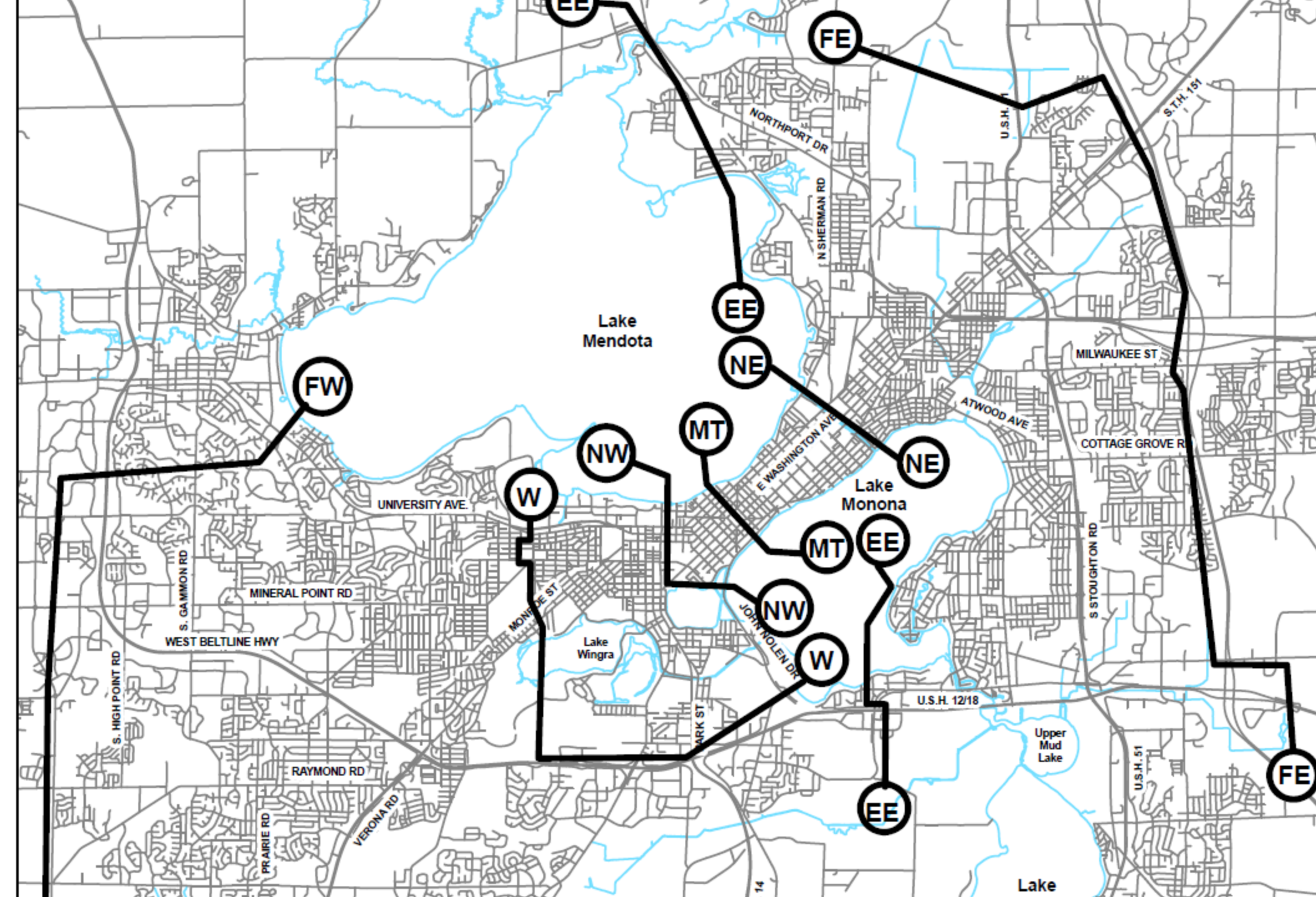
Percent Average of Daily Traffic - by Day

Variation

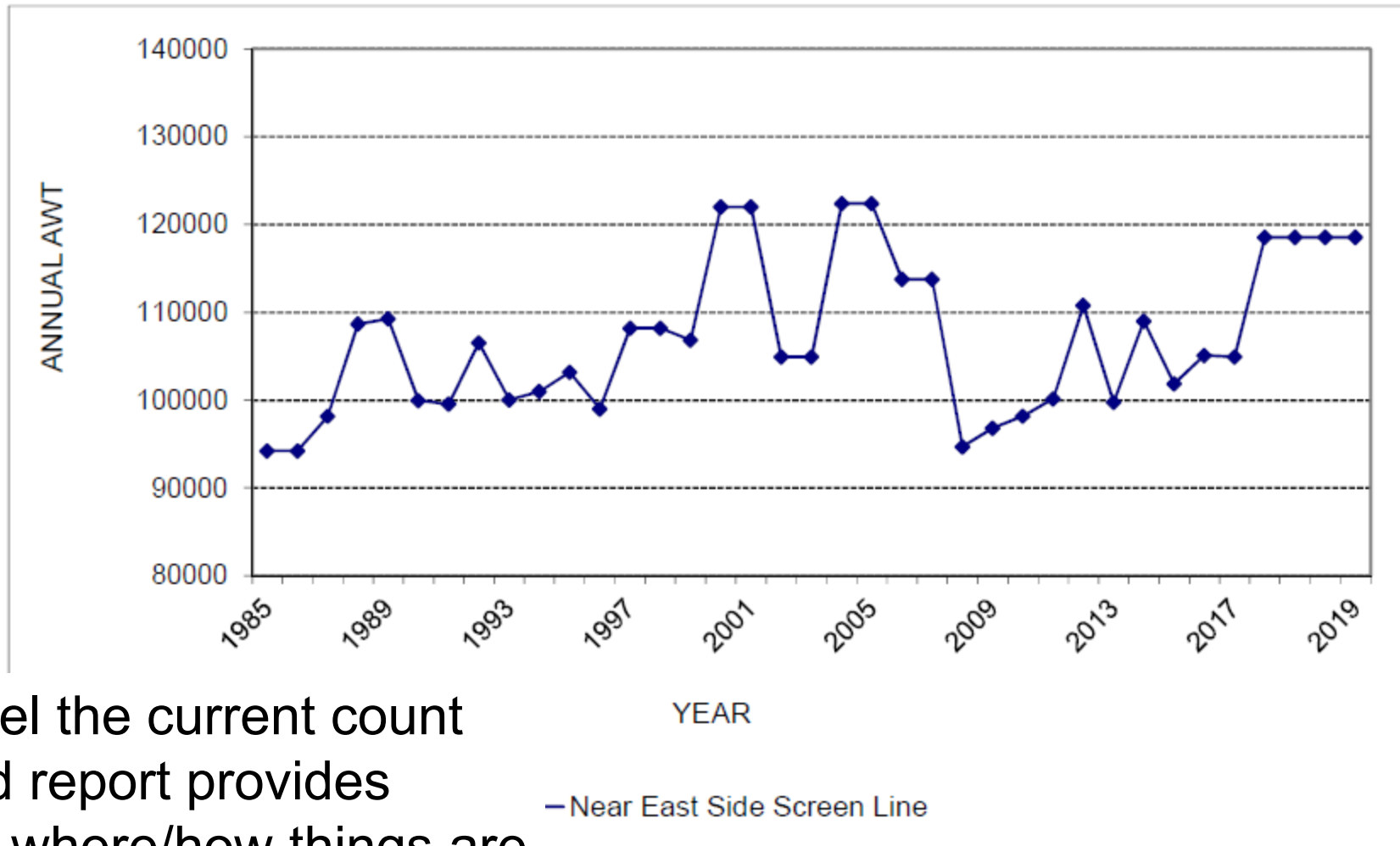


# Screen Lines

- (FW) Far West
- (W) West
- (NW) Near West
- (MT) Mid Town
- (NE) Near East
- (EE) Extended East
- (FE) Far East



## Near East Side Screen Line Average Weekday Traffic

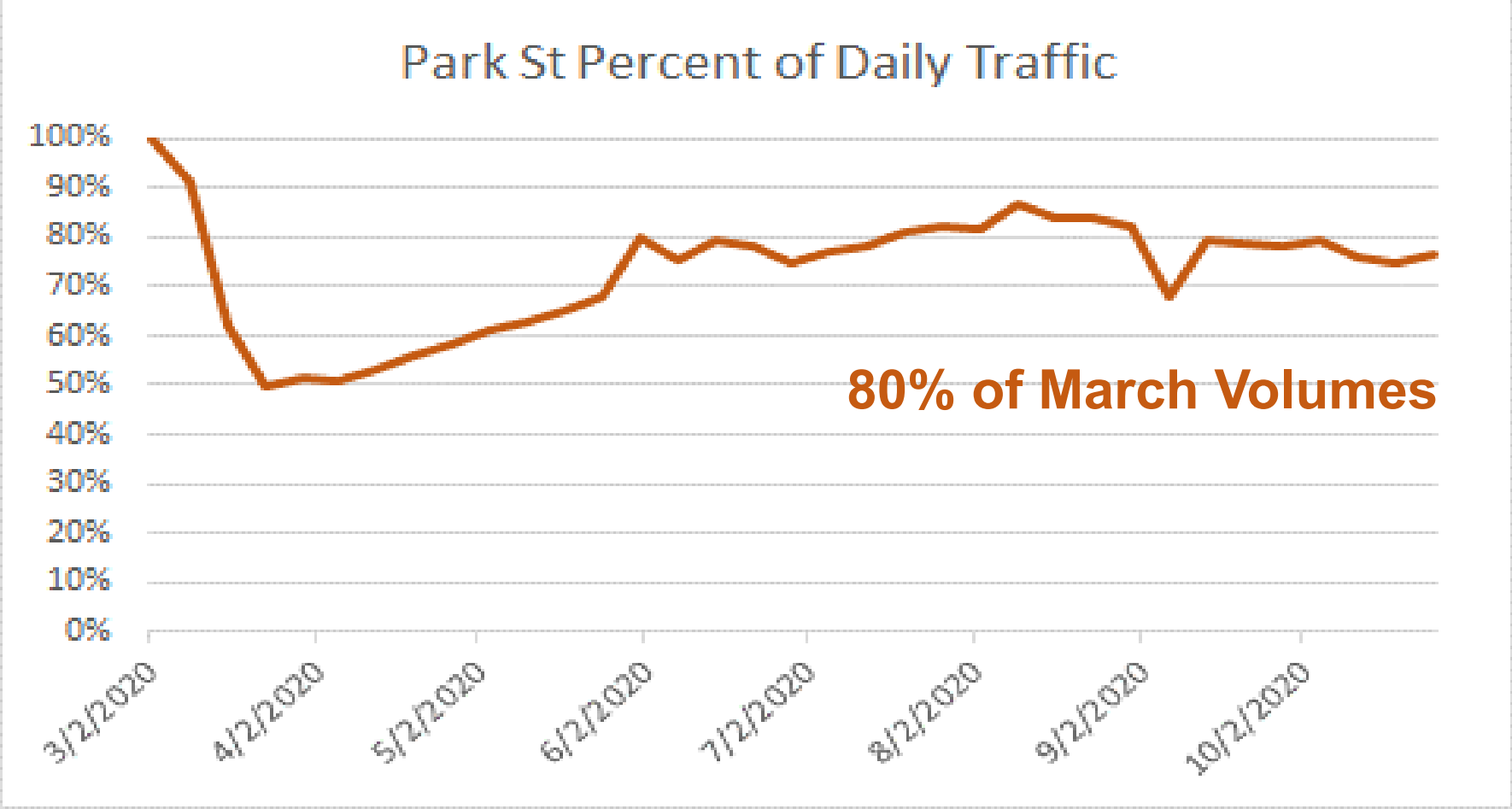


Generally feel the current count program and report provides indication of where/how things are going with VMT



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# Effects of Covid

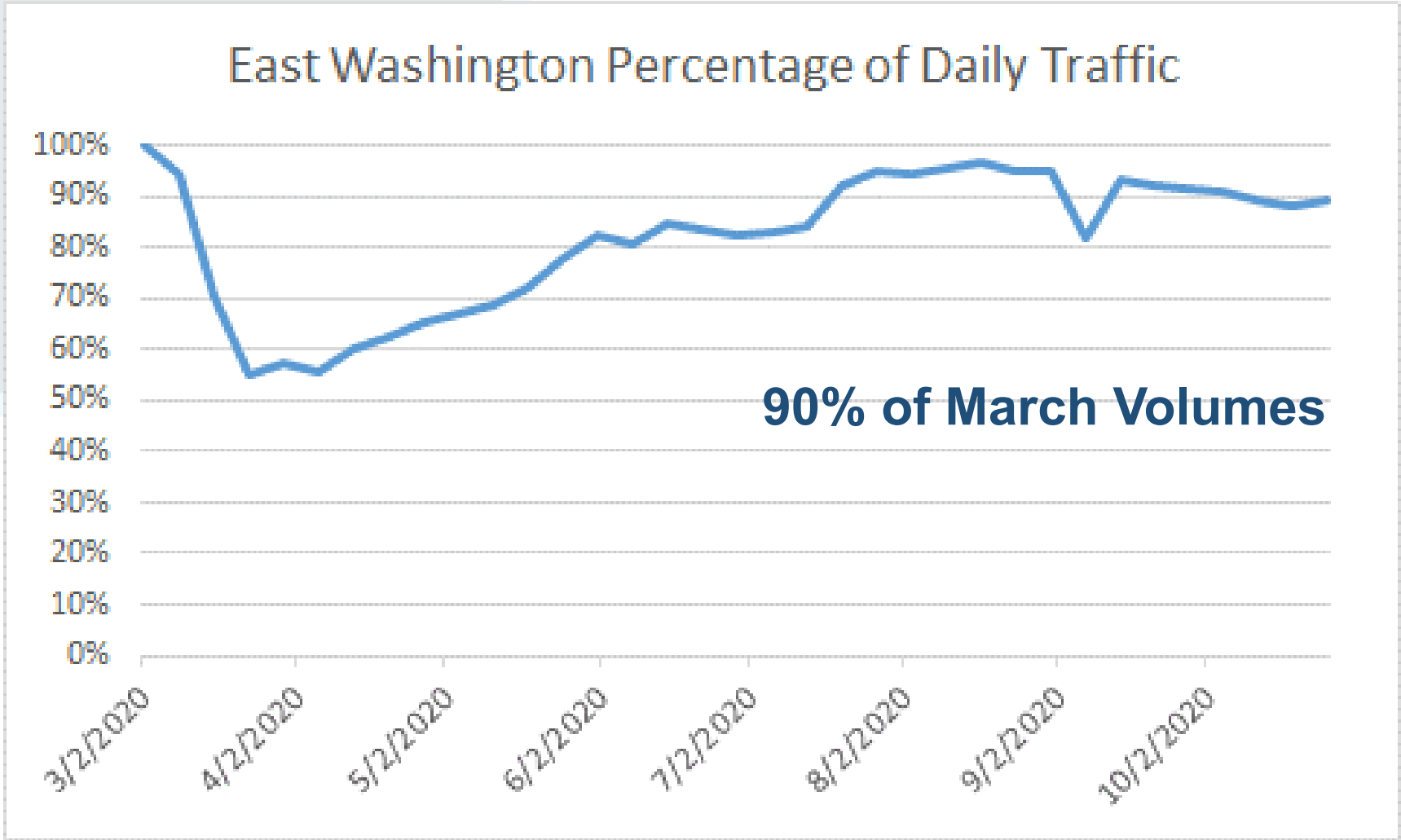


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# Effects of Covid



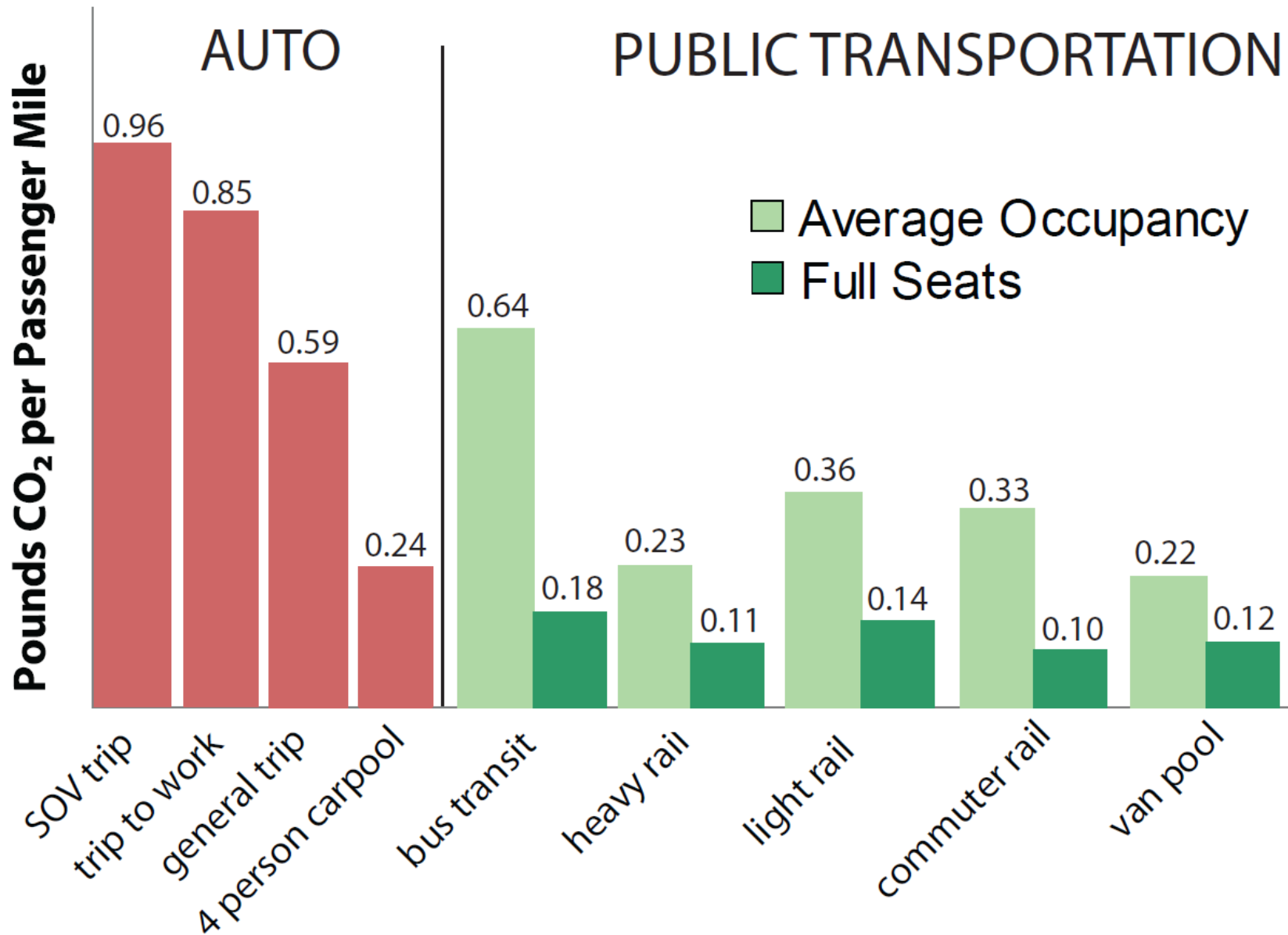
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# Key DOT efforts that reduce VMT

- **Bus Rapid Transit**
- **Increased Transit Usage (network redesign)**
- **TDM Ordinance**
- **Complete Streets – Active Transportation**

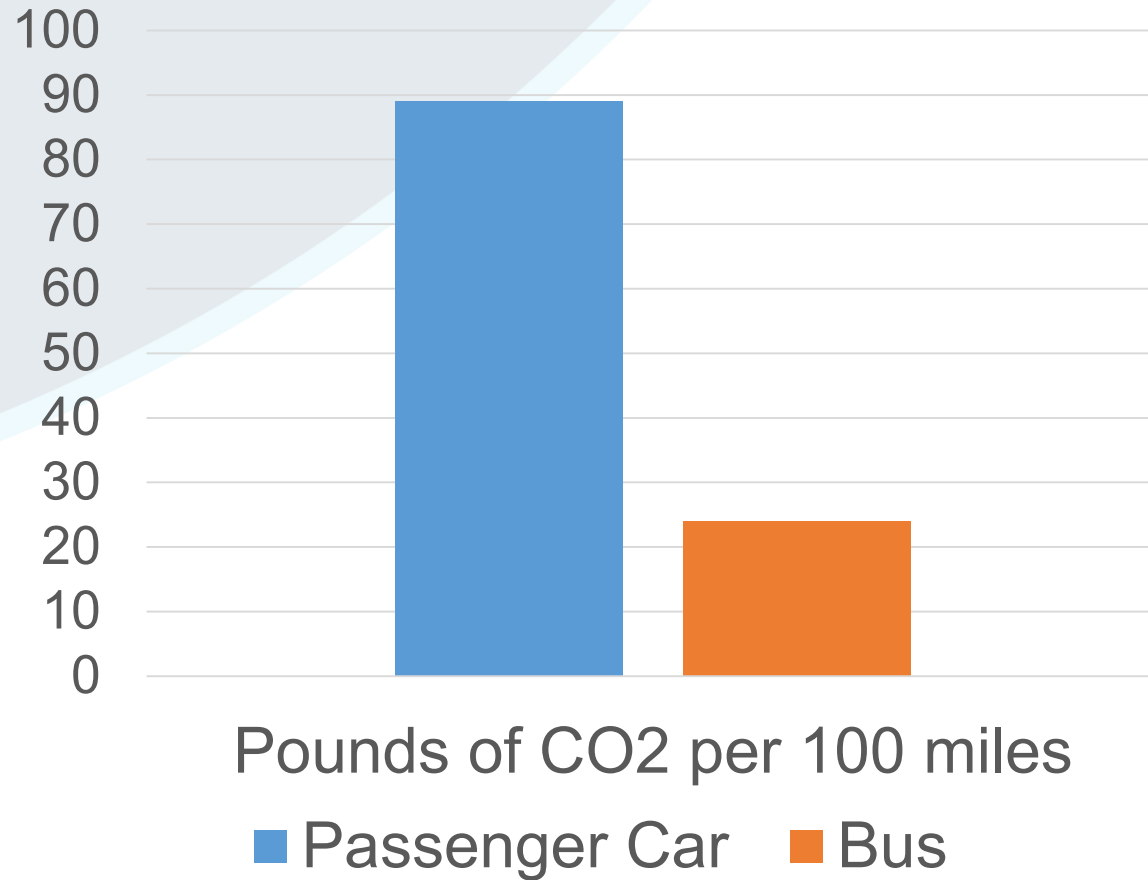


**FIGURE 3**  
**Estimated CO<sub>2</sub> Emissions per Passenger Mile for Average and Full Occupancy**

Sources:  
See Appendix II for data sources and methodology.

Notes: The average number of passengers for private auto trips is 1.14 for work trips and 1.63 for general trips.

# Metro reducing emissions from the private sector



10,000 new riders per  
workday reduces CO2  
emissions by 6,000  
tons/year

40 pass/bus, 3 mile average trip, weekdays  
only

This reduction would  
represent 1/3 of Metro's  
emissions

Source: CGGC, based on mpg figures from (Barnitt, 2008) and CO<sub>2</sub> per gallon of fuel from (EPA, 2009).



# Examples of TDM effect on VMT

## Arlington Co Virginia

The percentage of Arlington residents driving alone to work has dropped from 63% in 2001 to 53% in 2013.

The percentage of Arlington workers driving alone, including those coming in from other jurisdictions, has dropped from 59% in 2001 to 54% in 2013.

In the Rosslyn-Ballston corridor of central Arlington (Metro Orange Line), between 1996 and 2009, office space grew by 6 million square feet, retail by 1 million square feet, and residential by 11,000 units, but vehicular traffic counts on the two major arteries of the corridor, Clarendon Boulevard and Wilson Boulevard, declined by 6% and 25% respectively.

# Complete Streets – Active Transportation

Mode of Transportation to Work (2018)



Madison



Dane County