How The Road Works Now

Summary of Existing Safety and Traffic Conditions on the Maine Turnpike from Exits 44 to 53

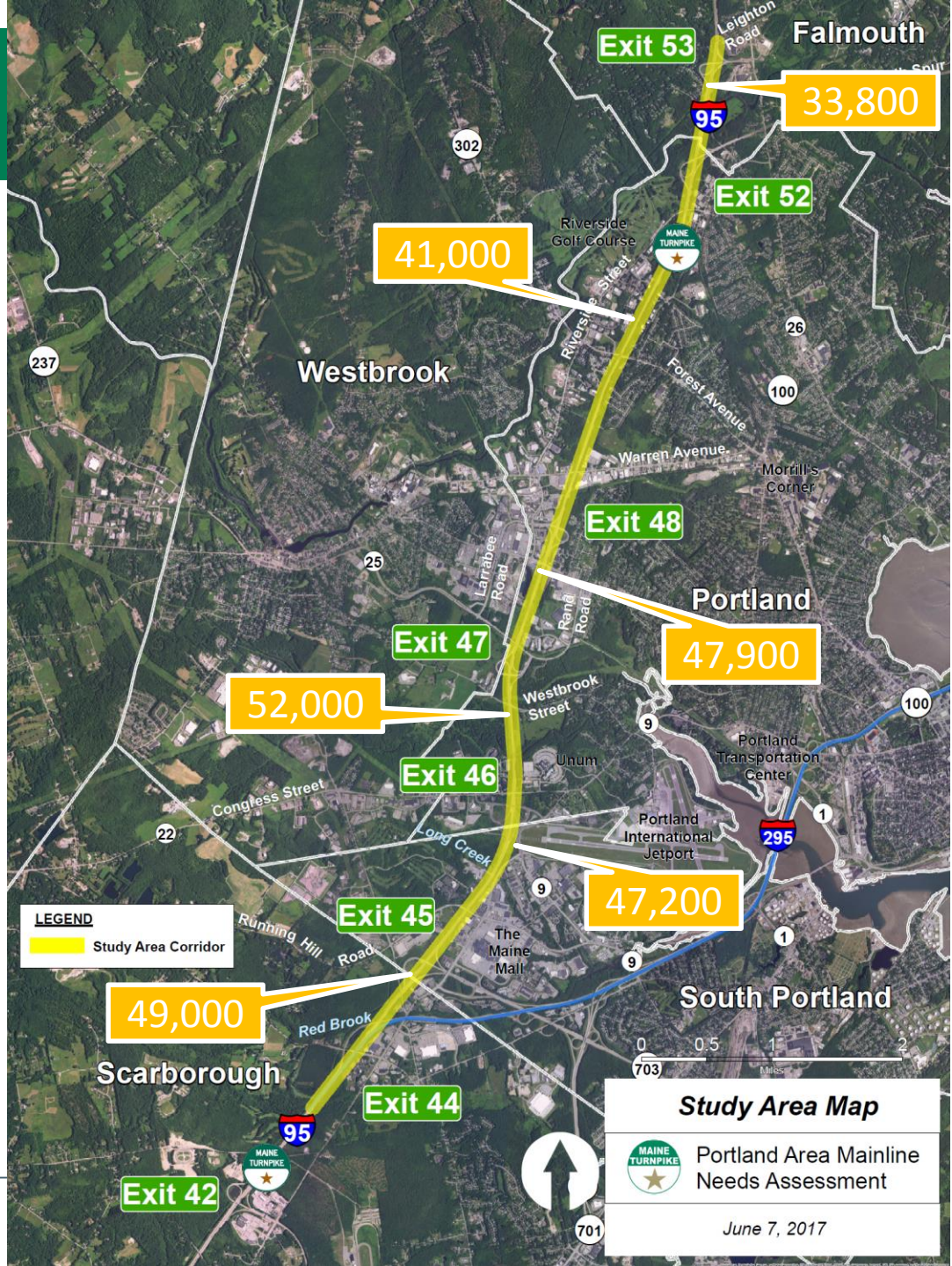
June 28, 2017

Presentation Overview

- Overview of “The Road”
- Understanding the Lingo
- Is “The Road” getting busier? Review of traffic volumes
- How does “The Road” operate? Review of operating conditions
- Is “The Road” safe compared to others? Review of crash data
- How fast are people traveling on “The Road”? Review of speed data
- Initial Conclusions
- Questions/Next Steps

I-95 through Portland Region

- Length: 8.1 Miles
- Classification: Interstate Freeway
- Number of Lanes: 2 in each direction
- 7 interchanges
- 5 interchanges within 4.2 miles
- Posted Speed Limit: 60 mph
- Relatively flat terrain
- Average Annual Daily Traffic Volumes (2-way): 34,000 to 52,000 vehicles



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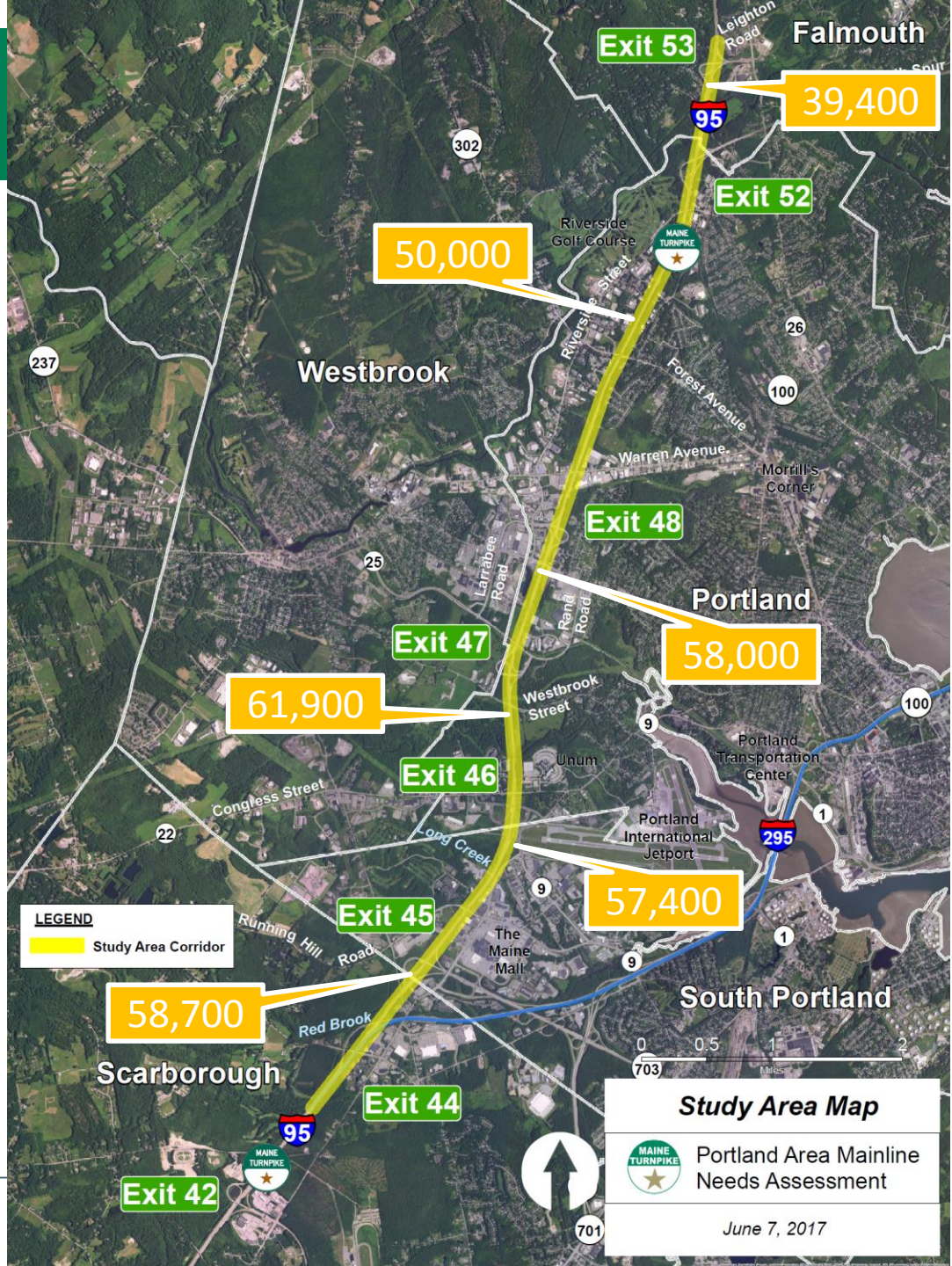
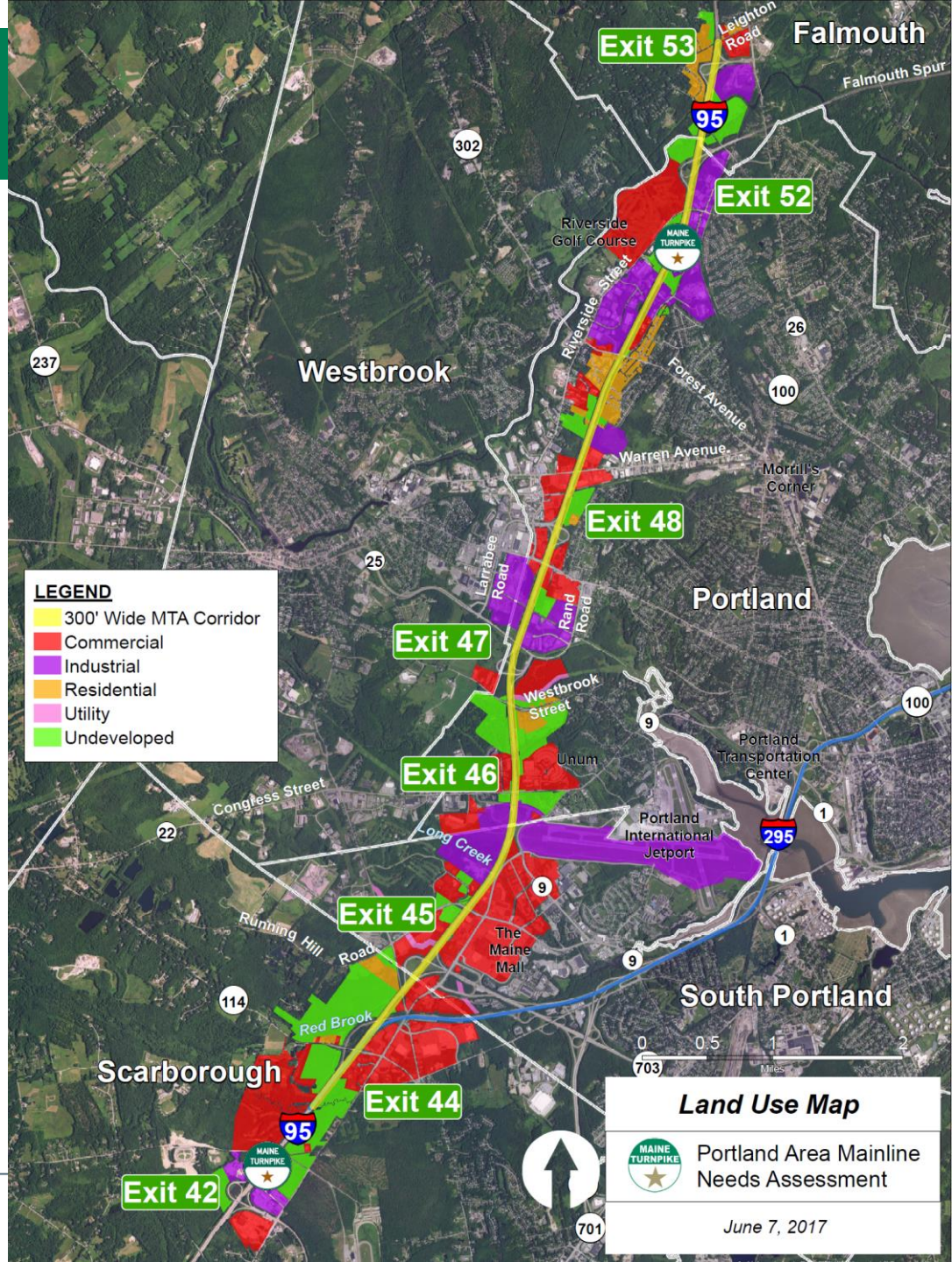
- Summer Traffic Volumes (August 2-way): 39,000 to 62,000 vehicles



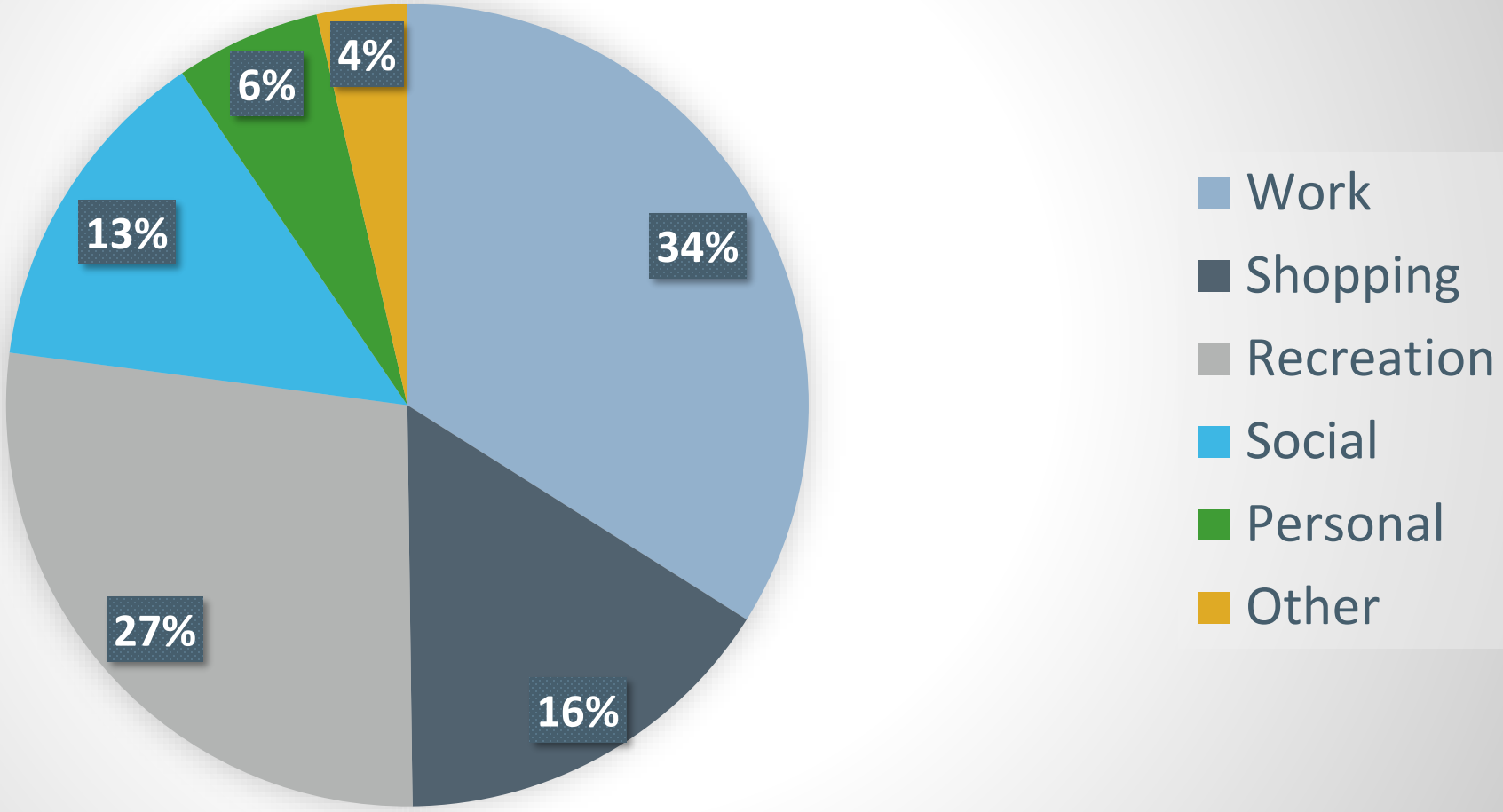
What The Road Passes Through

- Varies – from Dense Commercial to Undeveloped areas
- Turnpike corridor is roughly 300’ wide – if decision is to widen, no purchase of additional property necessary
- Land Use I-95 passes through:
  - Underdeveloped
  - Commercial
  - Industrial
  - Residential
  - Utility Corridors
  - Crosses natural resources such as Long Creek



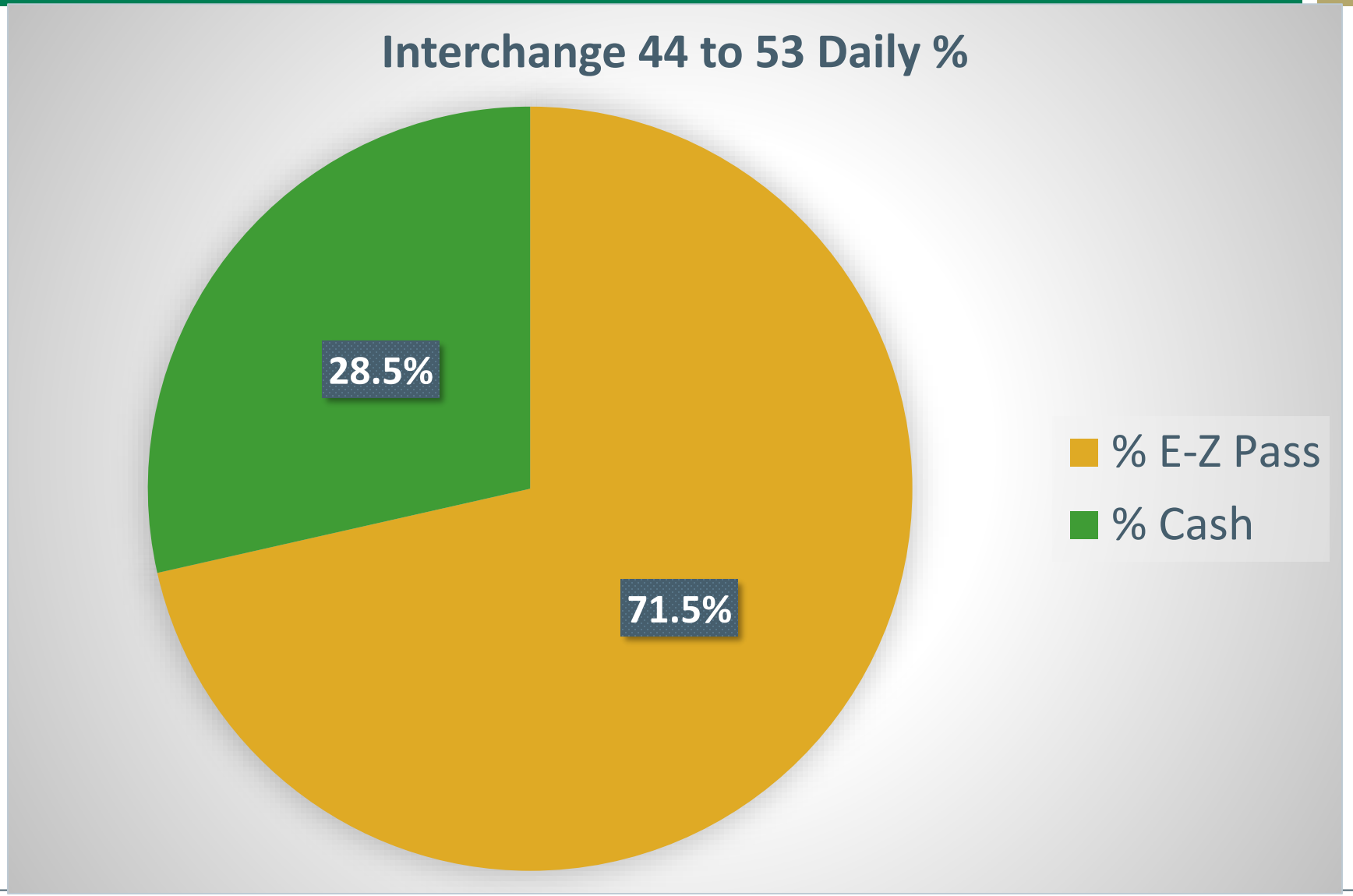
Who Uses The Road

Exit 44 to 53 Trips



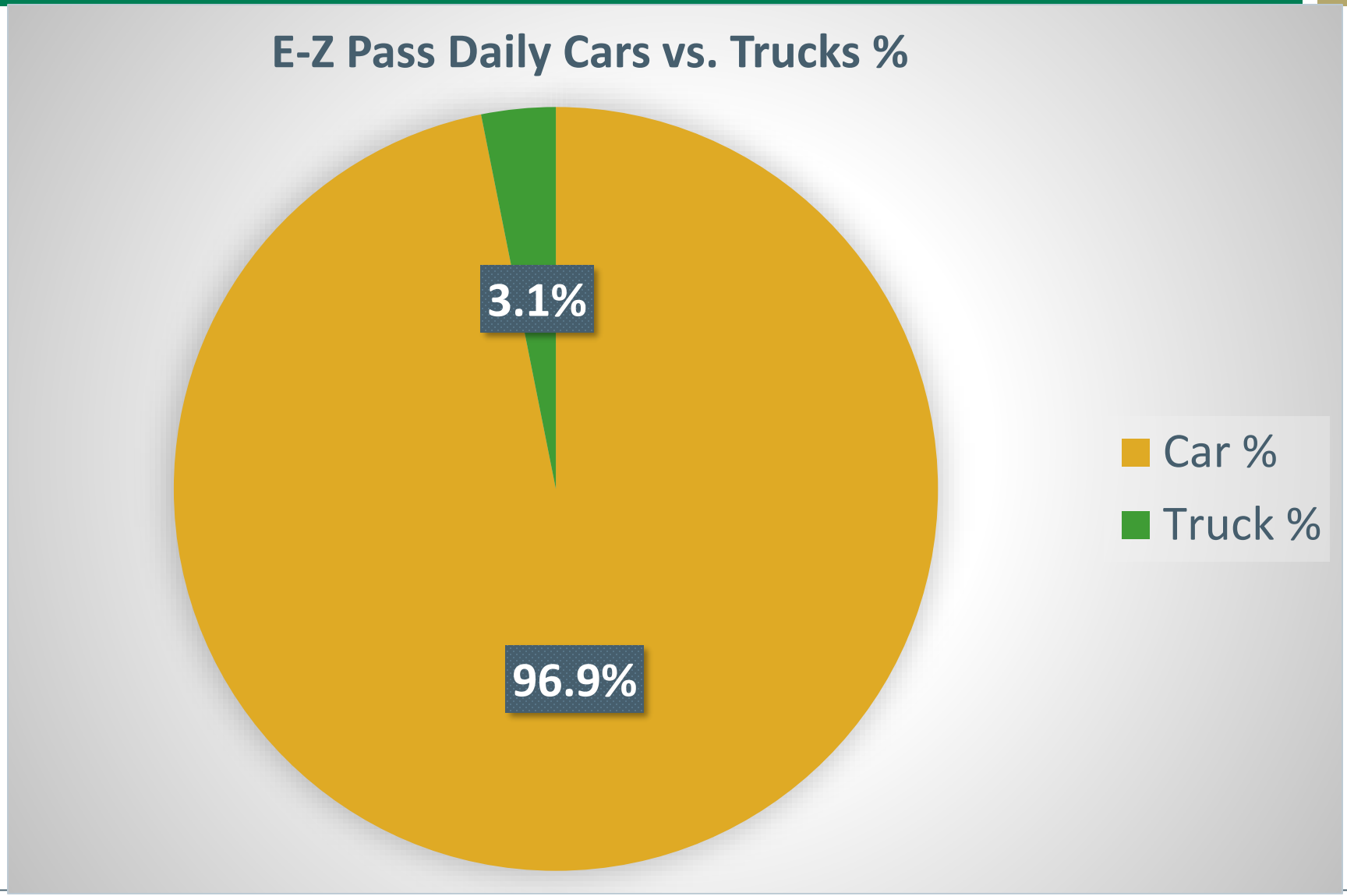
Source – 2010 MTA Origin-Destination Survey

Who Uses The Road



Source – 2016 MTA E-Z Pass Data

Who Uses The Road



Source – 2016 MTA E-Z Pass Data

Understanding the Lingo

- Handout of standard traffic, planning, and design terms provided
- We will try to make the technical as user-friendly as possible
- We use 2016 data as our basis for existing conditions assessment
- Data comes from a variety of sources:
  - Maine Turnpike Authority (MTA) – traffic volumes
  - State Police/MaineDOT – safety/crash data
  - Federal Highway Administration (FHWA) – speed data

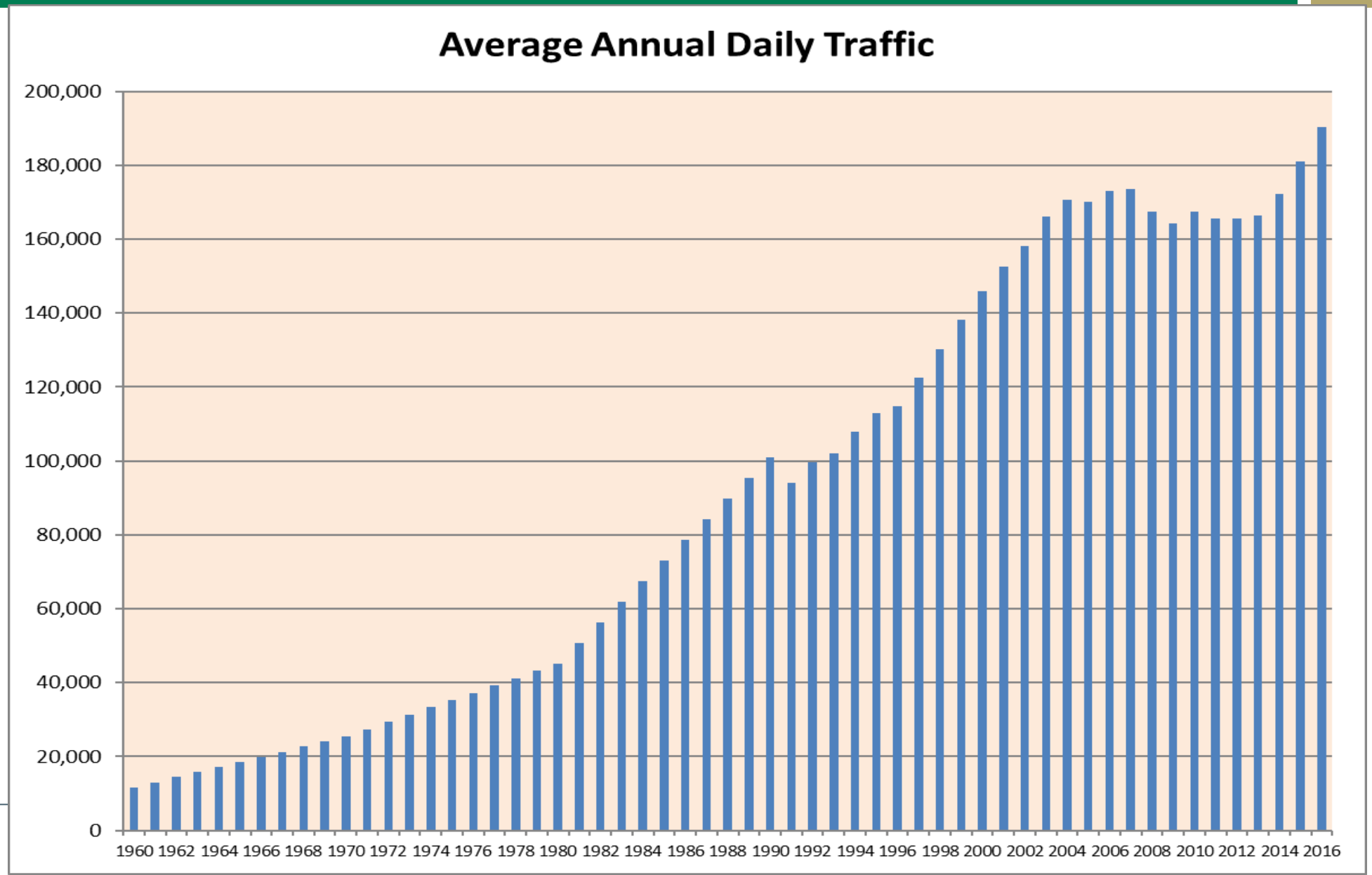
- **<u>If something we present or say isn't clear – please ask us to better explain!!</u>**

Is “The Road” getting busier?

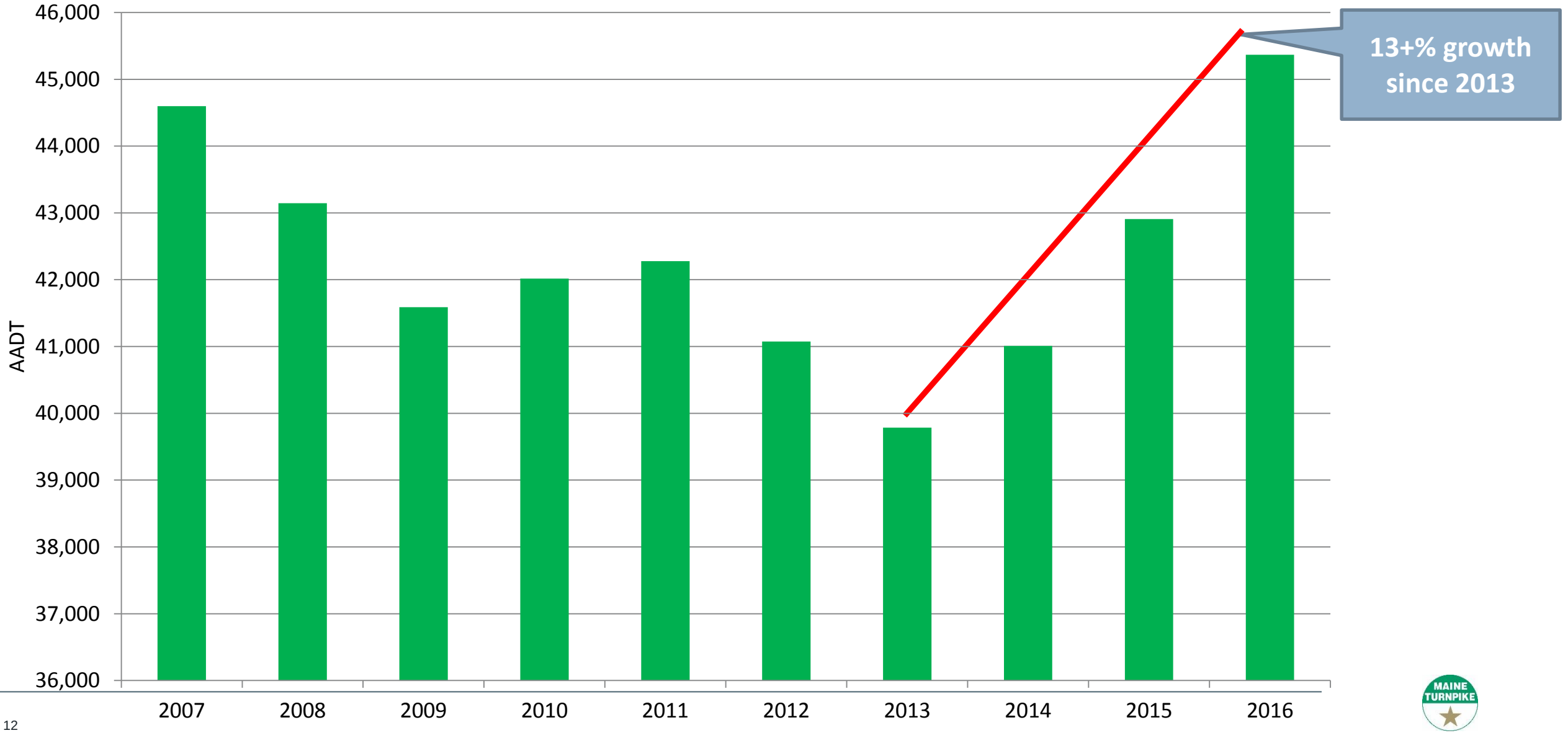
Traffic Overview

- Maine Turnpike Authority collections traffic data at toll plazas and from count stations at mainline/interchange locations
- Key information we will review are traffic volumes and how these volumes are changing
- Traffic Volumes
  - Peak hour traffic volumes (usually occur in morning or afternoon)
  - Average Daily Traffic (ADT)
  - Annual Average Daily Traffic (AADT)
- Peak traffic volumes in the Study Area are during summer and fall

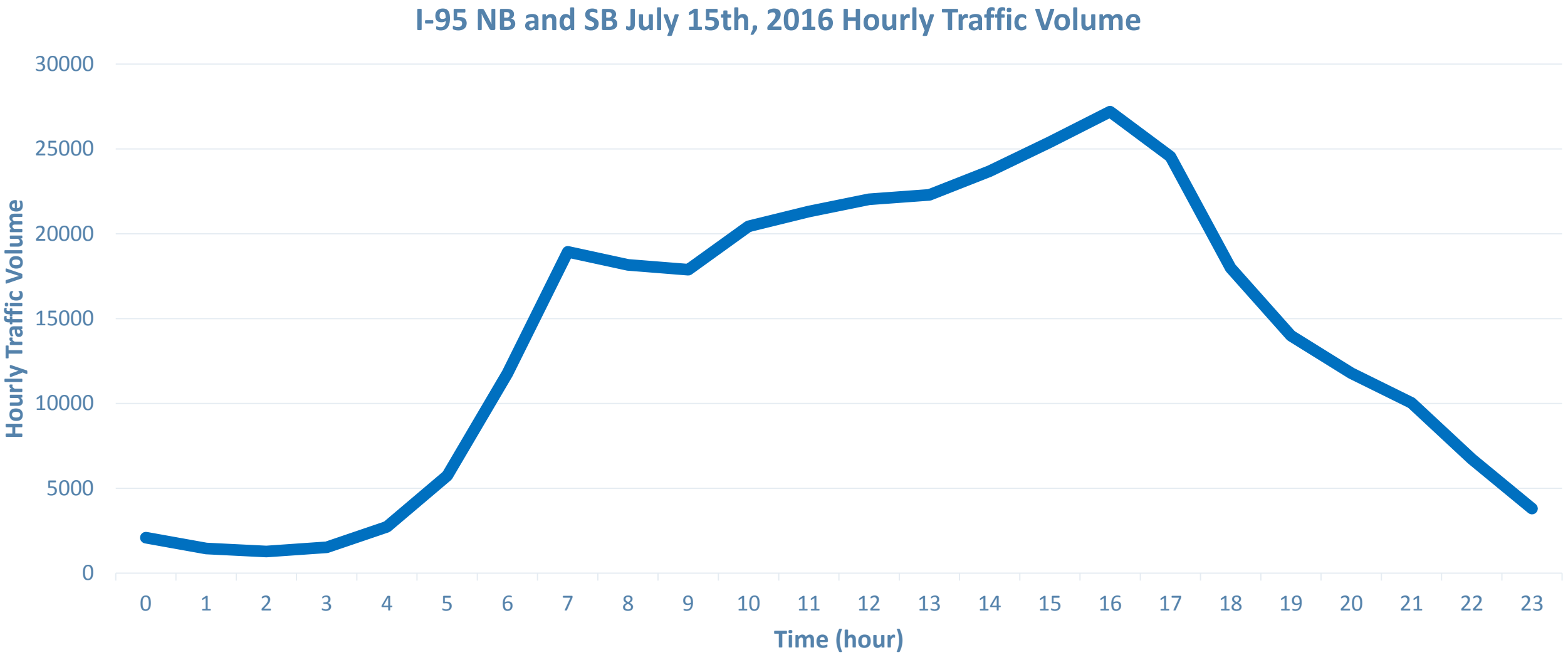
Current and Historic Traffic Volumes



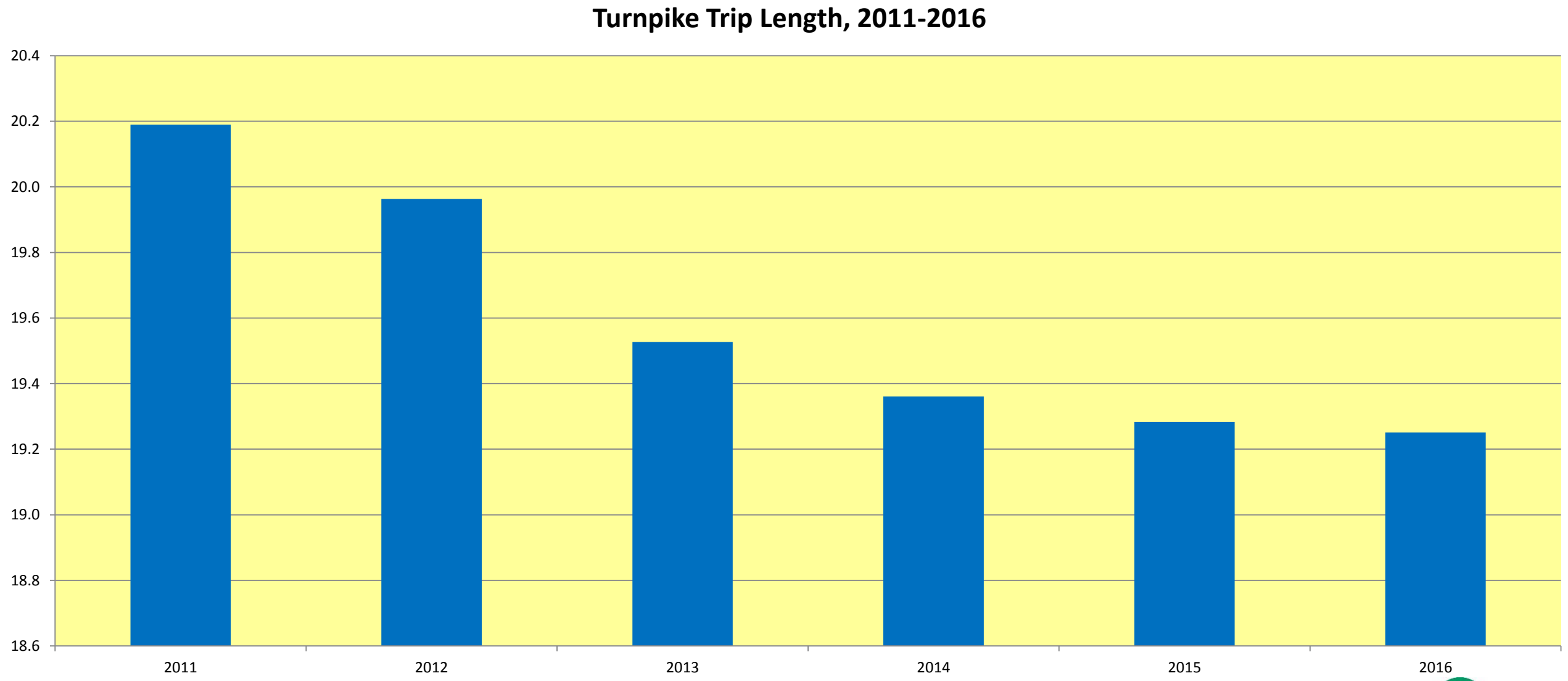
Average Annual Daily Traffic – Exit 44 to 53



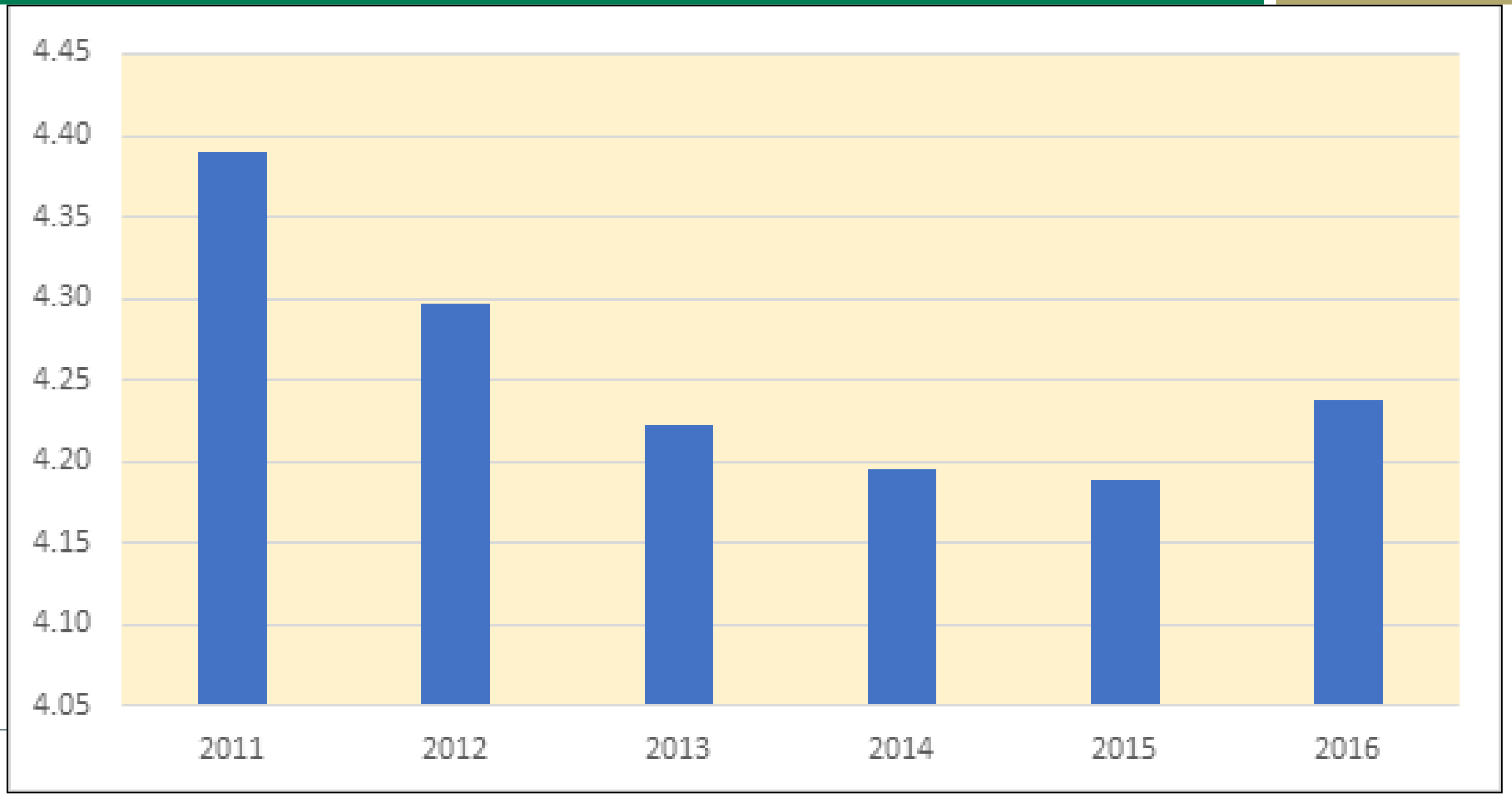
When Do They Use The Road?



Trip Length – Maine Turnpike (miles)



Trip Length – Maine Turnpike (miles) – Exit 44 to 53



How does “The Road” operate?

- We understand how the road operates by looking at the Level of Service (LOS) on the mainline and ramps

Level of Service (LOS)

- Chief measure of “quality of service”
  - Describes operational conditions on the road
  - Does not take into consideration safety
- Six measures (A through F, like school grades)
- Based on traffic density (aka congestion)

- Acceptable LOS – LOS A thru LOS D
- Unacceptable LOS – LOS E and F

What LOS looks like

- LOS A
  - Free-flow operation

- LOS B
  - Reasonably free flow
  - Ability to maneuver is only slightly restricted
  - Effects of minor incidents still easily absorbed

What LOS looks like

- LOS C
  - Speeds at or near Free Flow Speed
  - Freedom to maneuver is noticeably restricted
  - Queues may form behind any significant blockage.

- LOS D
  - Speeds decline slightly with increasing flows
  - Density increases more quickly
  - Freedom to maneuver is more noticeably limited
  - Minor incidents create queuing

What LOS looks like

- LOS E (Unacceptable)
  - Operation near or at capacity
  - No usable gaps in the traffic stream
  - Operations extremely volatile
  - Any disruption causes queuing

- LOS F (Unacceptable)
  - Breakdown in flow
  - Queues form behind breakdown points
  - Demand > capacity

How does the Road operate – Level of Service

NORTHBOUND MAINLINE

Northbound Mainline			
Location	2014 LOS	2016 LOS	2016 Time Period
44 to 45 ML	D	D	Fall AM
45 to 46 ML	D	D	Summer PM
46 to 47 ML	D	E	Summer PM
47 to 48 ML	D	E	Summer PM
48 to 52 ML	D	D	Summer PM
52 to 53 ML	C	C	Summer PM

SOUTHBOUND MAINLINE

Southbound Mainline			
Location	2014 LOS	2016 LOS	2016 Time Period
45 to 44 ML	D	D	Summer PM
46 to 45 ML	D	D	Summer PM
47 to 46 ML	D	E	Fall AM
48 to 47 ML	D	D	Fall AM
52 to 48 ML	C	D	Fall AM
53 to 52 ML	C	C	Fall AM

How does the Road operate – Level of Service

NORTHBOUND RAMPS

Northbound Ramps			
Location	2014 LOS	2016 LOS	2016 Time Period
44 Off	C	C	Fall AM
45 Off	D	D	Fall AM
45 On	C	C	Summer PM
46 Off	C	D	Summer PM
46 On	D	D	Summer PM
47 Off	D	E	Summer PM
47 On	C	D	Summer PM
48 Off	C	D	Summer PM
48 On	C	D	Summer PM
52 Off	D	C	Summer PM
52 On	C	C	Fall PM
53 Off	B	C	Summer PM

SOUTHBOUND RAMPS

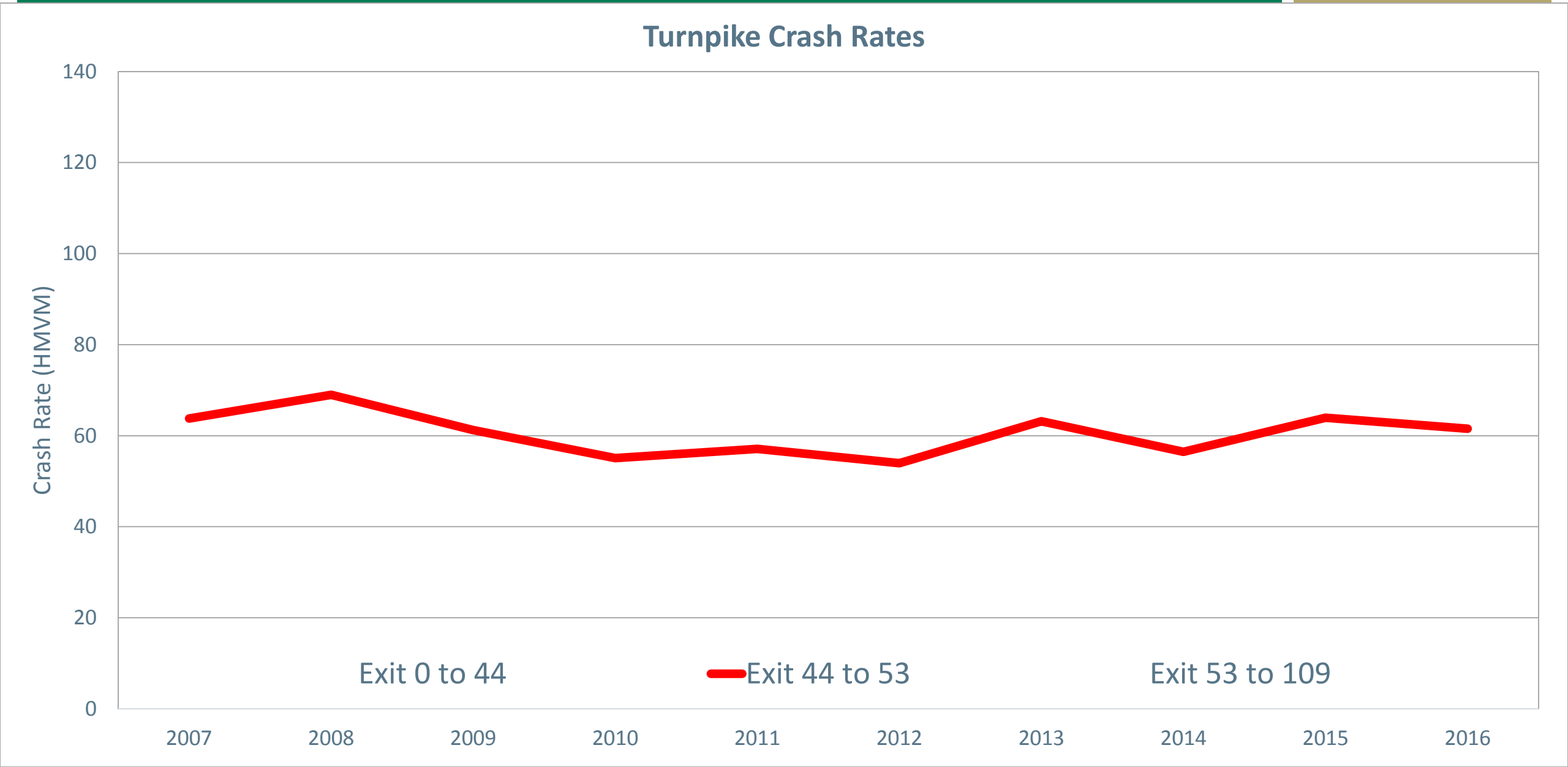
Southbound Ramps			
Location	2014 LOS	2016 LOS	2016 Time Period
44 On	C	C	Summer PM
45 On	C	C	Summer PM
45 Off	C	C	Summer PM
46 On	C	C	Summer PM
46 Off	D	D	Fall AM
47 On	C	D	Fall AM
47 Off	C	D	Fall AM
48 On	C	D	Fall AM
48 Off	C	C	Fall AM
52 On	C	C	Fall AM
52 Off	B	C	Fall AM
53 On	C	C	Fall AM

Is “The Road” safe compared to other roads?

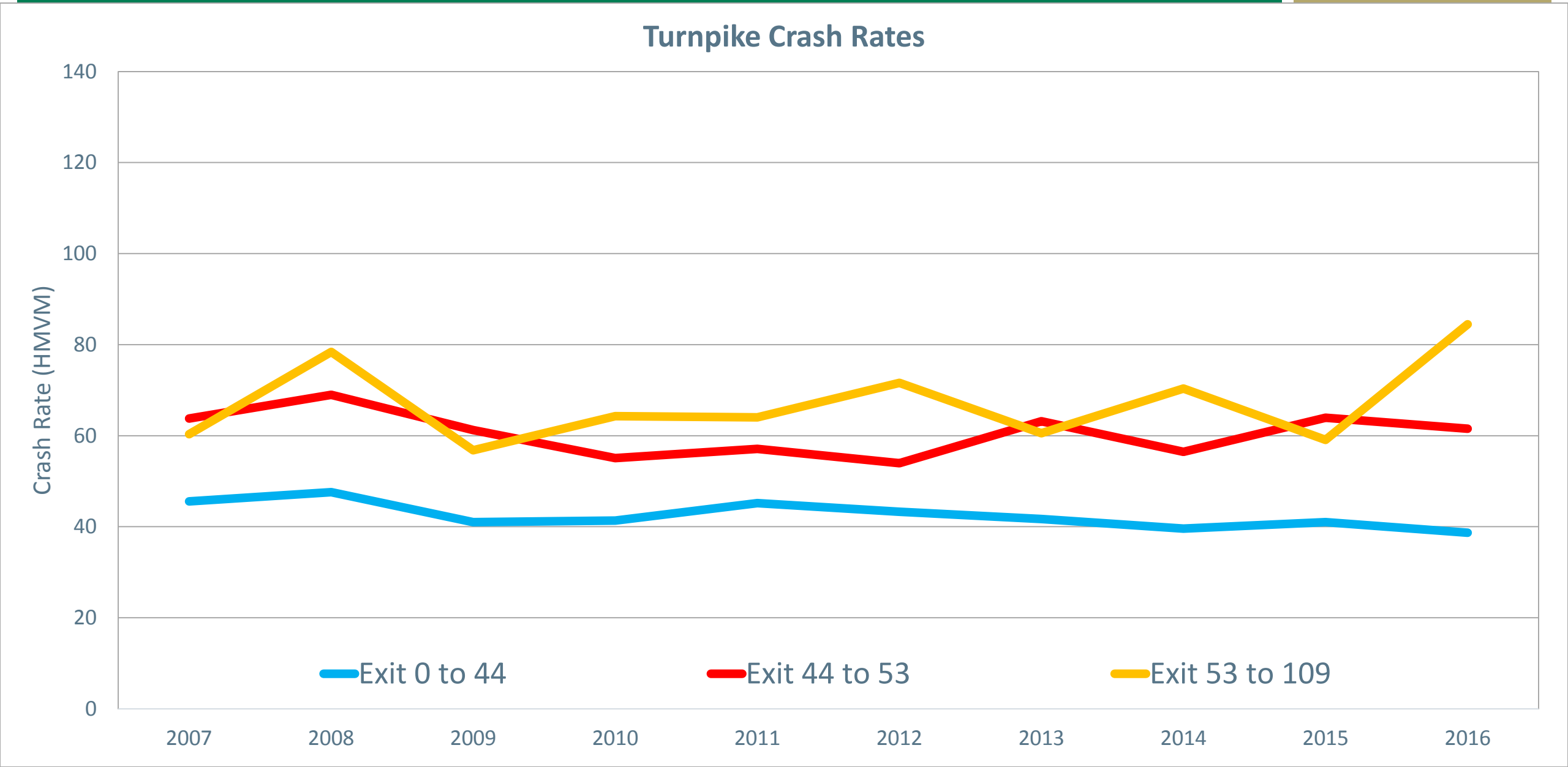
Safety

- State Police collect crash information
- MaineDOT summarizes crash information
- Crashes summarized for specific locations (nodes), ***and*** sections of roadway (links)
- Key Safety statistics
  - Crash rate: How many crashes per hundred million vehicle miles traveled
  - Crash severity: Property damage, personal injury, fatalities
  - High Crash Location: Determined by MaineDOT, criteria are:
    - 8 or more crashes in a three-year period
    - Critical Rate Factor of 1.0 or greater
- ***What do we look for?***
  - High/increasing # of crashes, high crash rates compared to other similar sections of highway

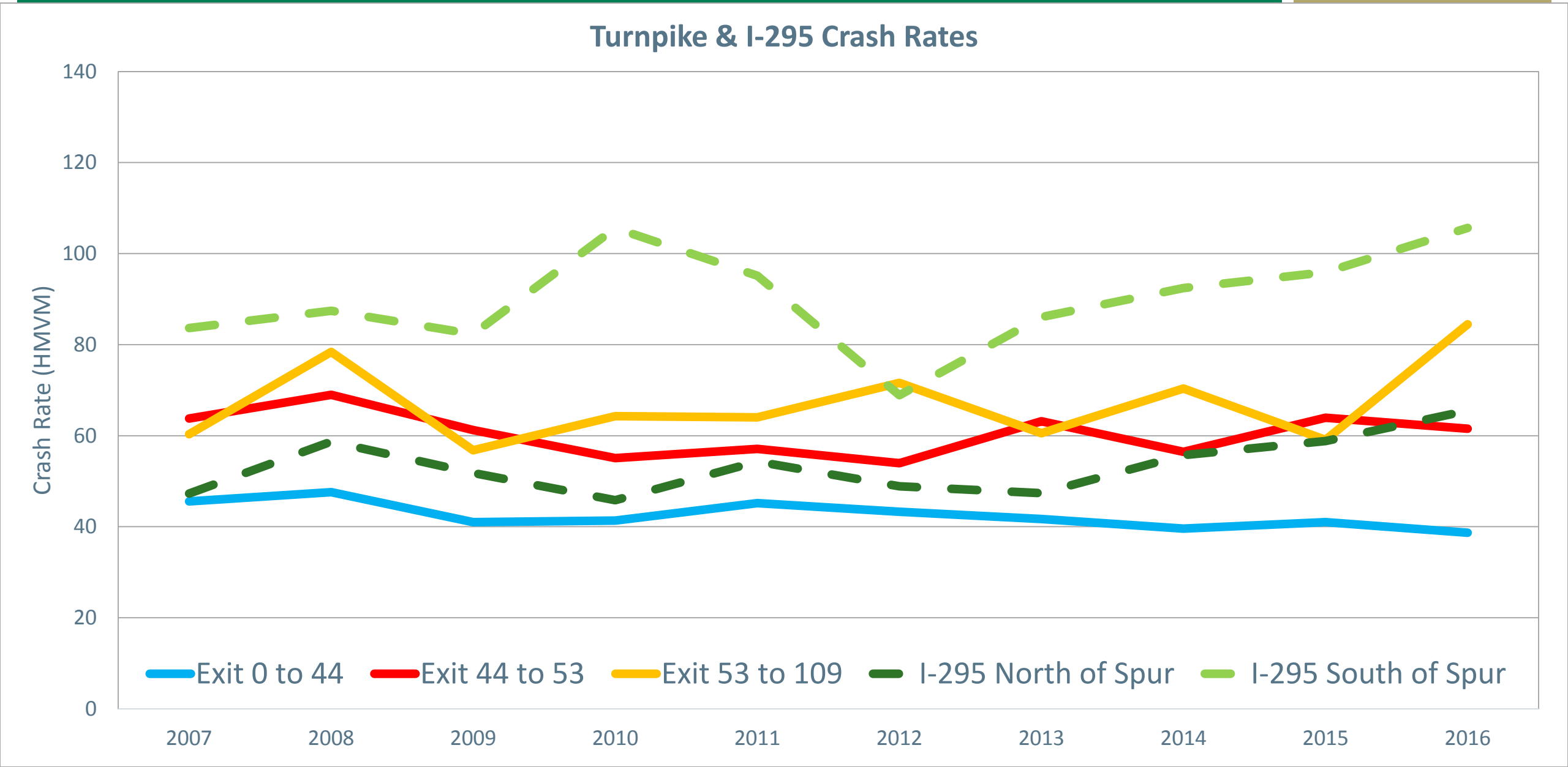
Comparison of Crash Rates: I-95



Comparison of Crash Rates: I-95



Comparison of Crash Rates: I-95 vs. I-295



How fast are people traveling on “The Road”?

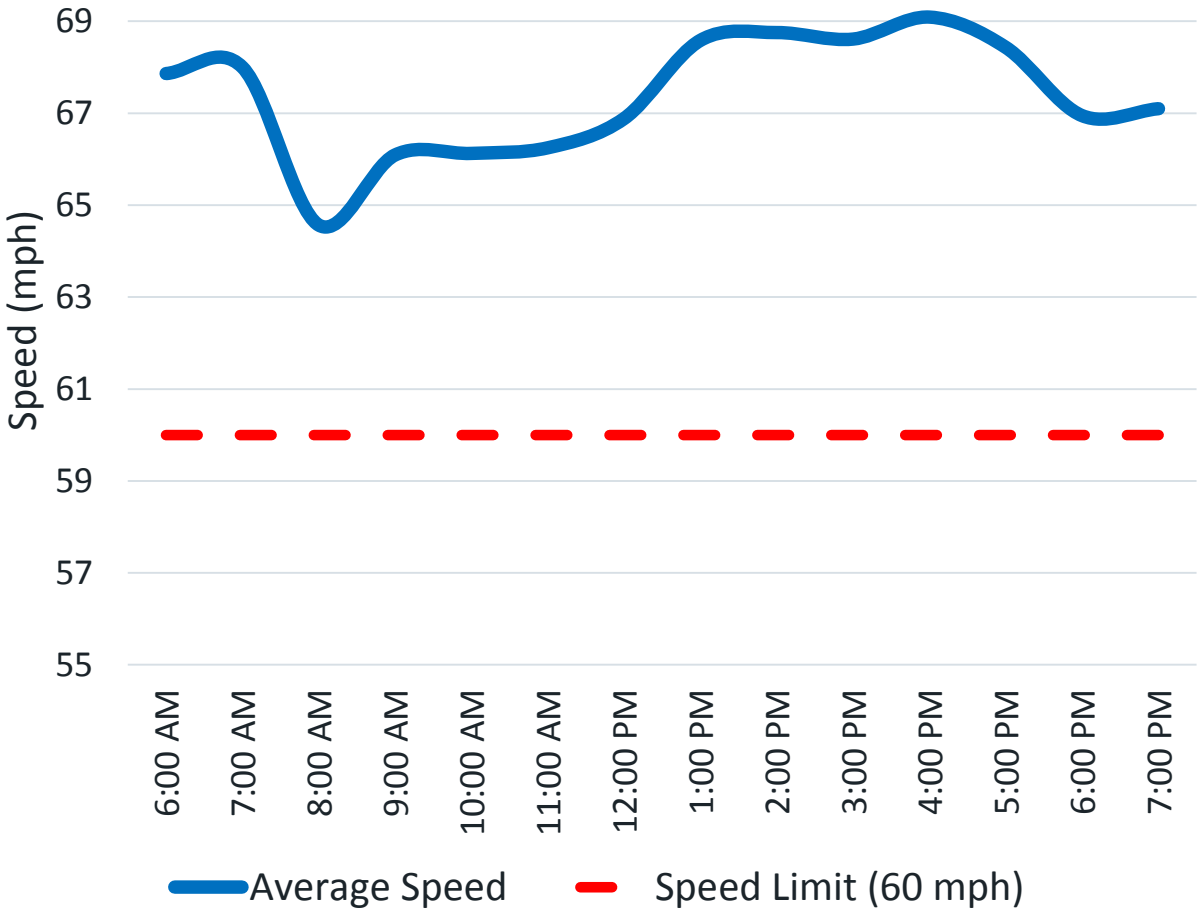
Speed

- Measure speed in miles per hour (mph)
- Data obtained from the Maine Turnpike Authority speed trailer (radar)

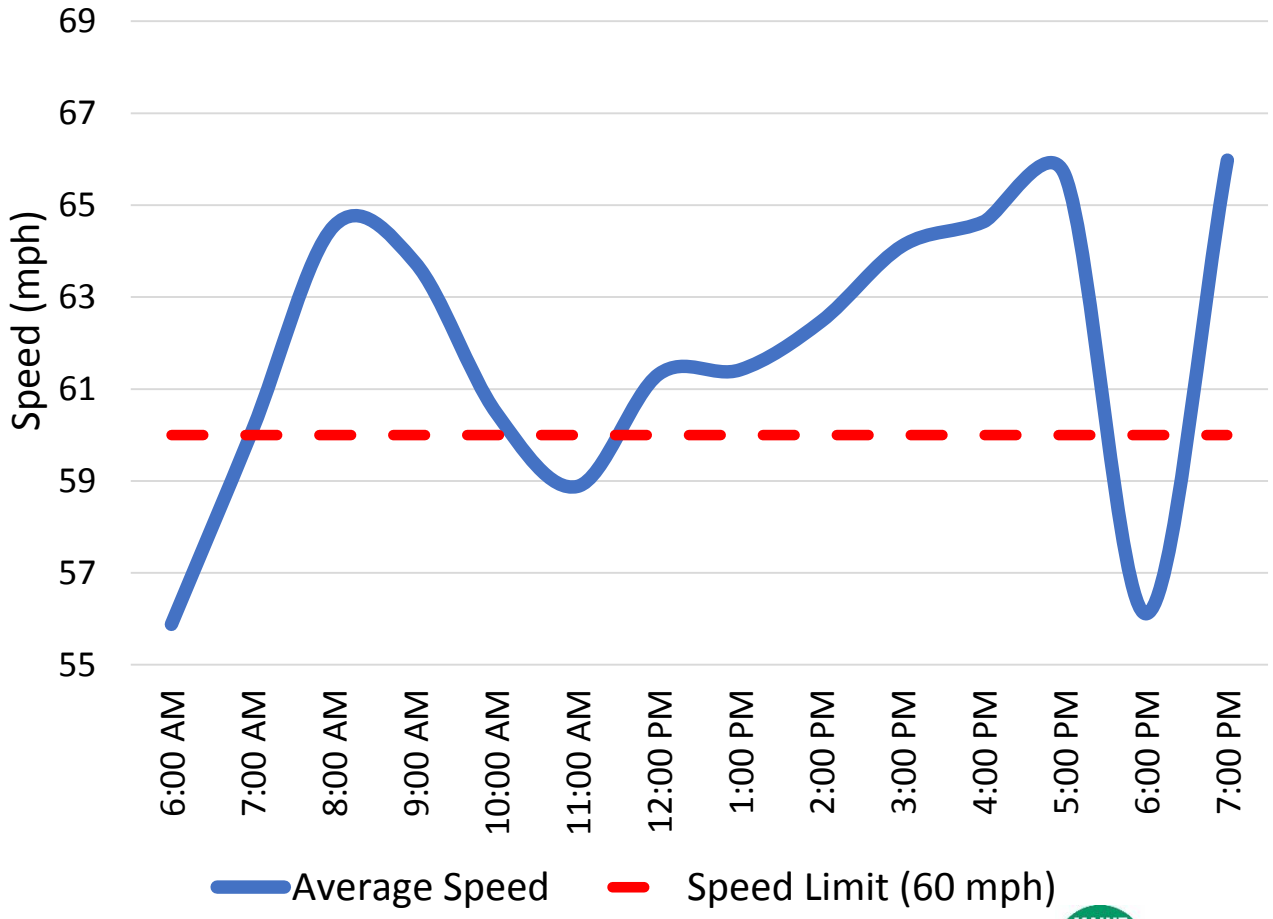
- Is traffic moving freely (free flow speed) or slowing/stop and go (congested speed)?

Summary of Speed Data – Southbound

Exits 48 to 52 SB Average Hourly Speed: March 1st, 2017

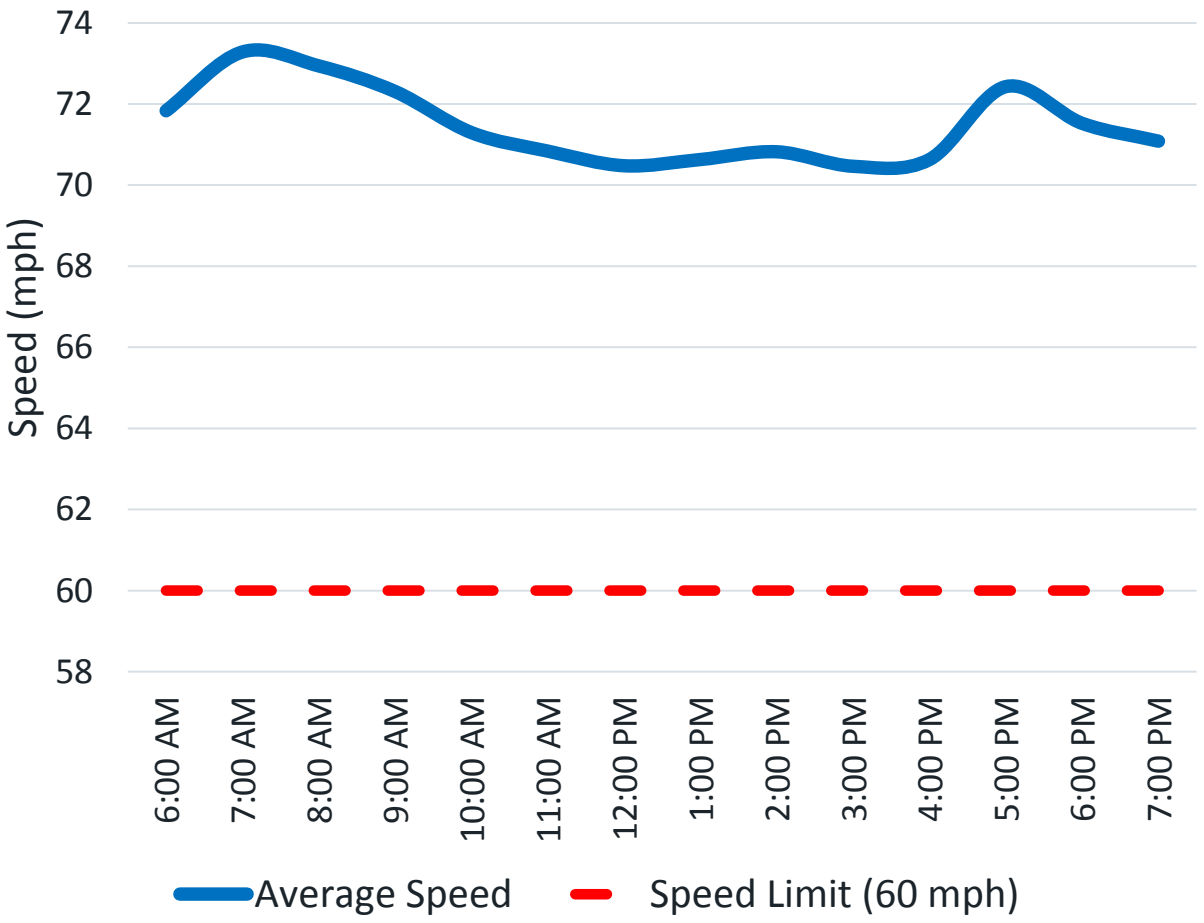


Exits 46 to 47 SB Average Hourly Speed: May 26th, 2017



Summary of Speed Data – Northbound

Exits 48 to 52 NB Average Hourly Speed: February 28th, 2017



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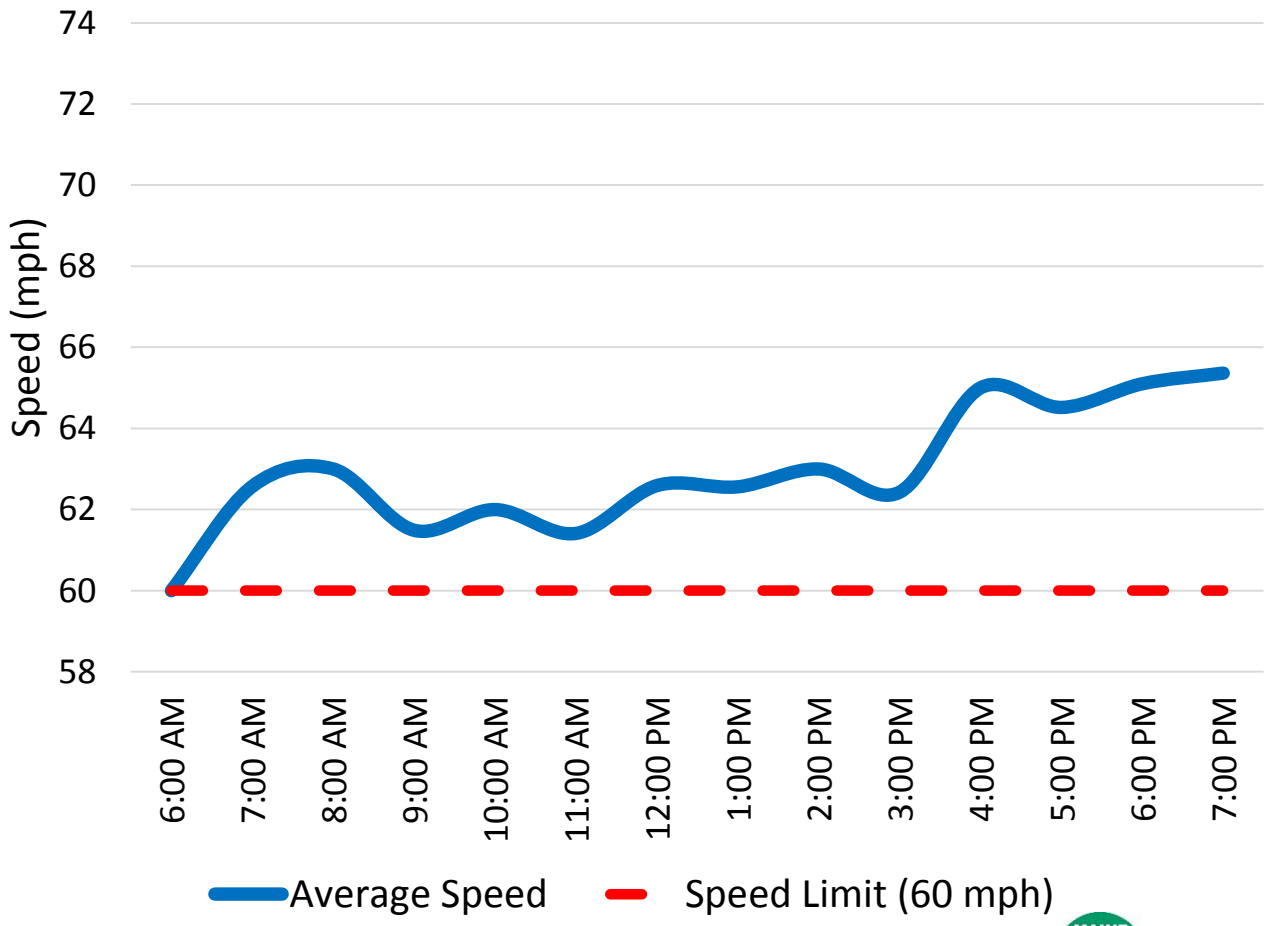

Initial Conclusions

- Traffic volumes up sizably 2014-2016
- Three sections of I-95 in Portland Area at unacceptable LOS (LOS E/F)
  - Between Exits 46 and 47 NB
  - Between Exits 47 and 48 NB
  - Between Exits 46 and 47 SB
- Seven sections of I-95 in Portland Area at near unacceptable LOS (LOS D)
  - Between Exit 44 and 46 NB (2 sections)
  - Between Exit 48 and 52 NB
  - Between Exits 44 and 46 SB (2 sections)
  - Between Exit 48 and 52 SB (2 sections)

Initial Conclusions (cont.)

- Ramps - One ramp at LOS E, 10 ramps at LOS D
- Crashes increasing as traffic increases
  - Exit 44 to 53 worse than Exit 0 to 44 and I-295 north of Falmouth, better than I-295 in Portland
- Speed conclusions:
  - Speed is beginning to show signs of slowing during peak periods

- Bottom line – operationally, several sections at unacceptable LOS. Safety and traffic issues are present and appear to be growing.

Questions?

Next Steps

- Future Conditions Analysis through the summer
- Confirm date for PAC Meeting #2 – November 14, 2017
- PAC Meeting #2 Agenda
  - Future conditions analysis (how big is the problem in the future)
  - Brainstorm/confirm alternatives to evaluate