



DATA 801: **An Analysis of** **New Hampshire Traffic Stops**

Ben Forleo, Joanna Gyory, Sam Isenberg, Chad Lyons



Agenda

Time of day, Day of week

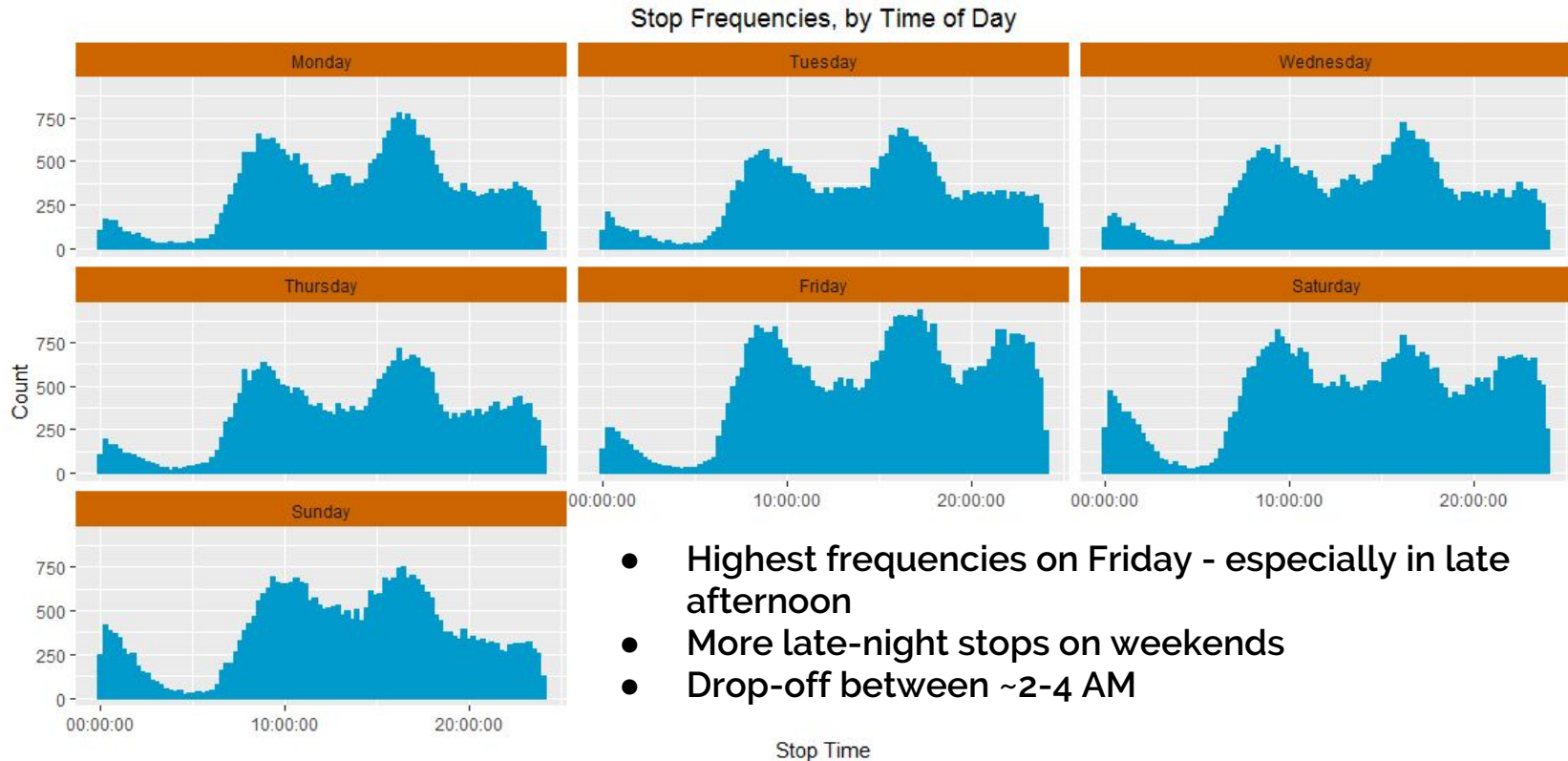
Race

Speeding frequency by county

Ticket outcome by gender

Interstates

During what **time of day** do we see the most traffic stops?
(Frequency)

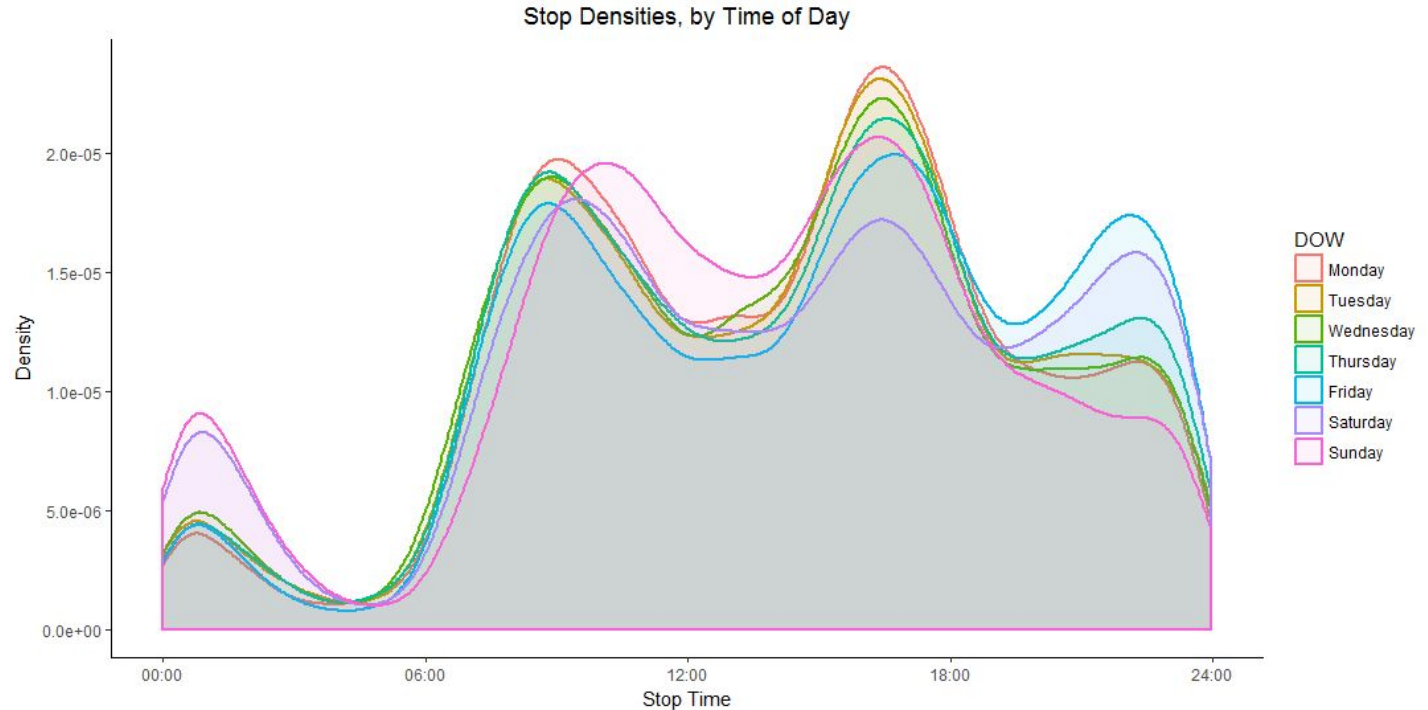


During what **time of day** do we see the most traffic stops? (Density)



- **Sunday** midday
lag, end-of-day
drop-off

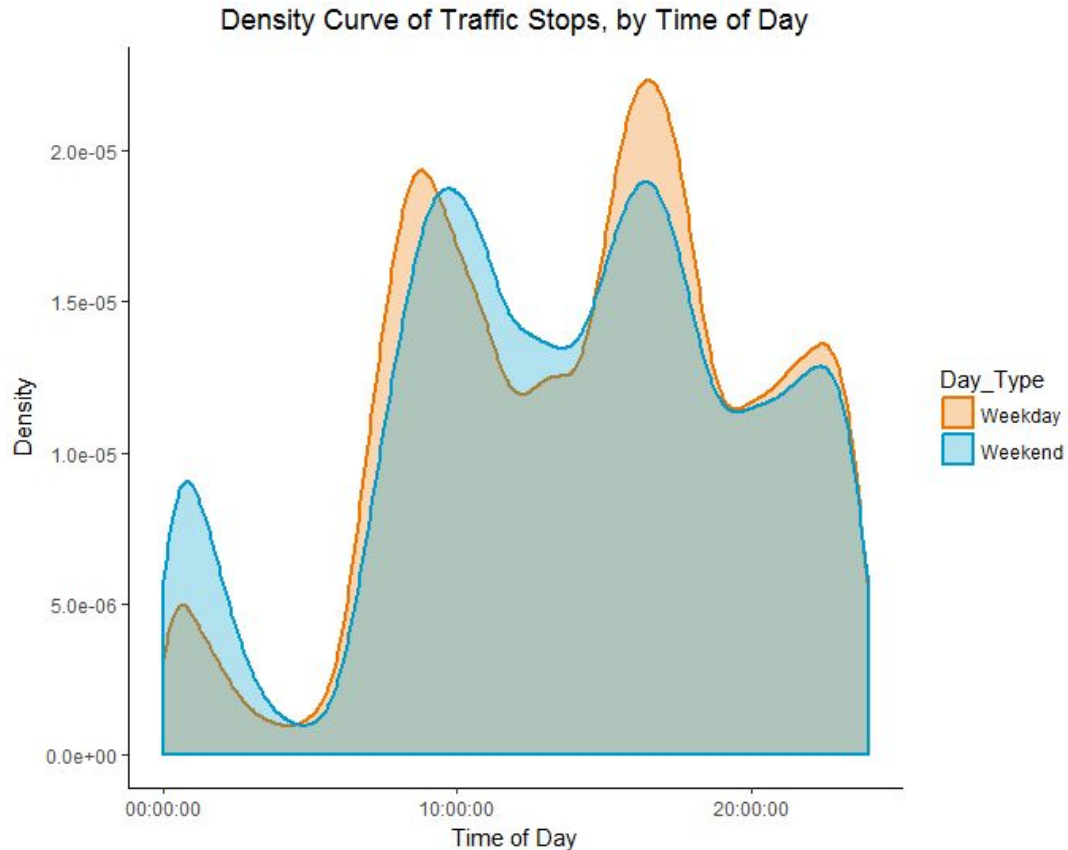
- High **Friday** &
Saturday late-night
stop rates



Weekends vs. Weekdays

Late nights and mid-day higher on **weekends**

Late afternoon / early evening higher on **weekdays**



Do different **rac**es see different stop **out**comes?

Contingency table (*counts*)

	Checkup	Summons	Ticket	Warning
<i>Asian</i>	82	108	1090	1191
<i>Black</i>	244	254	1435	2171
<i>Hispanic</i>	159	258	867	1345
<i>White</i>	6985	3626	49894	93349

Chi-sq p-value < 0.01

Proportion table (O|R)

	Checkup	Summons	Ticket	Warning
<i>Asian</i>	0.03	0.04	0.44	0.48
<i>Black</i>	0.06	0.06	0.35	0.53
<i>Hispanic</i>	0.06	0.1	0.33	0.51
<i>White</i>	0.05	0.02	0.32	0.61

O = outcome

R = race

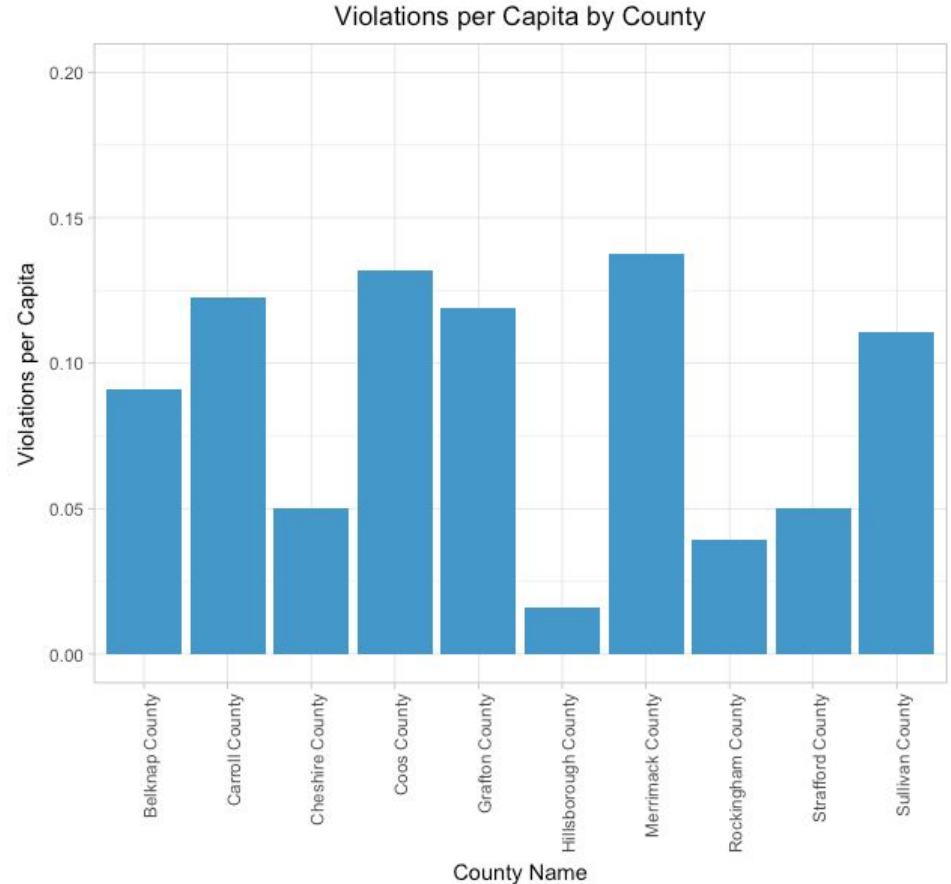
Given **white** driver stopped, higher probability of warning than for any other races

Asian drivers → tickets

Hispanic drivers → summons

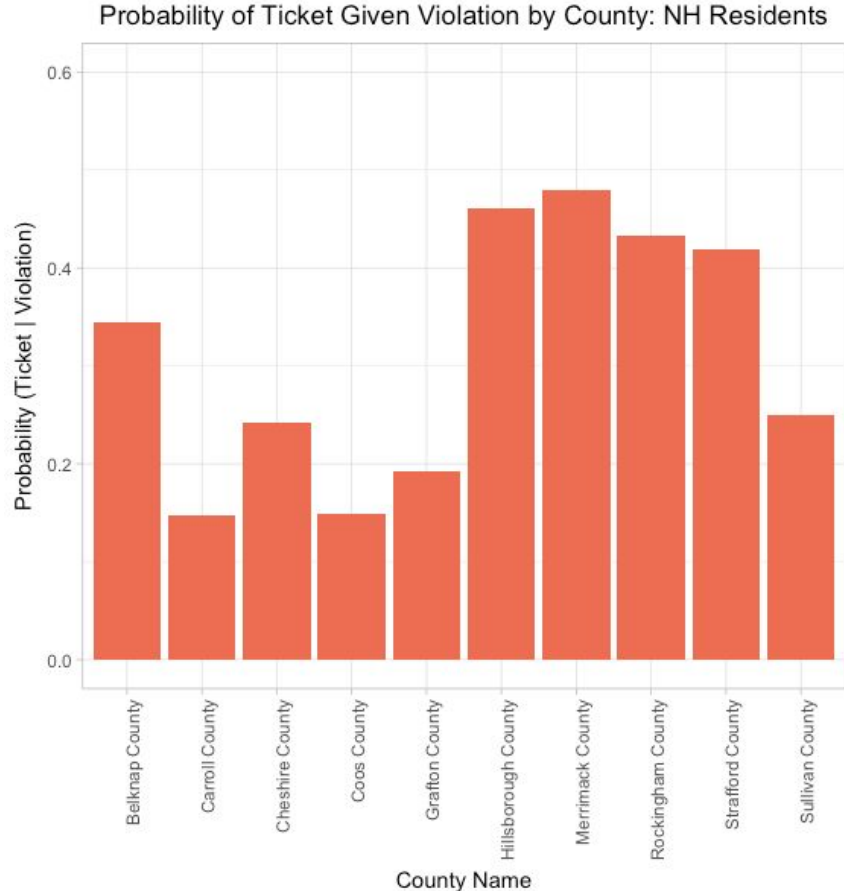
Violations per Capita by County

- Includes all speeding-related violations.
- Out-of-state drivers are **excluded**.
- Consists of the number of speeding violations per county / population per county.



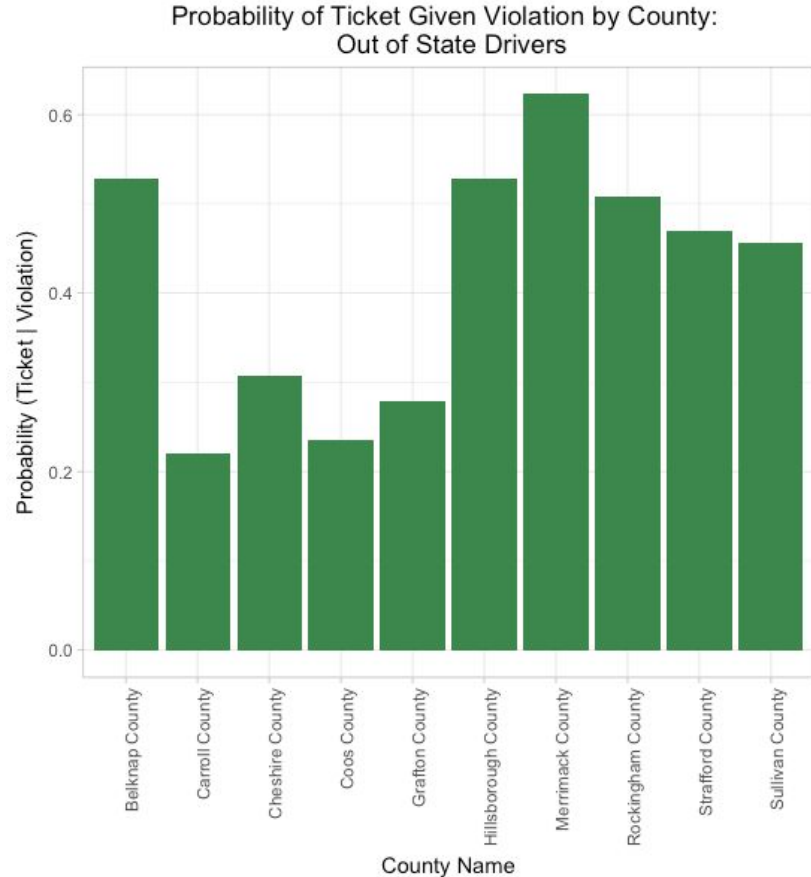
Prob. (Ticket, Given Speeding Violation)

- Includes all speeding-related violations.
- Out-of-state drivers are excluded.



Prob. (Ticket, Given Speeding Violation)

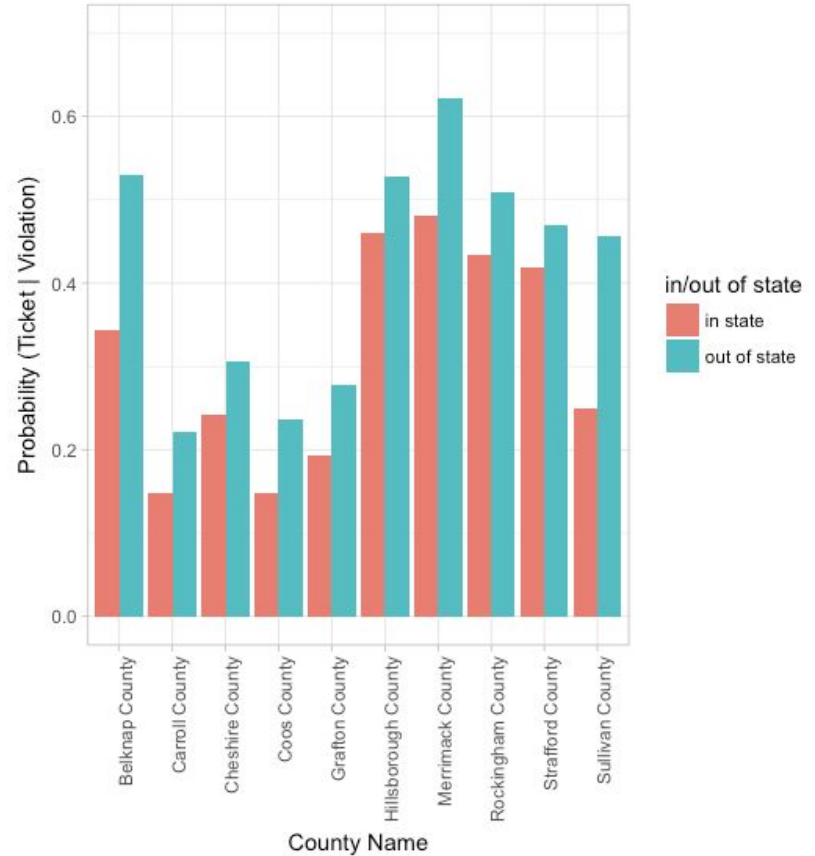
- Includes all speeding-related violations.
- Out-of-state drivers are included.



Prob. (Ticket Given Speeding Violation)

- Includes all speeding-related violations.

Probability of Ticket Given Violation by County:
In/Out of State Drivers

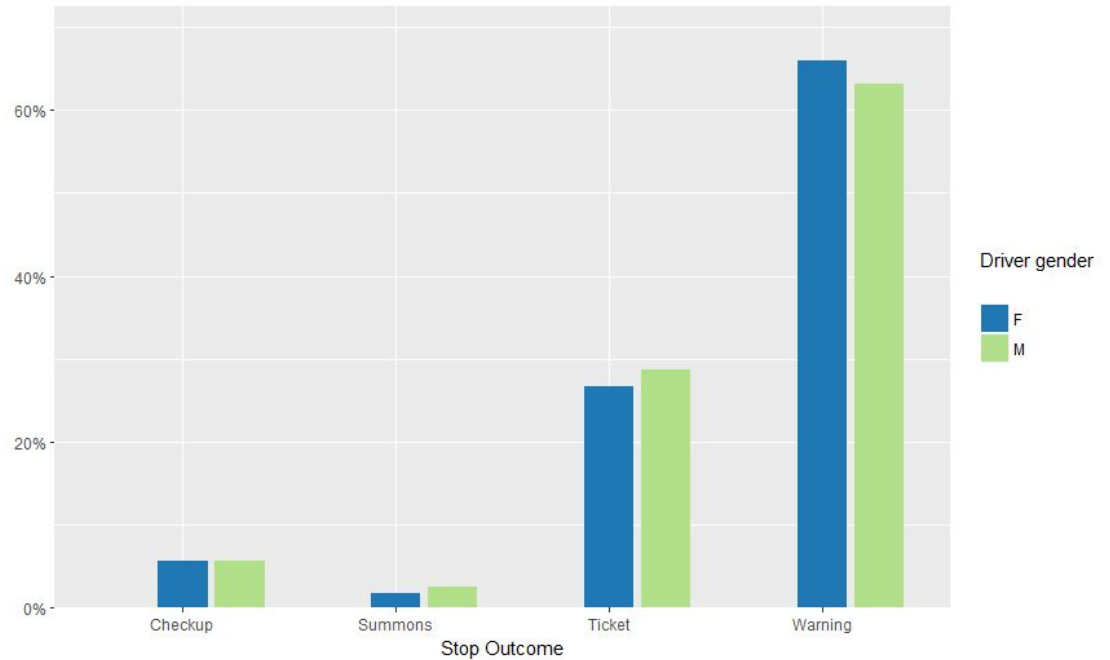




Male vs. **Female** Speeders

38 % of people pulled over for
speeding were female,
62% were male...

...but male and female speeders experienced roughly equal outcomes.





New Hampshire's Interstates

NH homes 5 Interstates;

I-89, I-93, I-95, I-293, and I-393

	89	93	95	293	393
<i>Checkup</i>	1330	3129	1357	344	202
<i>Summons</i>	503	1562	502	187	44
<i>Ticket</i>	12786	20247	6943	1182	416
<i>Warning</i>	11767	32688	9060	2350	1179

	89	93	95	293	393
<i>Checkup</i>	0.0504	0.0543	0.076	0.0847	0.1097
<i>Summons</i>	0.0191	0.0271	0.0281	0.046	0.0239
<i>Ticket</i>	0.4846	0.3514	0.3887	0.2909	0.226
<i>Warning</i>	0.446	0.5672	0.5072	0.5784	0.6404



New Hampshire's Interstates

Of the total 259,822 stops in NH in 2014 and 2015, 107,778 (41.5%) were located on these five Interstates.

I-95 is approximately 16 miles long and has given out 6,943 tickets (434tix/mile), a great disparity compared to I-89 (210tix/mile), and I-93 (153tix/mile).

I-89 is the only interstate that has a higher probability to give a ticket over a warning.

I-93 is the biggest proprietor of stops for any road in NH making up 22% of all stops in the state.



questions?