Hack-IT at OCBC.

Top 5 most obvious patterns from the data are as follows:

1. It is observed that US have heaviest traffic in the evening (18-24 Hr) and lightest traffic is obtained at night (00-06 Hr) for the year 2015. Morning mean traffic is second heaviest among four.
   General trend in mean traffic reduction of a day for year 2015:
   Evening (18-24) > Morning (06-12) > Afternoon (12-18)> Night (00-06)
   It can be justified as Office workers, students, daily wage workers etc. returns home in the evening and usually plans to go out then, resulting in heavy evening traffic, morning traffic is accounted by the rush to go to school, offices and for work and usually its bedtime at night resulting in least traffic due to 24x7 transportation services in US.
2. **Saturdays** in US are found to be extreme heavy traffic day than other days ***except for night*** time.
   General trend in traffic for a week is:
   It increases from Monday reaches its extreme count on Saturday and then drops nearer to Monday's traffic on Sunday.
   It can be explained as Saturday and Sunday are the **weekends** and as Saturday being the first people generally plan this day for some outing, shopping and personal amusements resulting in more traffic while they in general choose to rest at home on Sunday.
3. There's **a monthly parabolic trend observed in traffic for the complete year 2015 in US**.
   January and February are months with lightest and almost equal traffic. The traffic increases after February and Reaches its extreme count in month of **July (being heaviest traffic month)** and then **starts decreasing gradually till December *except for night time*** (least noticeable parabola)
   It can be justified as in US Jan and Feb are the months when its snows blocking almost most of the lanes and routes. Also, people avoids travelling in the **snowy season** which explains the least traffic in these months. **The parabola is due to the seasoning in US.** As it is a colder place with its summer season close to June and July and people there prefer this weather to travel and celebrate and what not resulting it to be heaviest traffic month.
4. **45, 9 and 4** are the **heavy traffic state**s in US for the year 2015, whereas **56 and 30 are the states where there's no traffic** at all *(Numbers are fips state codes).* The **station** with **017200, 119780 and 10093 ids** have recorded **highest mean traffic in US for the year 2015**, whereas stations ids **00041 and 075040 appears to be have no habit at all.**
5. From all the inferences and observations made from various visualizations and analysis. It is found that for various states and station ids in US on all weekdays and months mean traffic on various directions of travel, lanes of travel and functional classifications at the **night time is constant and doesn't change much.**
   In general, across the United States night traffic is almost same, which can be visualized by the approximately straight lines in the various lines plots and also seen by the constant colour in heat maps for night time.

Additional Insights from the data:

6. The **N-S or NE-SW, E-W or SE-NW** directions of various stations and states are found to have **heavy traffic in US** whereas **NE and NW are the lowest traffic directions** in general.
   (Conventions: N-North, E-East, W-West, S-South)
7. The **0th, 8th and 5th lanes for travelling are heavy traffic** lanes whereas **the 9th, 1st and 2nd lanes are better for a traveller to take as they have least traffic** on them across US.
8. The **Urban regions are found to have generally more traffic** than the **Rural ones except for the Rural: Principal Arterial – Interstate which seems to have more traffic than some minor urban areas. Urban Principal Arterial (PA) – Interstate and Other Freeways & Expressways have most traffic in US** than any other regions whereas **Rural: Local System, Major Collector and Minor Arterial seems to be the least traffic regions.**

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