Reducing Traffic Congestion by Urban Planning Improvement

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Greenhouse gas emissions

- Carbon dioxide (CO2) is one of the most responsible for Earth's climate changes.
- Vehicle traffic congestion is directly related to this problem.



Source: The Guardian

Other Vehicle Traffic Congestion Problems

- Affect the health of drivers and passengers
- Waste of potentially productive time
- ☐ Vehicles breakdowns and maintenance



Source: CBS News

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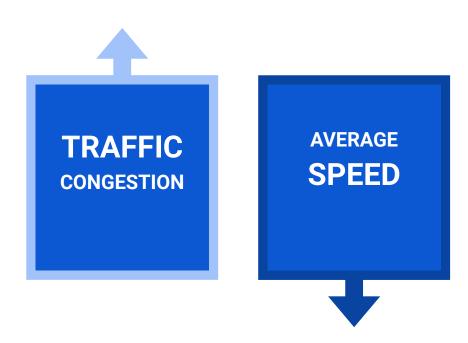


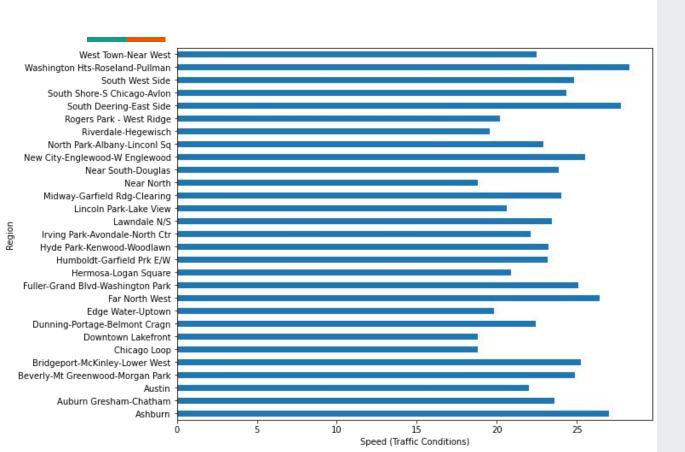
Source: CBS News

Chicago Traffic Tracker Dataset

- 29 traffic regions
- ☐ Traffic congestion by monitoring and analyzing GPS traces
- Attributes:
 - ☐ Identification and description of city regions
 - Identification, characteristics and timestamp of readings
 - Location coordinates of readings
 - Congestion indicator: average traffic speed

Average Traffic Speed



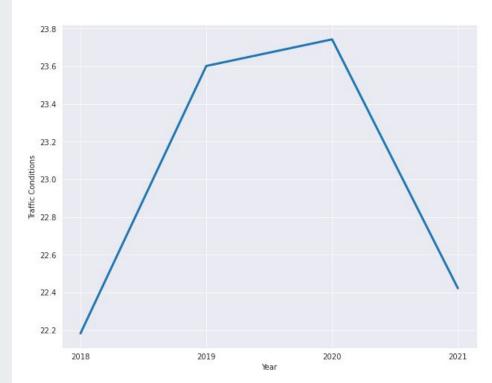


Data analysis

Average traffic conditions in each Chicago`s region, from 2018 until nowadays

Evolution of traffic conditions

- 2019: outlier (probably)
- □ 2020: outlier (covid-19)
- 2021: incomplete
- 2018: analyzed



Processes executed

Data Processing	Venues Requested	Clustering
Datasets filtered	Venues from	KMeans
and joined	Foursquare	algorithm

Average Arlington Cluster Heights. Speed (mph) Glenview Evanston Schaumburg Niles 0 (blue) 24.04 Elk Grave Village Roselle 1 (green) 20.63 Norridge Bloomingdale Bensenville 2 (purple) 22.80 Addison Northlake. Carol Stream 3 (yellow) 23.55 Lombard West-Chicago Bellwood Wheaton Westchester Cicero* Brookfield Warrenville Downers Grove Naperville Woodridge Darien Burbank Bolingbrook Worth Palos Heights Blue Island Romeoville Leaflet | Data by @ OpenStreetMap_under

Results

Regions clustered according with the their venues and facilities.

Venues and traffic conditions correlation

- Venue classifications and traffic conditions can help better distribution of the city's venues and facilities
- ☐ Can mitigate traffic jams in the streets and avenues
- Better life experience and health conditions
- Reduce CO2 emissions

