Smart City Traffic & Air Quality Insights

Analyzing traffic congestion and pollution patterns for smarter urban planning

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Problem Statement:

Current challenges in urban cities:

- 🚗 Traffic congestion
- 🌫️ Rising air pollution
- 📍 Identifying hotspots for better planning

•Objective of this dashboard → *“To monitor traffic & pollution trends, highlight hotspots, and support data-driven city planning.”*

Data Overview

- Source: Synthetic traffic & air quality dataset (BigQuery → Power BI)
- Key fields: Location, VehicleCount, PM2.5, PM10, NO2, Temperature, Humidity, Time, Date
- Scope: 5 city locations (Elm St, Main St, Park Ave, 5th Ave, Broadway)

Key KPIs

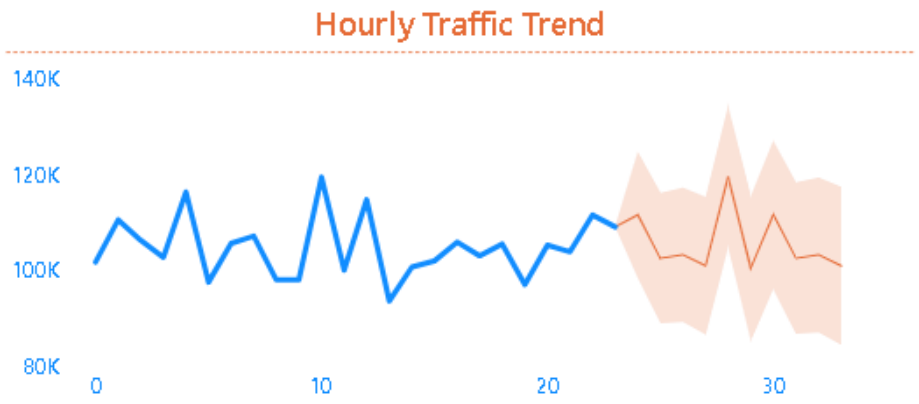
KPI Cards:

- 🚙 *Peak Hour Vehicle Count*
- 🌫️ *Highest PM2.5 / NO_2 Level*
- 📍 *Most Congested Location*

Hourly Traffic Trends

•Line chart (Hourly Vehicle Count trend)

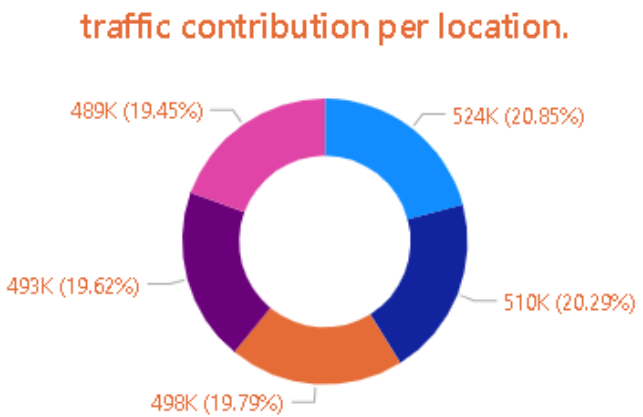
•Insight: *When is the traffic peaking (rush hours)?*



Traffic Contribution per Location

•Donut chart(Vehicle distribution across locations)

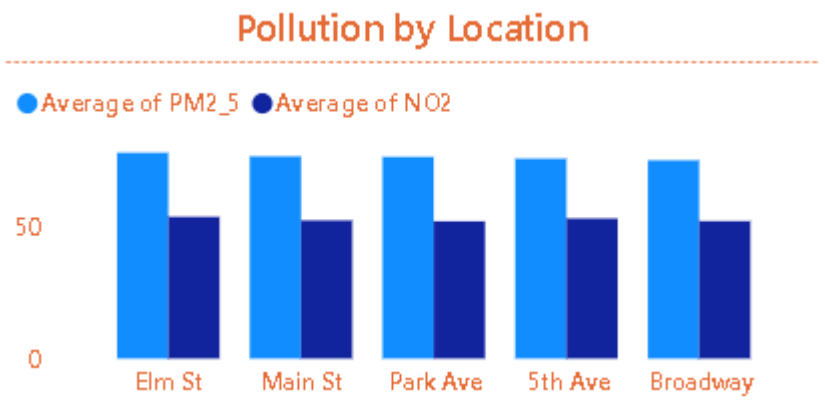
•Insight: *Which areas contribute most to congestion?*



Pollution Insights

•Bar chart comparing **PM2.5 vs NO_2 by Location**

•Insight: *Which areas are pollution hotspots?*



Geo Hotspots Map

•Map visualization with bubble size = traffic count, color = pollution level

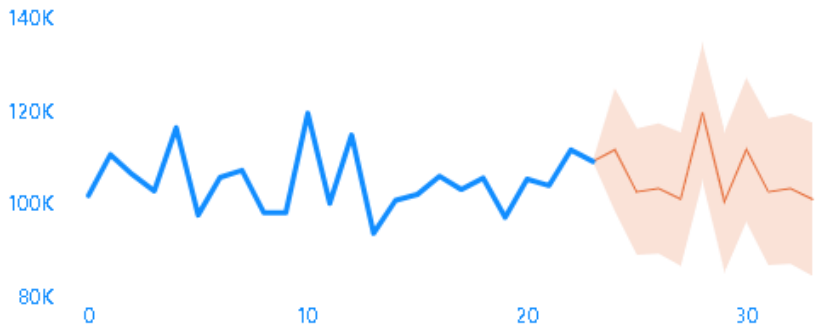
•Insight: *Hotspot areas (high congestion + pollution overlap)*

Dashboard:

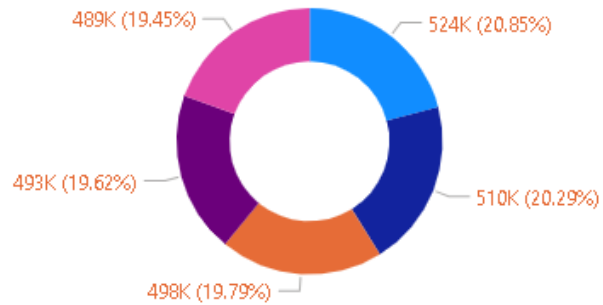
"Smart City Traffic & Air Quality Insights"

Analyzing traffic congestion and pollution patterns for smarter urban planning"

Hourly Traffic Trend



traffic contribution per location.



Elm St

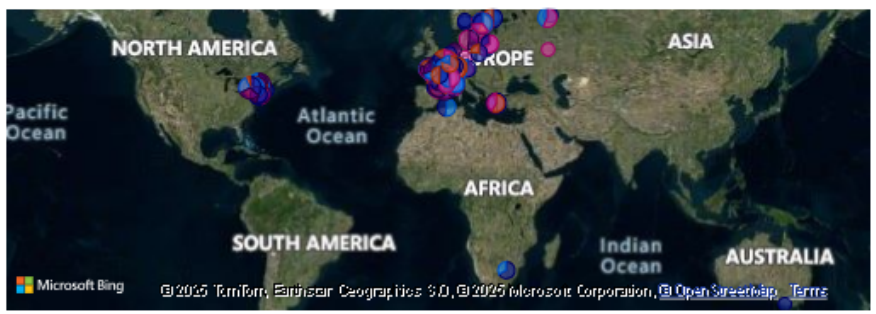
Most_Congested_Location

Location

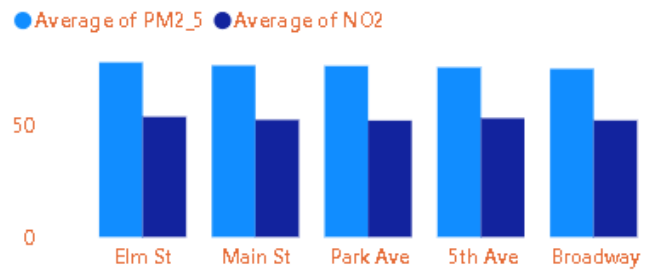
- [ ] 5th Ave
- [ ] Broadway
- [ ] Elm St
- [ ] Main St
- [ ] Park Ave

Traffic + Pollution Hotspots

Location ● 5th Ave ● Broadway ● Elm St ● Main St ● Park Ave



Pollution by Location



Highest PM2.5 / NO_2 Level

149.99 100.00

Peak Hour Vehicle Count

274

Recommendations :

📍 Target high-traffic hotspots (Elm St, Main St) with congestion control measures

- 🌫️ Pollution monitoring for high PM2.5 zones
- 🚦 Suggestion: Smart signals, EV promotion, alternate routes

Thank You:
LinkedIn:
Git hub: