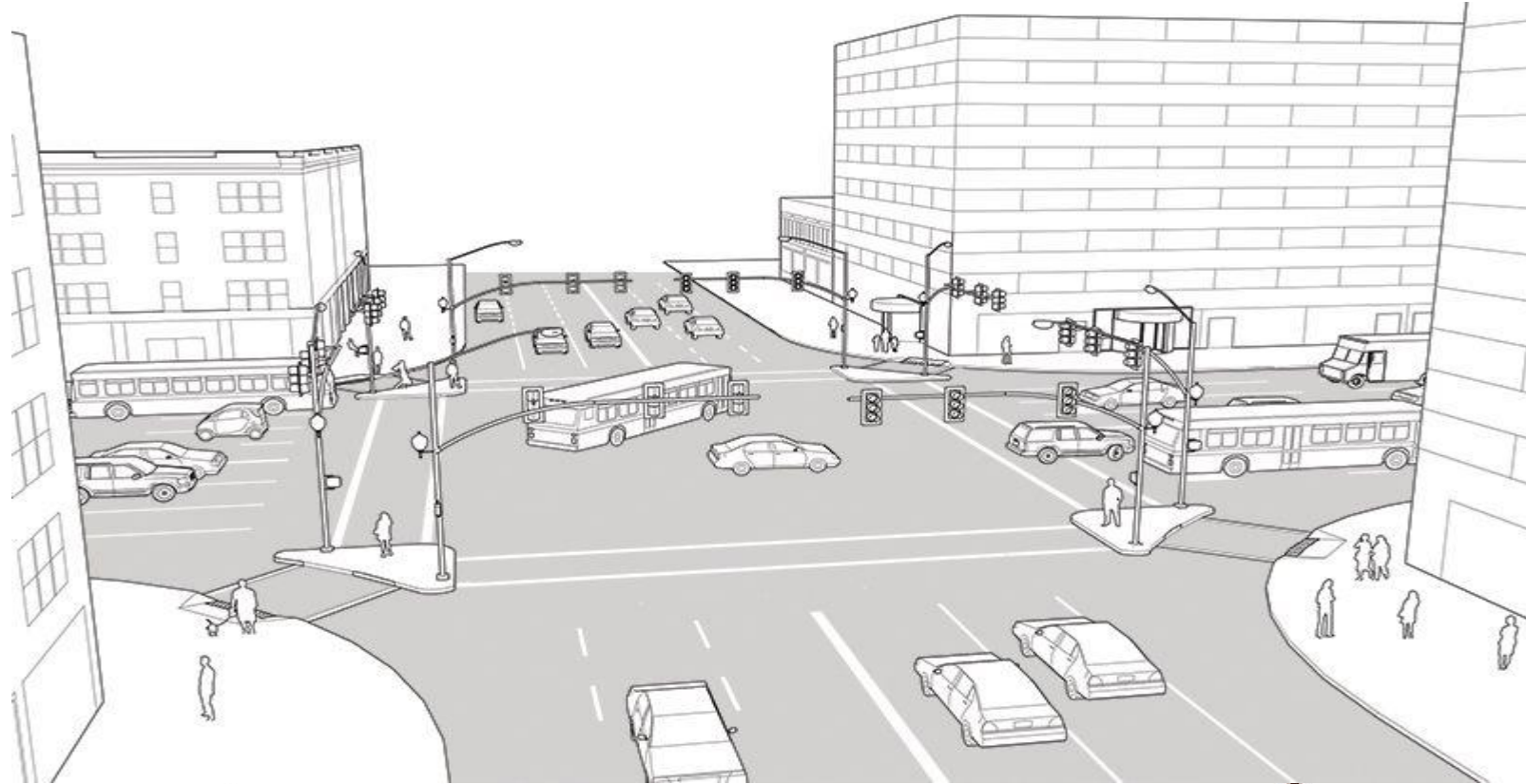# URBAN TRAFFIC ANALYSIS

MindMatrix

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CURRENT SCENARIO

SUMMARY OF URBAN TRAFFIC AT PRAYAGRAJ
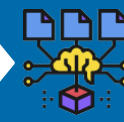
CURRENT SCENARIO → **IDENTIFICATION OF ISSUES** → **RECOMMENDATIONS** → **IMPLEMENTATION ROAD-MAP**

THINGS TO BE NOTICED

111
Total vehicles passing through each intersection

33.62
Average speed of vehicles at intersection in km/hr

51.67
Average wait time of vehicles at intersection in s

2.21
Average pollution level at each intersection in ug/m^3

KATRA
Busiest Intersection with highest average of vehicles present at intersection

HEAVY RAIN
Weather having least traffic and pollution

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1 Overview : Traffic

The city experiences significant traffic congestion, especially in areas like Civil Lines, Chowk, and Jhonstonganj.

- **PM 2.5 Levels**: Allahabad's air quality is often affected by high levels of PM2.5, especially due to vehicle emissions

- **Security and Accessibility**: Traffic safety has been a focus, with increased CCTV surveillance

- **Noise Pollution**: The noise levels in central areas frequently exceed the CPCB's standard of 75 dB.

- **Public Transport Modernization**: – Allahabad is expanding e-rickshaws, electric buses, and bus routes to ease private vehicle use.

2 Insights : About vehicles

- **Cars**: High private car density contributes to traffic congestion, especially at major intersections in urban areas.

- **Trucks**: Prayagraj, as a major transit point, has substantial truck traffic, particularly on highways and ring **roads**

- **Buses**: Both state-run and private buses are prevalent, with the UPSRTC introducing electric buses to promote eco-friendly travel ahead of major events like Mahakumbh 2025

- **Motorcycles**: Motorcycles are among the most common forms of transport due to their affordability and ease of navigation in traffic.

TYPE OF VEHICLE

CAR
BUS
MOTORCYCLE
TRUCK

AVERAGE COUNT

11
67
22
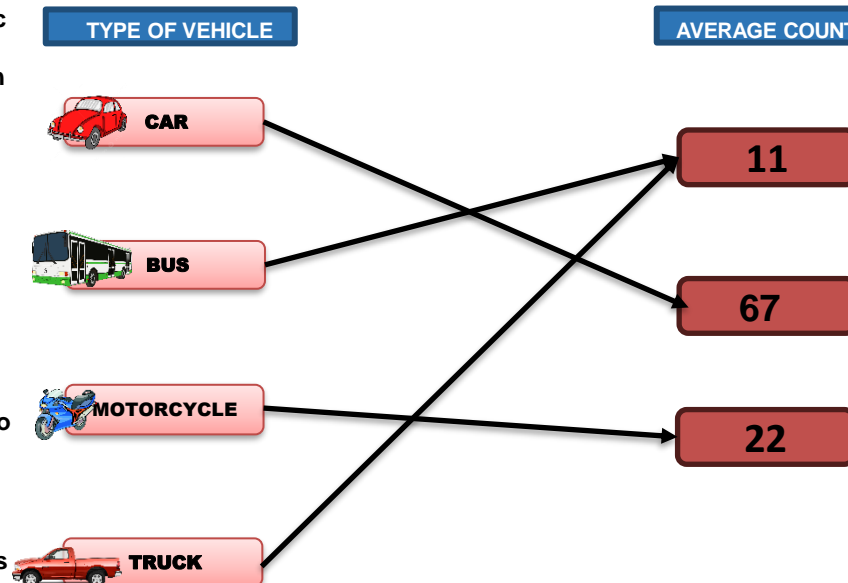
3 Analysis of Pollution

Place	Vehicle Count	Pollution (ug/m^3)
Allahabad Junction	111	2.22
Chowk	112	2.24
Civil Lines	112	2.24
Jhunsi	109	2.19
Katra	113	2.26
MNNIT Gate	107	2.14
Minto Park	111	2.22
Naini Bridge	110	2.19
Phaphamau	108	2.17
Tagore Town	112	2.23

KEY ADDRESSABLE ISSUES

POLLUTION LEVELS OF THE CITY

- **High** volume of traffic at intersections
- Bus and trucks emit a a **significant amount of toxic** wastes
- **Lack** of smart traffic measures

- Average pollution at each intersection is 2.21 ug/m^3

- Air pollution in Prayagraj contributes to thousands of hospitalization

- City's air quality often exceeds safe limits, with PM 2.5 levels.

TRAFFIC CONGESTION

High vehicle counts at major intersections cause bottlenecks during **peak** hours, leading to **longer travel** times, frequent stops, and increased fuel consumption and emissions.

- Vehicle Count: Ranges from 0 to 438 across intersections, with an average of about 111 vehicles per record, indicating heavy congestion at peak times.

- Average Speed: With an average speed of 33.6 km/h and a minimum of 8.2 km/h, traffic flow is often slow, contributing to delays.

- Waste: Congestion wastes time and fuel, leading to economic losses as workers, goods, and services are delayed.

ROAD SAFTEY CONCERNS

- **Car, Bus, and Truck Counts:** Car count averages around 66 per record, with bus and truck counts averaging 11 each. A high presence of mixed vehicle types can increase accident risk, especially in congested intersections.

- **Signal Timing:** Green times average around 63 seconds, with red times around 51 seconds. Shorter green signals during peak hours could contribute to pedestrian and vehicle crossing risks.

- **Motorcycle Count:** With an average of 22 motorcycles per record and a peak of 93, these vehicles add to road complexity and accident risk in mixed traffic.

SAFETY FIRST

RECOMMENDATIONS AND IMPLEMENTATION

5 GREEN SPACES

Green Urban Planning

- Developing green spaces, planting trees along roads, and creating "green belts" around the city can help absorb pollutants and improve air quality

- Allowing space for community gardens and urban farming initiatives not only fosters community engagement but also provides local produce, reducing the carbon footprint.
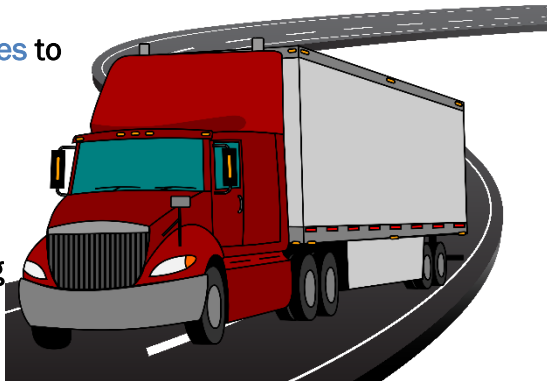
7 REVENUE TO LOCAL GOVERNMENT

Fuel ! Your Revenue Surge

- Increased Reach: Billboards in high-traffic areas maximize public message visibility and engagement.

- Water Conservation: Reducing sprinklers in busy zones minimizes water waste where greenery isn't the focus.

- Resource Efficiency: Prioritizing billboards over sprinklers in high-traffic areas cuts maintenance costs and optimizes resources.

6 Change in Timing

Entry timing for trucks

- Trucks will be assigned specific entry times to prevent congestion and ensure efficient loading/unloading at logistics centers.

- Entry timings will be regulated to reduce traffic disruption, minimize pollution, and comply with local laws, particularly during peak hours.

8 AI in Traffic

Real life monitoring of traffic

- Real-Time Signal Control: AI will monitor traffic flow and adjust green light durations dynamically to ease congestion.

- Improved Efficiency and Lower Emissions: Adaptive signals will reduce idle times, resulting in smoother traffic flow and fewer emissions.

RECOMMENDATIONS AND IMPLEMENTATION

9 Designated Lanes

Seperating lanes for bigger vehicles

- **Dedicated Lanes:** Special lanes for buses and carpools will reduce delays by allowing them to bypass regular traffic.

- **Reduced Congestion:** Encouraging shared rides will lower single-occupancy vehicles, improving traffic flow and reducing travel times.

11 Walkovers

Overhead walkovers reduce congestion

- **Improved Safety**: Pedestrian overpasses or underpasses will separate foot traffic from vehicles, reducing accident risk at busy intersections.

- **Better Traffic Flow:** Diverting pedestrians away from intersections will allow vehicles to move more smoothly, easing congestion.

10 CCTV

Cameras for speeding

- **Speeding Deterrence:** Speed cameras will discourage drivers from speeding, improving safety.

- **Increased Safety:** Cameras will reduce accidents by enforcing speed limits at high-risk intersections.
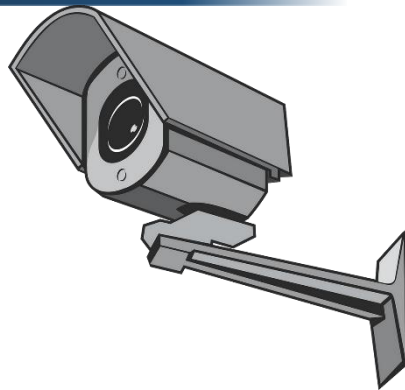
12 Traffic flow

Integrating softwares

- **AI-Driven Traffic:** Optimization: AI software adjusts signals and routes to prevent congestion, reducing the need for road expansions.

- **Maximized Road Efficiency:** Optimizing traffic flow uses existing infrastructure more effectively, lowering maintenance and expansion costs.

THANKS

"Together, let's build a future where tradition meets innovation"