

LLM-generated Explainable Reports and Actionable Recommendations

(a) Routine Congestion

User Input

"Please provide a report for routine morning peak hour congestion on Highway A southbound."

LLM Report

Traffic conditions are expected to deteriorate on Highway A southbound between 7:30–9:00 AM due to routine morning peak flows. Historical patterns indicate stable but heavy congestion during this period. No incidents or external disruptions have been reported at this time.

Recommendations

- Activate ramp metering systems.
- Deploy dynamic signage for travel time guidance.

(b) Construction Event

User Input

"Analyze the impact of a single lane closure on Highway B (MM 10–12) starting at 8:00 AM."

LLM Report

Lane closure between mile markers 10 and 12 on Highway B is expected to cause upstream congestion starting from 8:00 AM. Queue length is projected to exceed 1.5 km, with delays surpassing 30 minutes. Nearby arterial routes (C and D) may also see increased spillover volume.

Recommendations

- Implement diversion via Route C.
- Adjust signal timings to handle overflow.
- Increase monitoring of congestion hotspots.

(c) Event Egress

User Input

"What is the egress traffic forecast for the major concert ending at Stadium Z around 10:00 PM?"

LLM Report

Following the concert at Stadium Z, severe outbound traffic is anticipated between 10:00–11:30 PM. Primary egress routes P and Q are expected to experience significant gridlock. Delay is likely exacerbated by concentrated departure waves and limited public transport options.

Recommendations

- Apply special event signal plan B on exits.
- Coordinate with parking operators for phased egress.
- Promote public transit as a preferred option.