

Transforming UAE Roads Into the World's Smartest Transportation Network

A Proposal for an Intelligent Traffic,
Safety, and Infrastructure Platform



مجالس المحو
ROADS AND TRANSPORT AUTHORITY

RTA

The Current System Comes at an Enormous National Cost



AED 3.5 Billion

Inter

Annual economic loss from traffic congestion in Dubai alone.

1,200+

Inter

Annual road fatalities across the UAE, representing an unacceptable human cost.

CRITICAL DISRUPTIONS

Inter

Key infrastructure decisions are based on outdated data, while weather events like fog and sandstorms regularly paralyze the network.

Our Solution is Based on a Single, Powerful Idea: What If Every Car Became a Smart Sensor?



The result: Roads that think, adapt, and optimize themselves in real-time.

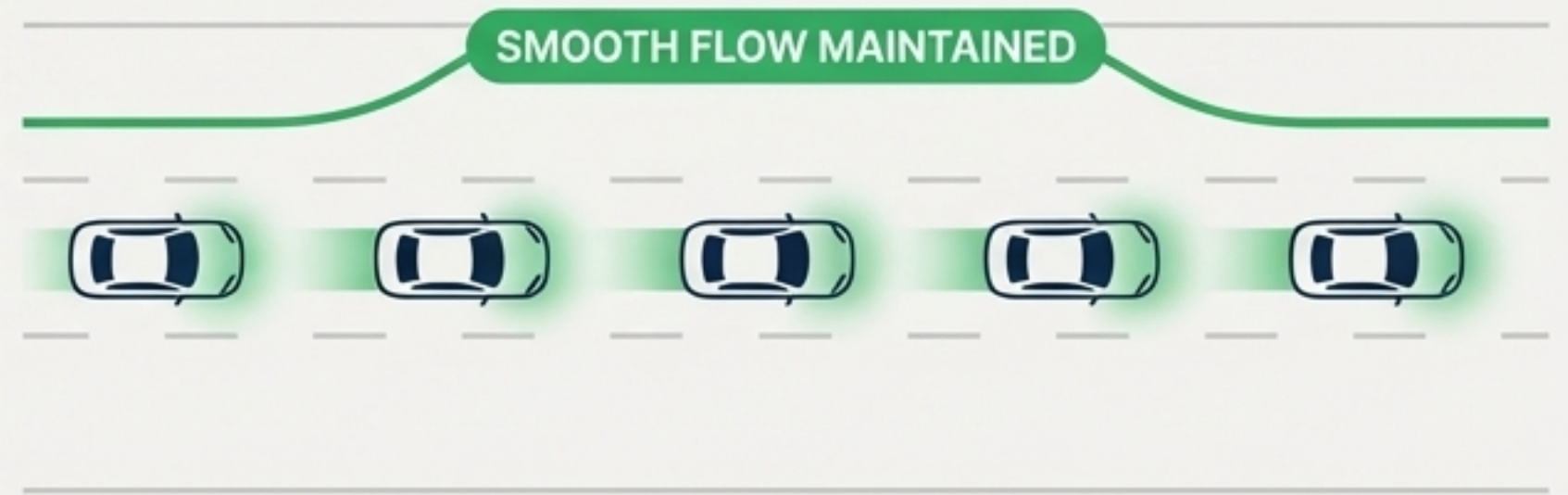
We Can Eliminate Phantom Jams by Coordinating a Fraction of Vehicles

Without Our System



The system detects congestion forming miles ahead and issues coordinated, gradual speed reductions to upstream traffic, preventing the hard braking that causes traffic waves.

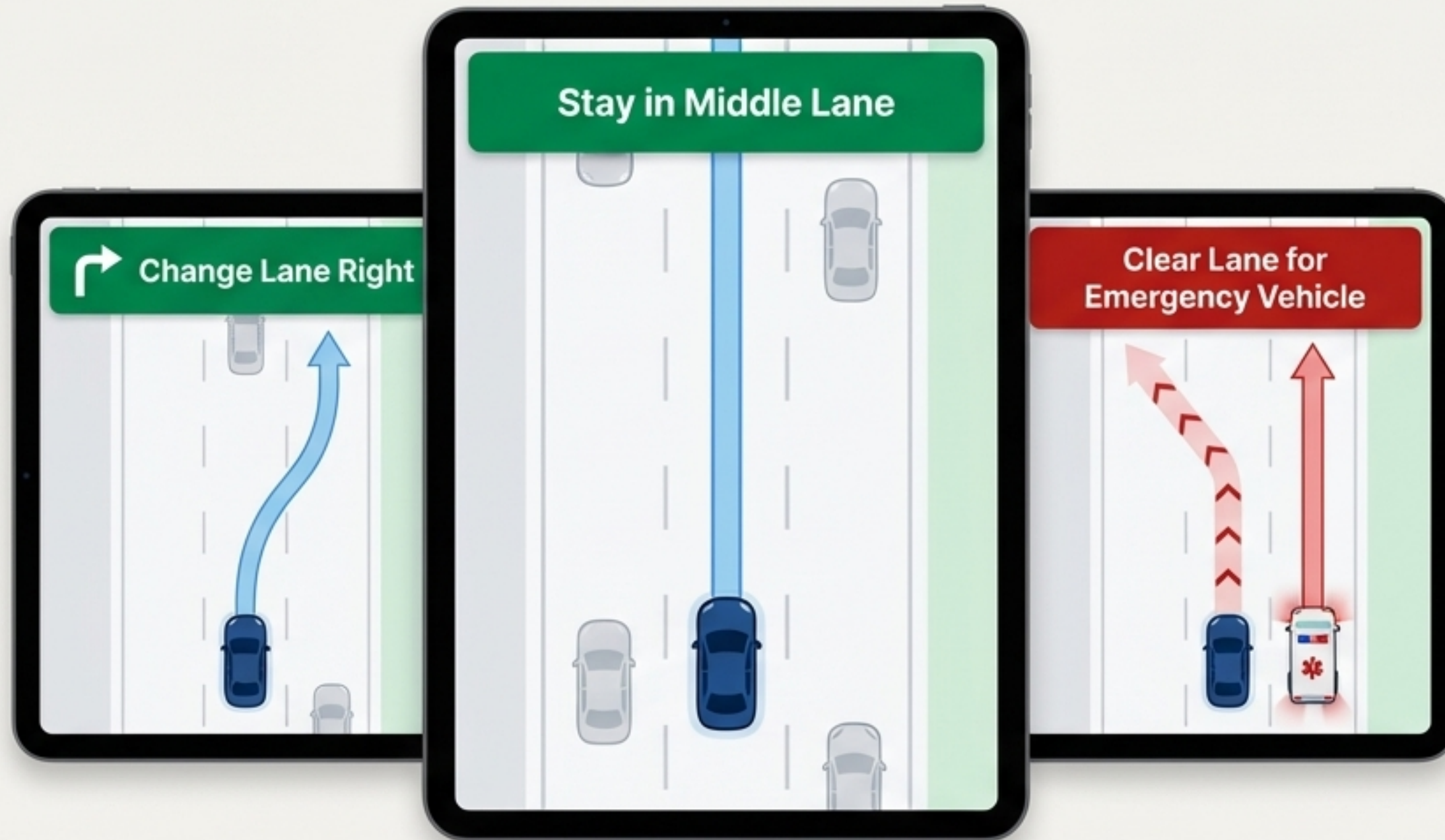
With Our System



Key Insight

The Math: Just 20-40% of vehicles following guidance can smooth flow for everyone. Controlling 5-10% can increase highway throughput by 20-40%.

Simple, Clear Guidance That Drivers Will Actually Follow

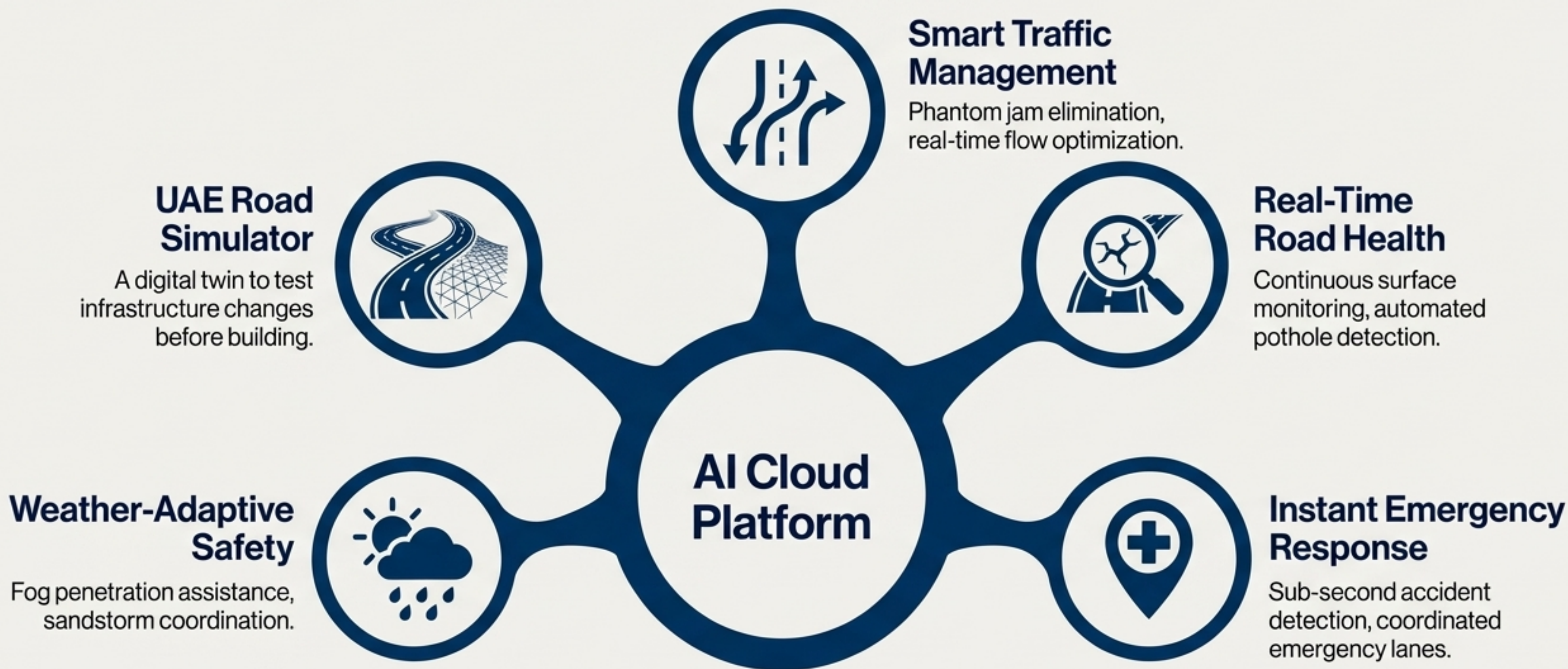


The driver interface provides actionable, real-time information, not overwhelming commands.

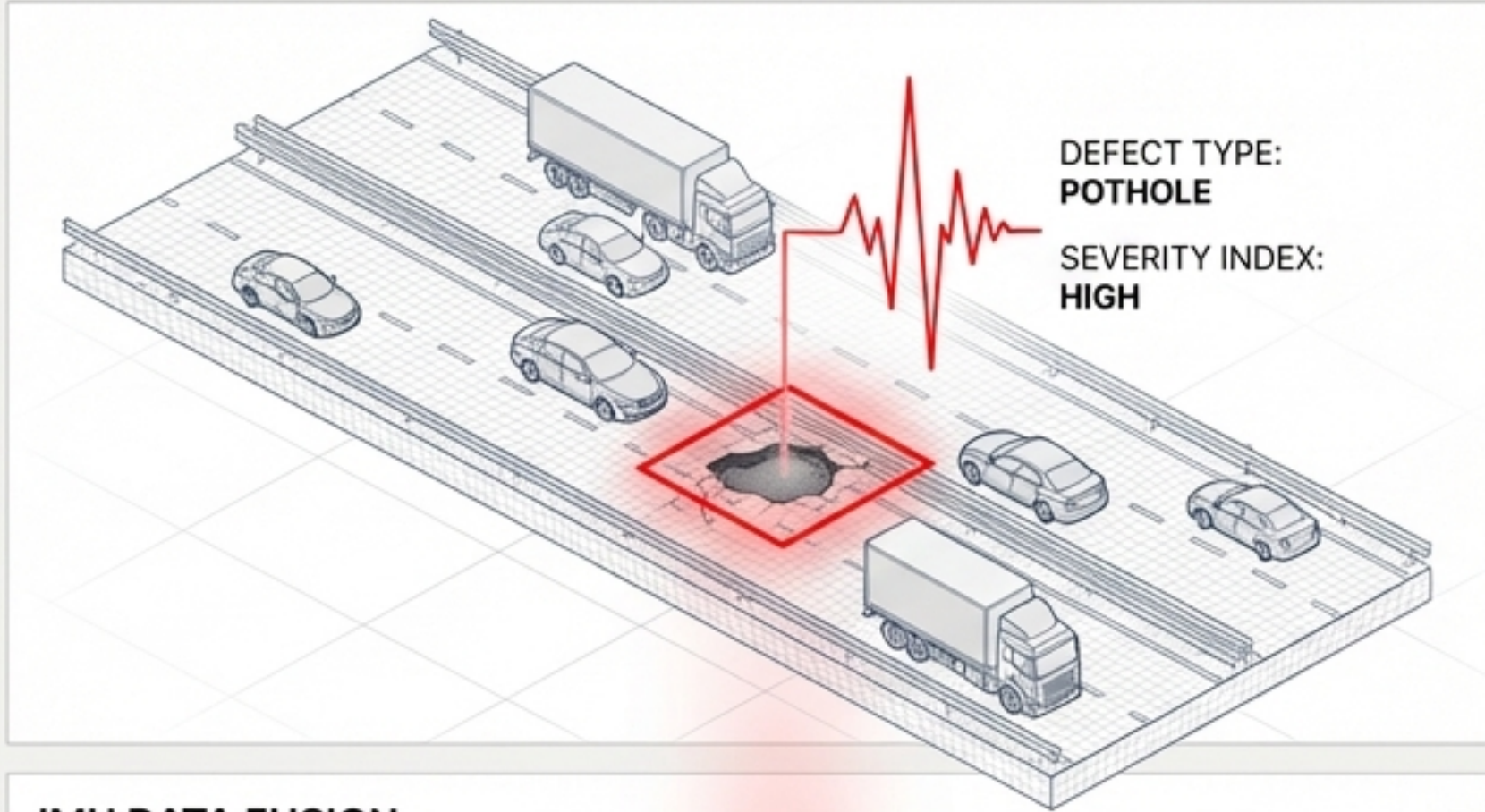
- **Guidance:** Recommends optimal speed and lane choice based on destination and real-time flow.
- **Reasoning:** Provides clear reasons for guidance (e.g., 'Traffic ahead,' 'Roundabout Ahead').
- **Benefit:** Shows estimated time saved, encouraging compliance.

Compliance through transparency: drivers understand WHY they are being guided.

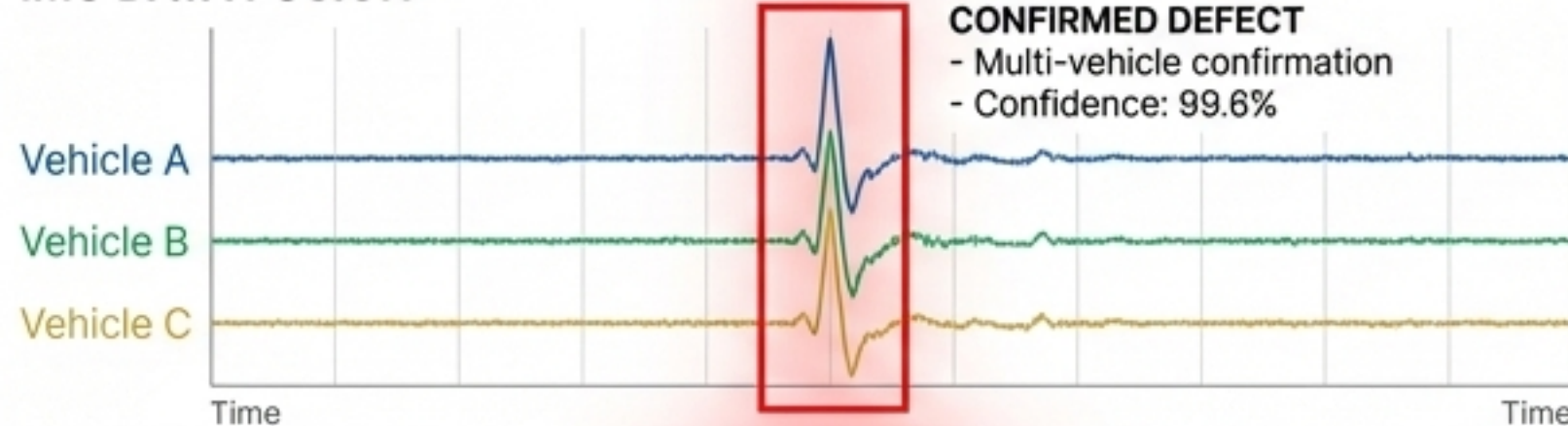
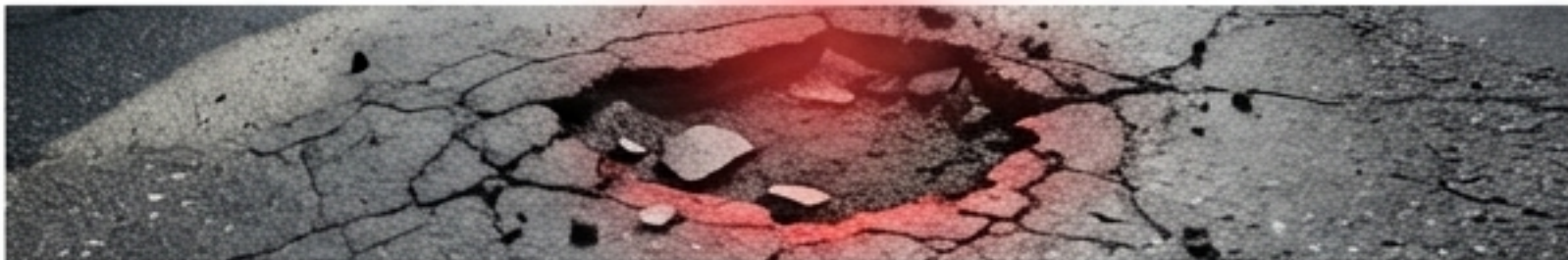
This is More Than a Traffic Fix—It's a Platform of Five Game-Changing Capabilities



Proactive Road Maintenance Through Automated, Real-Time Health Intelligence



IMU DATA FUSION



How It Works



IMU Sensors detect vibrations from surface defects.



RTK GPS marks the exact location ($\pm 2\text{cm}$).



AI Analysis with multi-vehicle confirmation classifies the defect type and severity, eliminating false positives.

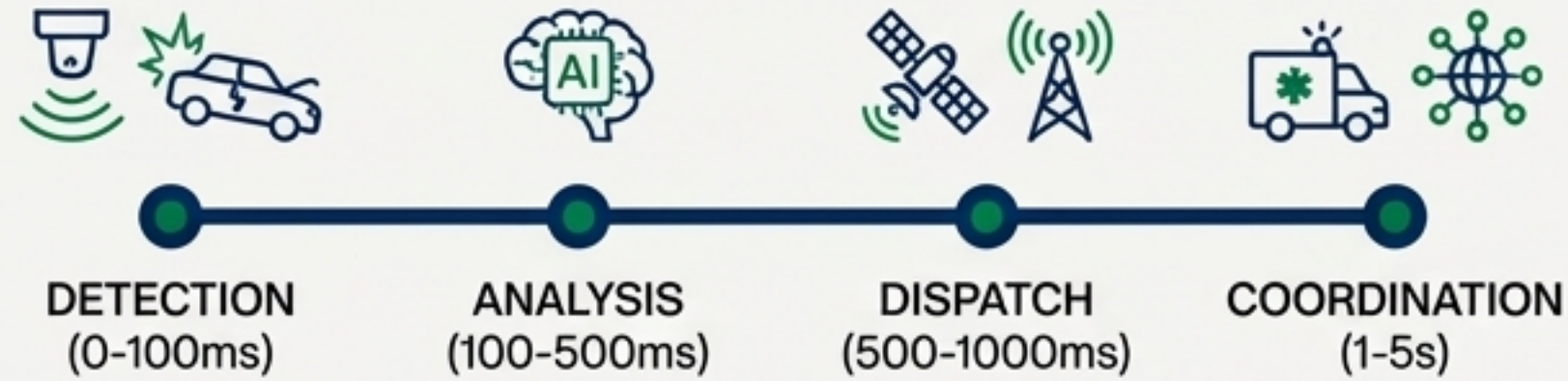
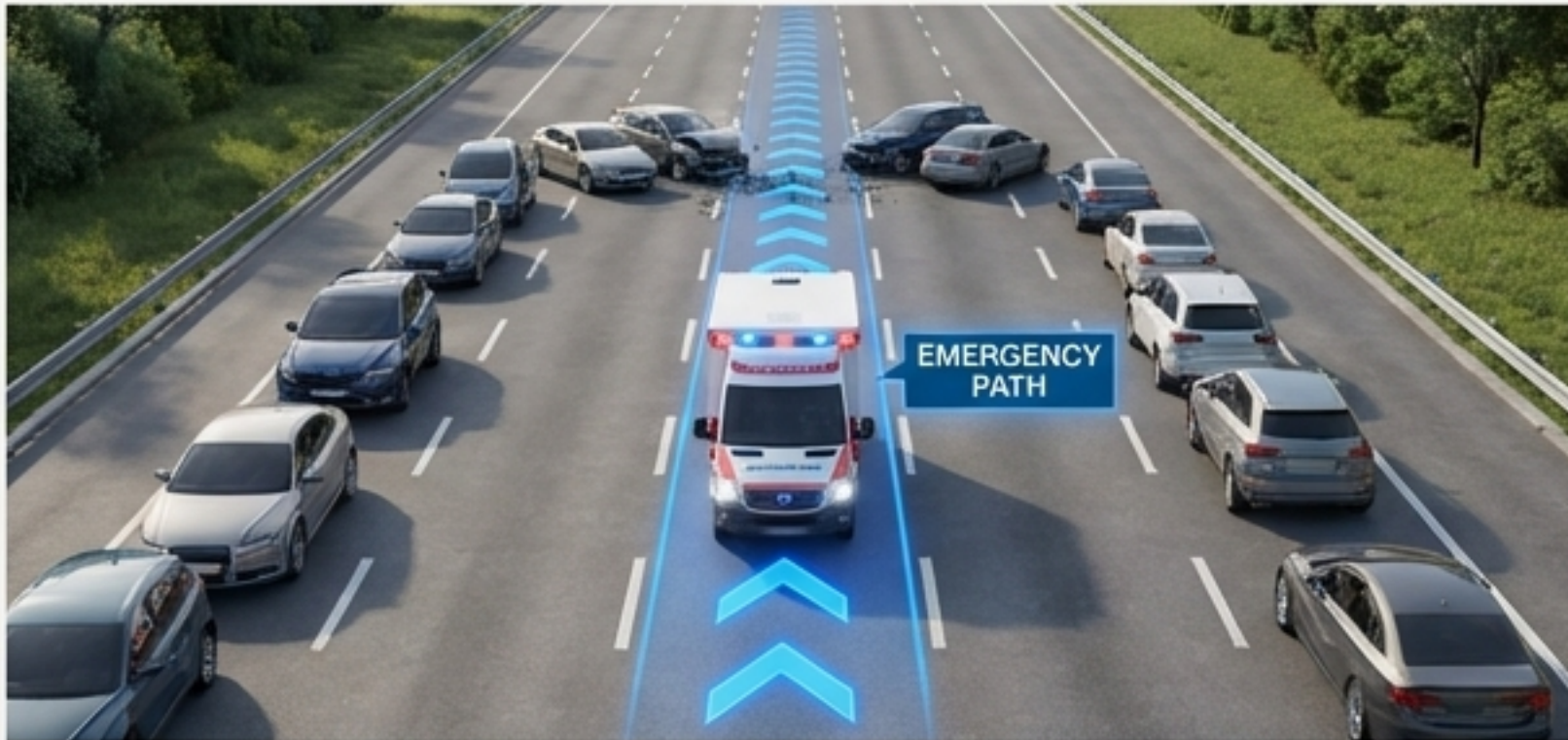
98% Detection Accuracy

Validated across 2M+ vehicle passes.

The system generates a real-time road quality map, scoring every 100m segment and enabling data-driven maintenance prioritization.

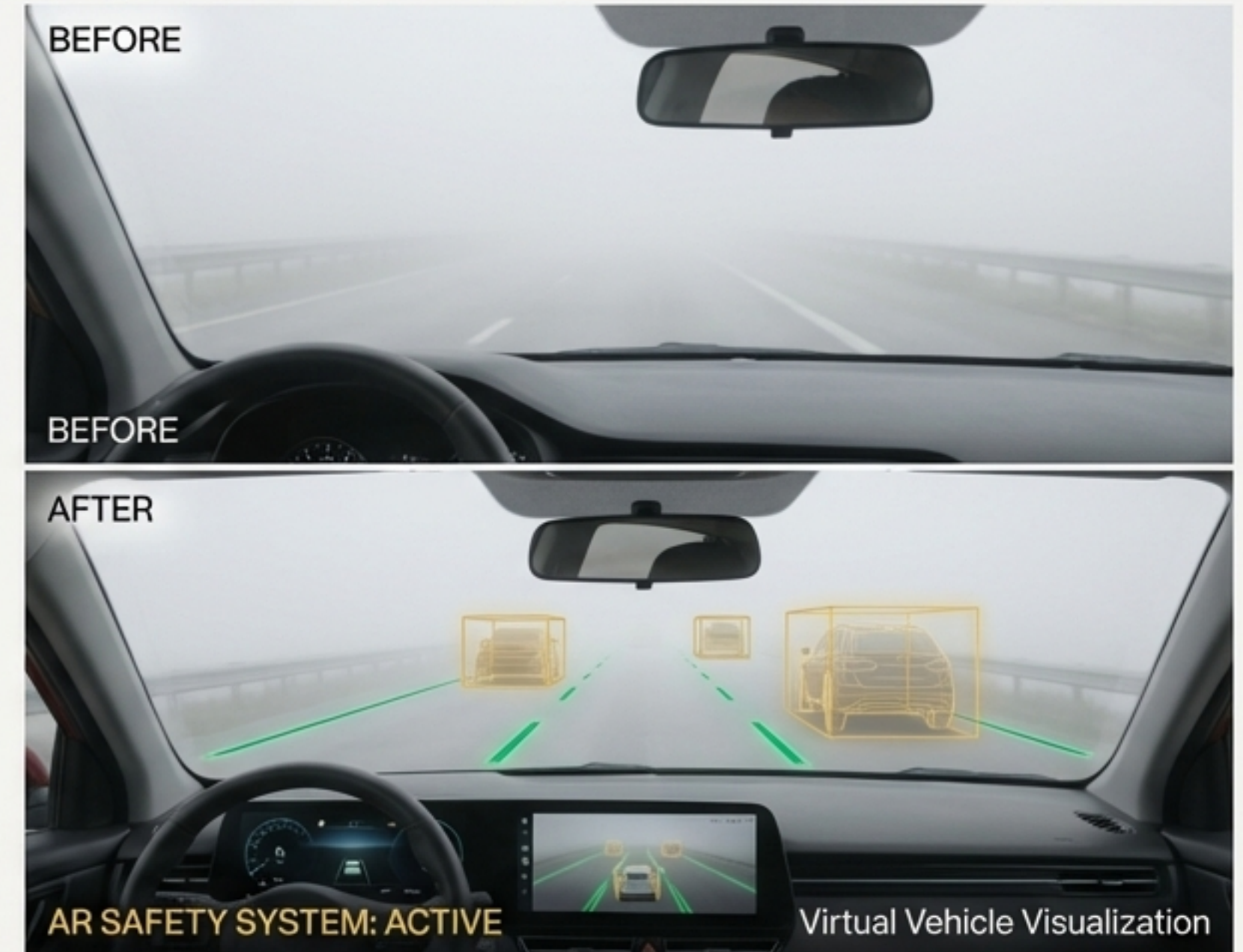
Saving Lives with Instant Accident Response and All-Weather Awareness

Instant Emergency Response



Sub-second crash detection, automatic precise dispatch, AI-based severity assessment.

All-Weather Awareness



Fog penetration, sandstorm coordination, extreme heat monitoring, hydroplaning prevention.

The Infrastructure Required for This System is a Strategic National Asset

The Key Unlock

To enable the traffic system, we must deploy a nationwide RTK GPS network.

- **200-300 Base Stations:** Providing complete coverage of all roads and cities.
- **Real-Time Corrections:** Broadcasting data for millimeter-level positioning accuracy.

FLIGHT CORRIDORS:
OPERATIONAL

RTK NETWORK STATUS:
ACTIVE

“This isn’t just a traffic project—it’s UAE’s positioning infrastructure for the next 30 years.”

Centimeter-Precision Positioning Unlocks the Next Generation of UAE Technology

Urban Air Mobility

Standard GPS ($\pm 3-5\text{m}$) is unsafe for air taxis.

Our network provides the required $\pm 10\text{cm}$ precision for safe flight corridors and rooftop landings.



Drone Economy

Unlocks a multi-billion dollar market for autonomous delivery, inspection, and services. **Market Potential: AED 1.5-3 Billion annually**

Autonomous Vehicles

Provides the foundational positioning layer required for safe Level 4/5 automation.



Smart Construction & Precision Agriculture

Enables robotics and automated equipment.

RTK Network

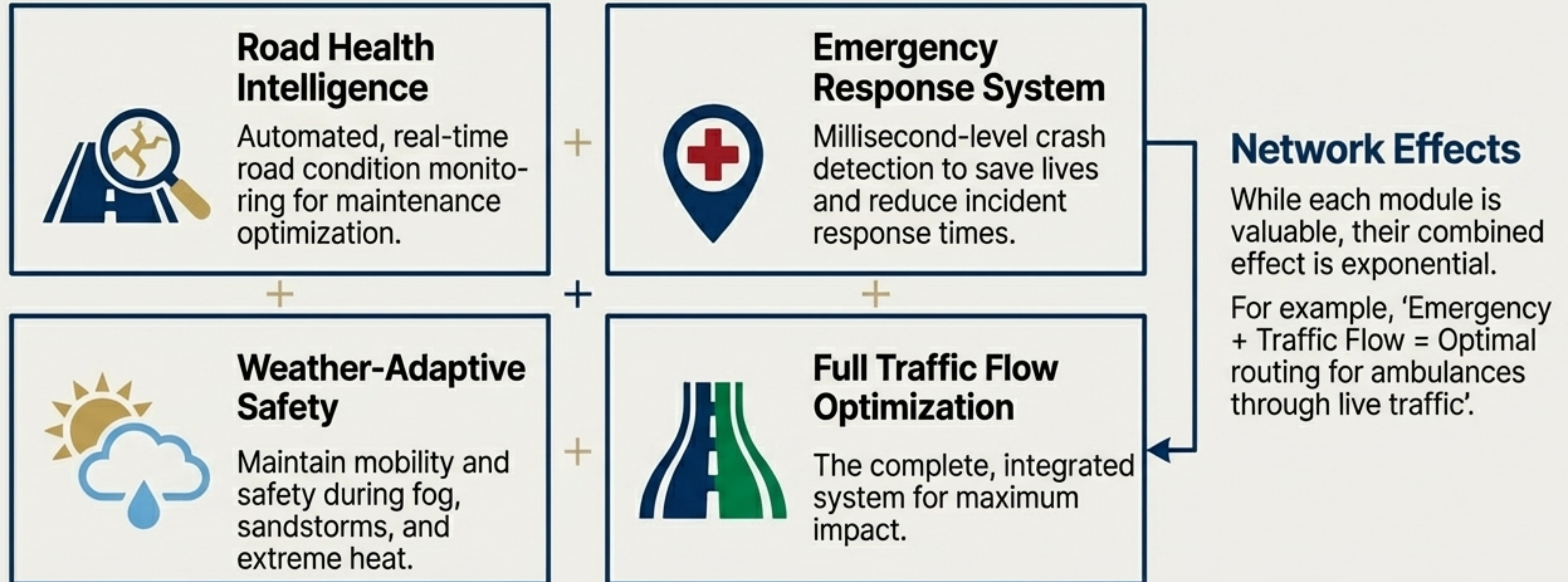


We Build It Here First, Then the World Buys It From Us



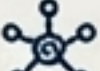
We will have a 3-5 year head start with a proven, operational, nationwide system.

Four Independent Entry Points, Each Delivering Standalone Value



The 24-Month Roadmap From Pilot to a National Network

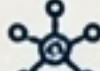
Phase 1: Pilot (Months 1-6)

-  **Scope:** Sheikh Zayed Road Corridor
-  **Scale:** 500 Vehicles, 10 Edge Nodes
-  **Goal:** Prove technology & achieve **10%+** traffic flow improvement.

Phase 2: City-Wide (Months 7-18)

-  **Scope:** Dubai City Center
-  **Scale:** 5,000 Vehicles, 100 Edge Nodes
-  **Goal:** Achieve **15-20%** traffic flow improvement.

Phase 3: National Deployment (Months 19-24)

-  **Scope:** UAE-Wide
-  **Scale:** 50,000+ Vehicles, 500 Edge Nodes
-  **Goal:** Achieve **25-30%** improvement and full capability rollout.

The Decision is Not About a Traffic System—It's About Owning the Nation's Digital Future



Economic Prosperity

Solving the AED 3.5B congestion problem and creating a new global export industry.

Citizen Safety

Drastically reducing the 1,200+ annual fatalities and improving emergency response.

Technological Sovereignty

Building and owning the foundational infrastructure for autonomy, drones, and Urban Air Mobility.

Global Leadership

Establishing the UAE as the undisputed world leader in intelligent transportation systems.