

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	21 JUNE 2025
Team ID	LTVIP2025TMID33800
Project Name	TrafficTelligence: Advanced Traffic Volume Estimation with Machine Learning
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Acquisition	<ul style="list-style-type: none">- Collect traffic data from sensors and APIs- Collect weather and public event data
FR-2	Data Preprocessing	<ul style="list-style-type: none">Clean and normalize data- Encode categorical and numerical features
FR-3	Traffic Volume Prediction	<ul style="list-style-type: none">- Train ML model with historical and real-time data- Evaluate and validate model performance
FR-4	Real-Time Prediction Service	<ul style="list-style-type: none">Expose prediction via API- Display data on admin/user dashboard
FR-5	Commuter Routing and Navigation Support	Generate trend reports for planners
FR-6	System Access and Monitoring	Suggest alternative routes to users via traffic predictions

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	User-friendly UI for authorities, planners, and commuters
NFR-2	Security	Encrypted data transmission, role-based access, secure APIs
NFR-3	Reliability	Accurate model results and stable deployment
NFR-4	Performance	Real-time API responses within 2 seconds
NFR-5	Availability	System available 24/7 with automatic failover
NFR-6	Scalability	Easily handles increased data volume and user traffic