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

Date	27 June 2025
Team ID	LTVIP2025TMID35510
Project Name	Traffic Telligence 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	User Registration	Registration through Form Registration through Gmail Registration through LinkedIn
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Real-Time Traffic Prediction	User inputs date, time, location, and optional weather inputs System returns predicted traffic volume
FR-4	Historical Analysis Dashboard	Visual analytics using graphs (hourly, daily, weather-wise patterns) Comparison across date ranges

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Intuitive web UI for data input and visualization using HTML/CSS/JS with mobile responsiveness
NFR-2	**Security**	HTTPS, input sanitization, encrypted user data, optional JWT-based auth; follows OWASP top 10 best practices
NFR-3	**Reliability**	Model fallback mechanism (e.g., default average output if API fails); scheduled health checks
NFR-4	**Performance**	Optimized ML model with < 500ms inference time, Redis caching, preprocessed inputs for fast lookups
NFR-5	**Availability**	Hosted on redundant cloud infrastructure (e.g., AWS EC2 + Auto Scaling); uptime goal > 99.9%
NFR-6	**Scalability**	Modular architecture using Flask Blueprints; adaptable to microservices with container orchestration (Docker/Kubernetes) for larger scale