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

Date	28 June2025
Team ID	LTVIP2025TMID40870
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.

Traffic Telligence:

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Input Interface	- Input form to collect date, time, weather, and holiday data - Input validation and required field checks
FR-2	Prediction Engine	- Backend receives and processes input data - Model loads from `model.pkl` and predicts traffic volume
FR-3	Result Display	- Output page renders predicted volume with styled background - Provide option to re-enter or revise input
FR-4	Static Asset Handling	- Background images for UI (`bg1.jpg`, `bg2.jpg`) loaded from static - Image formatting and visual enhancements
FR-5	Deployment	- Flask server to run the app locally - Option to deploy on cloud platforms (Render/PythonAnywhere)
FR-6	Data Handling	- Preprocessing includes encoding, missing value imputation

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The application should have a simple and intuitive interface for users to input data and view predictions without requiring technical expertise.
NFR-2	**Security**	

		The system must be protected against malicious inputs, and all user interactions must be securely handled with no data exposure.
NFR-3	**Reliability**	The model and web interface should consistently return accurate predictions without system crashes or interruptions.
NFR-4	**Performance**	The system should deliver traffic predictions within 2–3 seconds of user input submission.
NFR-5	**Availability**	The web app should be accessible at all times, especially during high traffic periods.
NFR-6	**Scalability**	The solution should support future upgrades such as real-time GPS data integration, cloud deployment, and mobile app expansion.