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

Date	29 June 2025
Team ID	LTVIP2025TMID41713
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	Real-Time Data Collection	- Integrate with city sensors, traffic cameras, and GPS data sources. - Automate data ingestion and storage. - Support for multiple data formats (CSV, JSON, API streams).
FR-2	Machine Learning-Based Traffic Volume Estimation	- Develop and train predictive models for traffic volume. - Support continuous model retraining with new data. - Provide real-time prediction API endpoints for authorized users.
FR-3	Visualization and Reporting	- Design interactive dashboards for traffic volume visualization. - Implement historical and predictive reporting features. - Allow data export in standard formats (CSV, PDF
FR-4	User and System Integration	- Implement secure user authentication and role-based access. - Provide APIs for integration with external government and logistics platforms. - Enable notifications/alerts for significant traffic events.

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The system must have an intuitive, easy-to-navigate interface for all user roles.
NFR-2	**Security**	Data must be protected via encryption in transit and at rest; adhere to local data privacy standards
NFR-3	**Reliability**	System should maintain >99% uptime (excluding planned maintenance) and offer error recovery.

NFR-4	**Performance**	Predictions and data retrieval must occur within ≤2 seconds for real-time user experience.
NFR-5	**Availability**	The service must be accessible 24/7, with support for redundant infrastructure to minimize downtime.
NFR-6	**Scalability**	Capable of handling increased data volumes and concurrent users as deployment expands to new regions or cities.