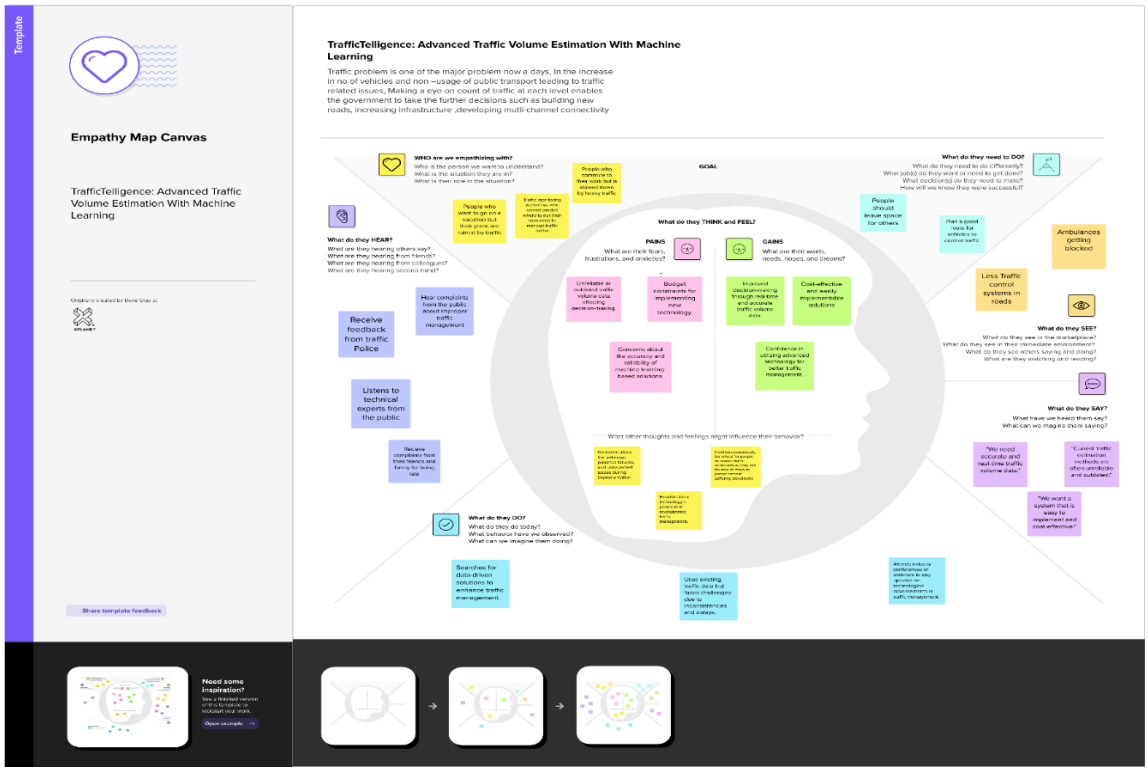
SOLUTION REQUIREMENT

3.1 Solution Requirements (Functional & Non-functional)

Date	7th February 2026
Team ID	LTVIP2026TMIDS66183
Project Name	Civil Engineering Insight Studio
Maximum Marks	4 Marks

3.1.1 Functional Requirements:

Following are the functional requirements of the proposed solution.



FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Preprocessing & Validation	Convert raw project and design data into a clean and structured format Validate engineering inputs and remove inconsistencies
FR-2	Structural Analysis & Classification	Analyze structural elements using engineering models Classify components such as beams, columns, slabs, and foundations
FR-3	Performance Analysis & Reporting	Evaluate structural performance and safety factors Generate project-wise, daily, or phase-wise analytical reports

FR-4	Insight Generation & Reporting	Estimate cost, safety, and sustainability metrics Generate visual and tabular reports

3.1.2 Non-functional Requirements:

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

FR No.	**Non-Functional Requirement**	**Description**
NFR-1	Usability	The system should provide an intuitive and user-friendly interface that allows civil engineers and planners to easily input data and interpret analytical results.
NFR-2	Security	Data collected from surveillance should be securely stored and transmitted using encryption.
NFR-3	Reliability	The system should maintain consistent accuracy in vehicle detection and count under various lighting and weather conditions.
NFR-4	Performance	The ML model should process traffic data in near real-time with minimal latency.
NFR-5	Availability	The system should be accessible 24/7 with minimum downtime, especially during peak traffic hours.