

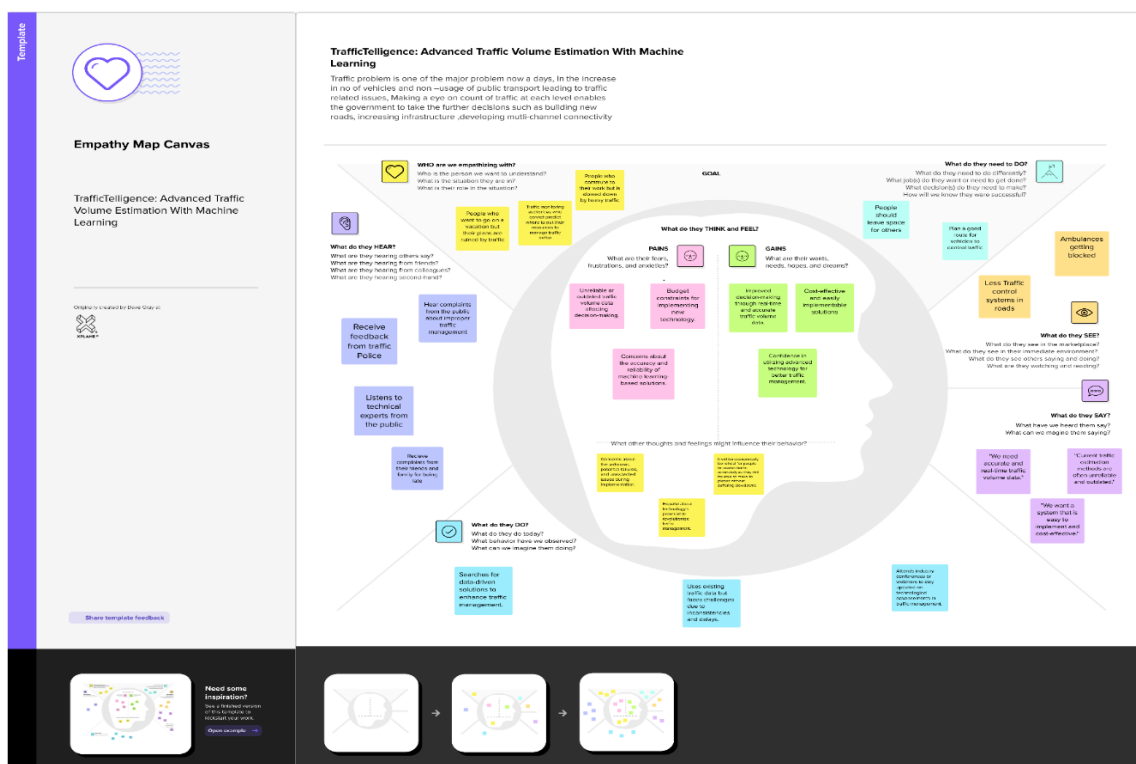
## SOLUTION REQUIREMENT

### 3.1 Solution Requirements (Functional & Non-functional)

<b>Date</b>	7 <sup>th</sup> February 2026
<b>Team ID</b>	LTVIP2026TMIDS84448
<b>Project Name</b>	Civil Engineering Insight Studio
<b>Maximum Marks</b>	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
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### 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.