SPLV BFMC 2026: Project Plan

Team: Street Precision Las Vegas

Project: Autonomous 1:10 Scale Vehicle Development

1. Executive Summary

Our objective is to develop a robust autonomous system capable of navigating a simulated smart city environment. We utilize a Raspberry Pi 4 for high-level perception and an STM32 Nucleo for low-level hardware control.

2. Development Milestones

Milestone 1: Hardware & Communication (Dec 22, 2025)

- **Status:** Complete
- **Deliverables:** Remote SSH access, real-time camera streaming, and manual steering/velocity control via the Bosch Web Dashboard.

Milestone 2: Perception & Lane Keeping (Feb 2, 2026)

- **Status:** Planned
- **Goal:** Integrate OpenCV for Canny edge detection and Hough transforms to identify lane markings. Develop a PID controller for stable steering.

Milestone 3: Traffic Intelligence (March 9, 2026)

- **Status:** Planned
- **Goal:** Implement a lightweight Convolutional Neural Network (CNN) for traffic sign and semaphore recognition.