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Problem Statement

Vermont Standard Specifications for Construction identify an acceptable delay in work zones of less than 10 minutes per operation and less than 15 minutes cumulatively for a project maintaining one-way traffic. It is recognized that these thresholds have been set without consideration for context, procedures for measuring delay, or methods for mitigating delay.

Objectives

The objectives of this project are to validate the effectiveness of various types of travel-time delay measurement methods by quantifying the delays incurred across a variety of work zones in Vermont. The ultimate goal is to recommend changes to the current and future VTrans construction specifications and updates to the VTrans Work Zone Safety and Mobility Guidance, including a standard operating procedure for collection of data and measurement of delay to ensure compliance with the specification.

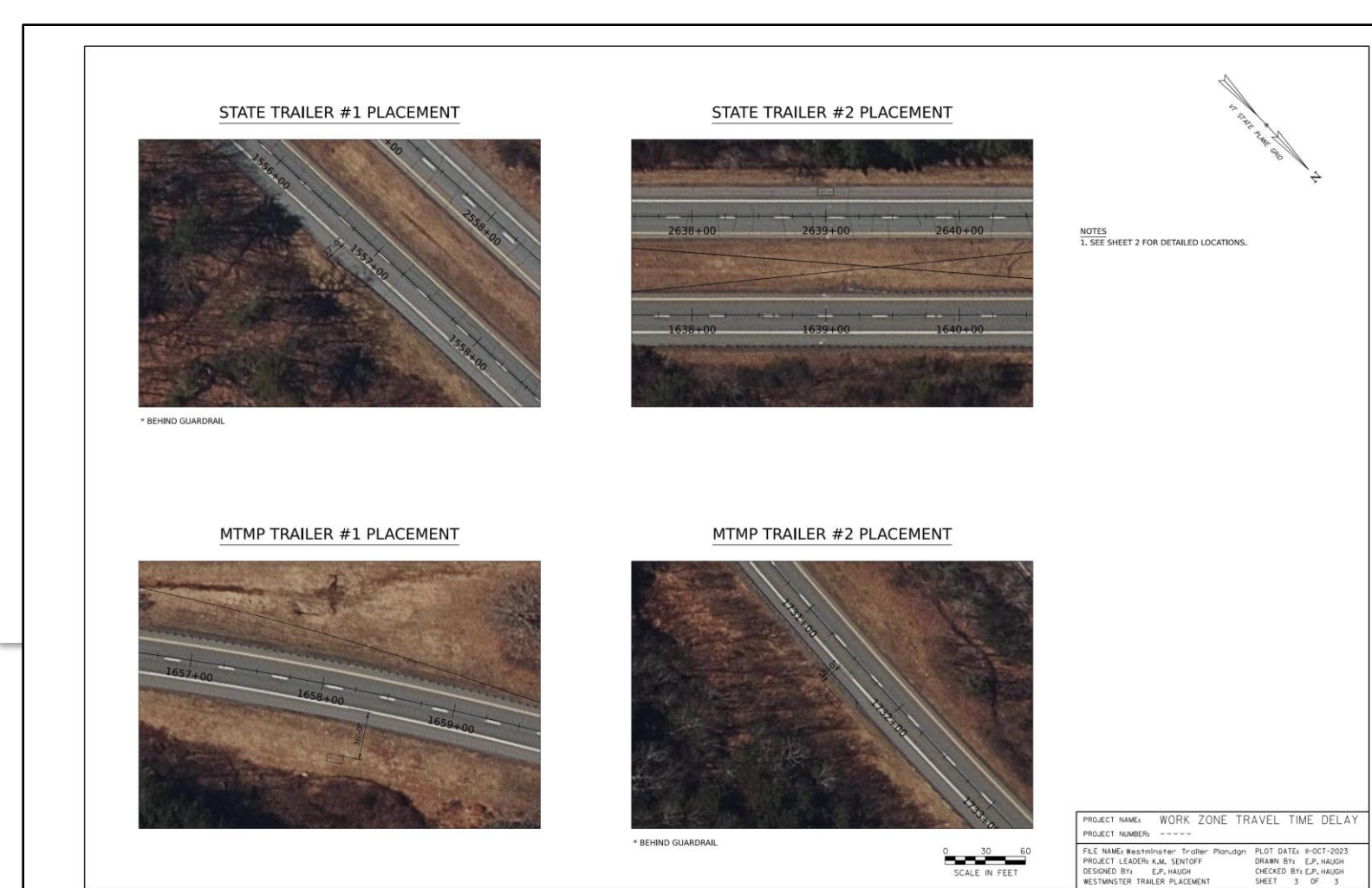


Figure 2. Plans for Deployment

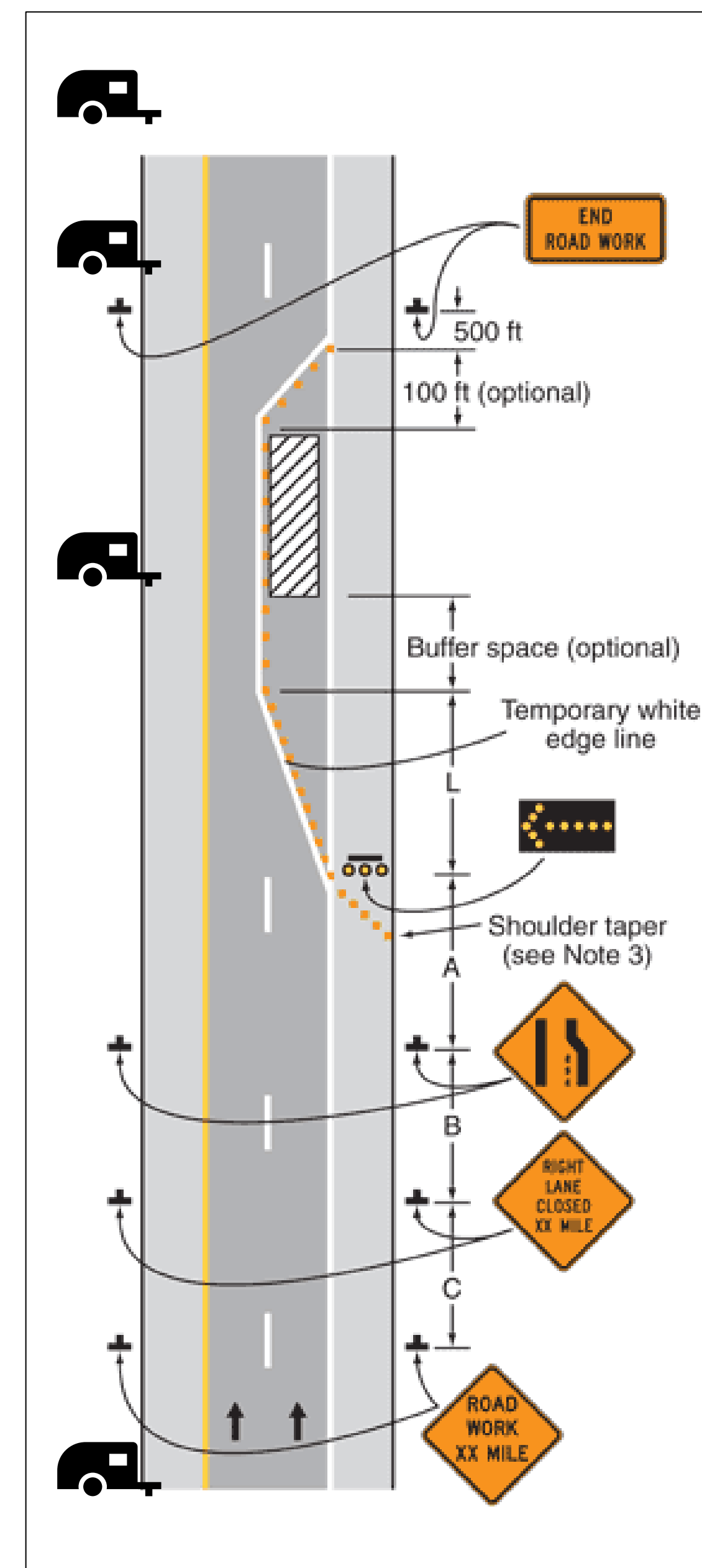


Figure 3. Data Collection Configuration



Figure 4. MTMP in Westminster

Methodology

A literature review was conducted of delay measurement methods to test, helping the team decide what data to collect using its mobile traffic monitoring platforms (MTMPs). The literature review was the first of 6 tasks (Figure 1). The MTMPs were assembled while the team gathered information on potential candidate projects for measuring travel time delay in the field based on project significance levels, project timelines, and feasibility of sites for the MTMP deployments. The team deployed MTMPs to the first candidate work zones in Fall 2023 and continued data collection through the 2024 construction season (Figures 2, 3 and 4).

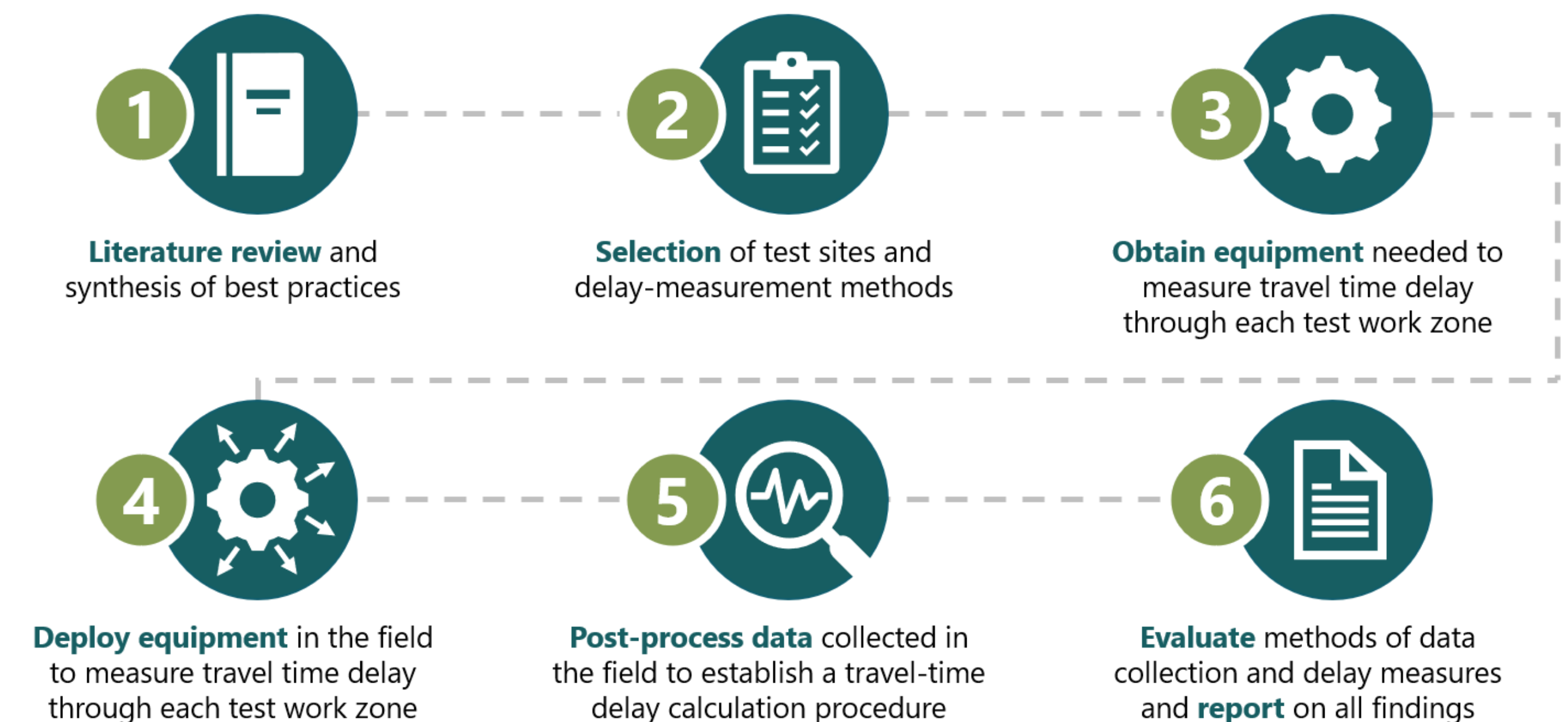


Figure 1. Research Methodology

Results

This research will serve to directly inform the criteria for context-sensitive, maximum-acceptable travel time delays through work zones in Vermont. It will also help identify viable methods and procedures for quantifying delay through work zones in support of the established Work Zone Safety and Mobility Policy goals. The findings of this project will be used by the VTrans Work Zone Technical Committee to make recommendations for changes to the current and future VTrans construction specifications and to make future updates to the VTrans Work Zone Safety and Mobility Guidance document.

Acknowledgments

The project team would like to acknowledge the project champion, Ben Tietze, and other members of the project's Technical Advisory Committee.