

E Marginal Way S Paving and Safety Improvements

Traffic Analysis Memorandum

Project: E Marginal Way S Paving and Safety Improvements
Subject: Traffic Analysis – Methods & Assumptions & Results
Submit to: Project Team
Submitted by: SDOT Transportation Operations Division
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1. Introduction and Overview

As part of the E Marginal Way Paving and Safety Improvements project, SDOT plans to reconfigure E Marginal Way S from two southbound lanes to one southbound lane between S River St and Ellis Ave S. South of Ellis Ave S and north of S River St, the existing two-lane configuration remains unchanged.

A traffic analysis was conducted using a Synchro model to evaluate the operational impacts of the proposed changes at key signalized intersections along the corridor. This memorandum summarizes the methodology, assumptions, and results of the evaluation.

2. Traffic Analysis Methods & Assumptions

This section outlines the methods and assumptions that were used to perform the traffic analysis for the E Marginal Way S Improvement project.

2.1 Study Area and Intersections

The analysis focused on signalized intersections along E Marginal Way S from S Michigan St to Boeing Drive. The study area includes the following 8 signalized intersections and Figure 1 illustrates the study intersections analyzed.

1. E Marginal Way S & S Michigan St
2. E Marginal Way S & 4th Ave S
3. E Marginal Way S & Corson Ave S
4. E Marginal Way S & Carleton Ave S
5. E Marginal Way S & Ellis Ave S
6. E Marginal Way S & 14th Ave S
7. E Marginal Way S & 16th Ave S
8. E Marginal Way S & Boeing Drive

2.2 Analysis Tools, Traffic Data, Time Periods

Each of the conditions was evaluated for both AM (7:30 – 8:30 AM) and PM (4:30 – 5:30 PM) peak hours.

- Average intersection vehicle delay (seconds/vehicle)
- Intersection level of service (LOS)

2.3 Traffic Data

Traffic volume data was reviewed to evaluate conditions along the E Marginal Way S segment where the project proposes to reduce southbound travel lanes from two to one. The review included AM and PM peak hour volumes from April 2018 (pre-COVID), October 2023 (analysis year), and March 2025 (most recent available). The southbound hourly traffic volumes north of the Corson Ave S intersection are shown in Figure 2.

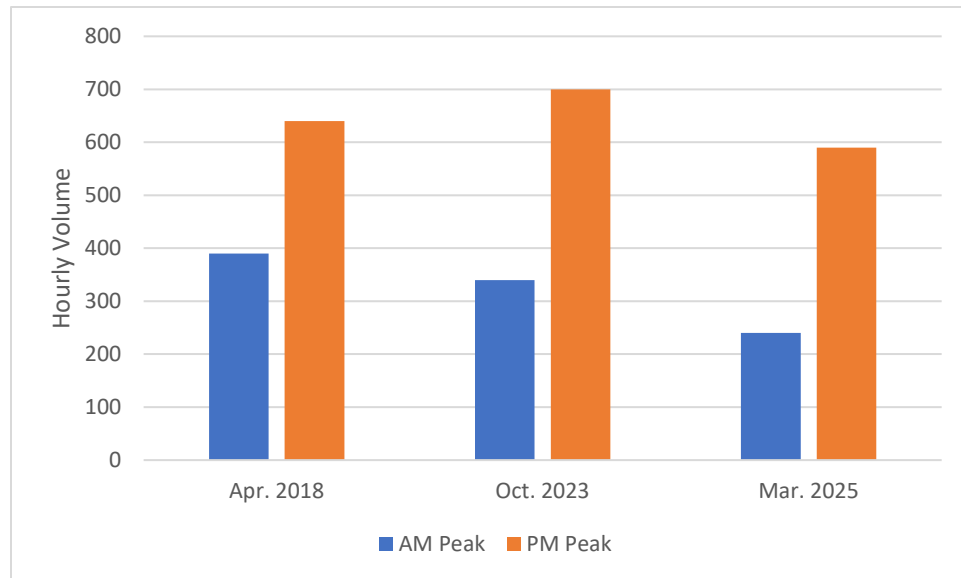


Figure 2. Southbound Traffic Volume North of Corson Ave S

The data show that current traffic demand (as of March 2025) has generally returned to pre-COVID levels. While PM peak volumes increased slightly in 2023, they declined in 2025. AM peak volumes have decreased consistently over time.

This traffic study was based on October 2023 data, which closely reflects pre-COVID conditions. Additionally, no growth in traffic demand was observed between 2023 and 2025 along this segment of E Marginal Way S. This suggests that the 2023 data is appropriate for analyzing both current and short-term traffic conditions, validating its use in this study.

3. Traffic Analysis Results

The following tables summarize the average intersection delay and level of service for each signalized intersection under both existing and proposed lane configurations. Tables 1 and 2 provide a summary of overall intersection operations.

Table 1. Intersection Traffic Analysis Results – AM Peak

Intersection	Baseline		Build	
	Average Vehicle Delay (s)	LOS	Average Vehicle Delay (s)	LOS
S Michigan St at E Marginal Way S	44	D	44	D
4th Ave S at E Marginal Way S	6	A	7	A
Corson Ave S at E Marginal Way S	12	B	12	B
Carleton Ave S at E Marginal Way S	2	A	3	A
Ellis Ave S at E Marginal Way S	14	B	19	B
14th Ave S at E Marginal Way S	17	B	17	B
16th Ave S at E Marginal Way S	24	C	25	C
Boeing Drive at E Marginal Way S	2	A	2	A

Table 2. Intersection Traffic Analysis Results – PM Peak

Intersection	Baseline		Build	
	Average Vehicle Delay (s)	LOS	Average Vehicle Delay (s)	LOS
S Michigan St at E Marginal Way S	61	E	61	E
4th Ave S at E Marginal Way S	21	C	31	C
Corson Ave S at E Marginal Way S	13	B	14	B
Carleton Ave S at E Marginal Way S	4	A	5	A
Ellis Ave S at E Marginal Way S	13	B	16	B
14th Ave S at E Marginal Way S	12	B	18	B
16th Ave S at E Marginal Way S	18	B	19	B
Boeing Drive at E Marginal Way S	2	A	2	A

All the study intersections would maintain the same LOS as they do in the base condition.

Non-Motorized Intersection Operations

Multi-modal operations were qualitatively evaluated and considered when evaluating the build condition across the study area. The following metrics were considered:

- Pedestrian and bike wait times
- Pedestrian and bike signal phase separation from turning vehicle movements
- Width of pedestrian and bike facilities

The cycle time of a traffic signal refers to the duration needed to complete a full sequence of movements at a signalized intersection. It indicates the maximum duration a pedestrian might wait to receive a walk signal. In evaluating the proposed lane configuration for each of study intersections, it's assumed that to ensure similar operations for non-motorized traffic, the cycle time remains the same, when compared to Baseline conditions.

5. Summary and Conclusions

The traffic analysis for the E Marginal Way S project shows that the proposed reduction from two to one southbound lanes between 4th Ave S and Ellis Ave S will not significantly degrade traffic operations. All studied intersections maintain the same level of service (LOS) in both AM and PM peak periods under the Build condition, with only minor increases in average vehicle delay.

These findings demonstrate that the corridor has the capacity to accommodate the proposed reconfiguration without the need for signal timing modifications. The consistent LOS performance, combined with stable traffic volumes as of 2025, supports the feasibility of implementing the proposed lane reduction.

Key Findings:

- All intersections are projected to maintain acceptable LOS under the proposed lane configuration.
- The reduction from two to one southbound lane does not result in substantial delay increases.
- Current (2025) traffic demand has not increased beyond 2023 levels, confirming that the analysis year is suitable for assessing short-term performance.

Based on these findings, SDOT can move forward with implementing the proposed changes to support improved safety and multimodal connectivity, while maintaining acceptable conditions for vehicle and freight traffic.