

Build 2045 PM Peak

Under 2045 PM Peak conditions the SB Alton Road to WB I-195 merge segment operates at LOS D with v/c ratio on the SB Alton Road to WB I-195 on-ramp of 0.50 which is a substantial improvement from the No-Build scenario.

Existing, No-Build and Build Alternatives Comparison

The summary of the LOS and v/c for the Existing, No-Build and Build Alternatives are shown in **Table 5-1**. As seen in the table below, the Build Alternative improves the LOS in the Design Year 2045 from LOS E during the PM Peak Hour to LOS D.

Table 5-1: LOS and v/c Summary for Build and No-Build Alternative

| Location | MOE | Existing (2017) AM (PM) | No-Build (2025) AM (PM) | Build (2025) AM (PM) | No-Build (2045) AM (PM) | Build (2045) AM (PM) |
|--|-----|-------------------------|-------------------------|----------------------|-------------------------|----------------------|
| On-Ramp from SB Alton Road to WB I-195 | LOS | C (D) | C (D) | B (C) | C (E) | C (D) |
| On-Ramp from SB Alton Road to WB I-195 | v/c | 0.70 (0.81) | 0.70 (0.87) | 0.35 (0.44) | 0.73 (1.01) | 0.37 (0.50) |

5.2 Build Alternative Safety Analysis

A predicted safety analysis was performed to determine if the proposed improvement addressed the existing safety concerns for this IOAR. The safety analysis performed follows the guidelines in the 2018 IARUG.

For the merging segment, the proposed improvement includes adding a second acceleration lane. Therefore, a Crash Modification Factor (CMF) for 'modifying length of acceleration lane' was obtained from the CMF Clearinghouse funded by FHWA. The CMF (ID: 5215) of 0.745 was used for the proposed improvement. This will represent a total expected annual crash reduction of 2.8 crashes per year for the modified merge segment. The complete predictive crash analysis is summarized in **Table 5-2**. The CMF report is provided in **Appendix F**.

Table 5-2: Build Alternative Annual Crash Reduction Calculations

| Location | Number of Crashes Total | Annual Crash Frequency ¹ | CMF | Proposed Annual Crash Frequency | Annual Reduction in Crashes |
|---|-------------------------|-------------------------------------|-------|---------------------------------|-----------------------------|
| I-195 WB On-Ramp from Alton Road Merge Area | 55.0 | 11.0 | 0.745 | 8.2 | 2.8 |

¹ Observed crash frequency is assumed to represent the future safety performance in the absence of any changes.