

**Table 12: Design Year 2038 Ramp Capacity Analysis Summary**

Analysis Year	Ramps	Ramp Volume		V/C Ratio - No Build				V/C Ratio - Build			
		AM	PM	Lanes	Capacity (vph)	AM	PM	Lanes	Capacity (vph)	AM	PM
Opening Year 2018	I-75 NB Off-Ramp to SR 82	1,191	1,541	1	1,836*	0.65	0.84	2	3,671*	0.32	0.42
	I-75 NB On-Ramp from SR 884	1,275	1,448	1		0.69	0.79	2		0.35	0.39
	I-75 SB Off-Ramp to SR 884	1,718	1,227	1		0.94	0.67	2		0.47	0.33

**Notes:**

1. Ramp capacity from HCM Exhibit 14-12 is adjusted for truck percentage and peak hour factor. A truck percentage of 7.0% and PHF of 0.95 are used.
2. Highlighted cells show V/C ratio greater than 0.8, which indicates that the ramp is close to reaching one-lane capacity.

**8.1.2 Safety Analysis**

Due to the geometric configuration of the No-Build and Build alternatives, and as noted in **Table 13**, the application of HSM methodologies is limited in that there is not a distinct difference in the estimated crash frequencies per year between the two (2) alternatives. Based on the safety analysis, there is a slight increase in expected number of crashes in the Build alternative compared to the No Build alternative for the ramp segments. However, there is a slight reduction in expected number of crashes in the Build alternative compared to the No Build alternative for the freeway segment. Based on estimated average crash frequency during the study period (2018-2038) for the No Build and Build alternatives, the Build alternative is expected to have slightly more crashes per year (0.19) compared to the No Build alternative.

**Table 13: Expected Number of Crashes for Years 2018 through 2038**

Crash Segment Type	Crash Segment	No Build	Build	Difference (Build minus No Build)
Ramp	NB On-Ramp & SB Off-Ramp at I-75/SR 884 NB Off-Ramp at I-75/SR 82	36.81	46.43	9.62
Freeway	I-75 between SR 884 and SR 82	321.28	315.68	-5.60
<b>Estimated Number of Crashes during Study Period</b>		<b>358.09</b>	<b>362.11</b>	<b>4.02</b>
<b>Estimated Average Crash Frequency during Study Period (crashes/year)</b>		<b>17.05</b>	<b>17.24</b>	<b>0.19</b>

Even though the expected number of crashes and expected crash frequencies resulting from the HSM analysis are similar between the two alternatives, the proposed improvements from the Build Alternative provide for a safer operation because of the following:

- Under the No Build alternative, a merge condition is present on the I-75 NB on-ramp before the freeway-ramp gore point, whereas the Build alternative will provide an additional 1,650 feet distance for the outside ramp lane to merge with the inside lane. The enhanced merge condition under the Build alternative is anticipated to provide safer operations with more distance and smooth merging.
- The lane balance provided under the Build alternative because of choice lane at the I-75 exit ramps (NB off-ramp to SR 82 and SB off-ramp to SR 884) will provide safer operations as evidenced by the freeway operational results. The freeway operational results show that the demand on I-75 segment between SR 884 and SR 82 will exceed capacity resulting in LOS F under the No Build alternative, which may contribute to a higher number of crashes compared to the Build alternative.
- The Build condition does not need a lane change from the freeway to ramp and this condition is anticipated to reduce the sideswipe crashes.

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### 8.1.3 Conceptual Signing Plan

A conceptual signing plan is developed (**included in Appendix F**) for the proposed Build alternative. Modifications to the existing roadway signs were evaluated in conjunction with the proposed modifications to ensure that a proper signing plan is implemented within the study area.

## 8.2 Policy Point 2

2. *The proposed access connects to a public road only and will provide for all traffic movements. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access, such as managed lanes (e.g., transit or high occupancy vehicle and high occupancy toll lanes) or park and ride lots. The proposed access will be designed to meet or exceed current standards (23 CFR 625.2(a), 625.4(a)(2), and 655.603(d)). In rare instances where all basic movements are not provided by the proposed design, the report should include a full-interchange option with a comparison of the operational and safety analyses to the partial-interchange option. The report should also include the mitigation proposed to compensate for the missing movements, including wayfinding signage, impacts on local intersections, mitigation of driver expectation leading to wrong-way movements on ramps, etc. The report should describe whether future provision of a full interchange is precluded by the proposed design.*