New Interchange Design for US23 and US12 Highway

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Opportunity and Significance

Present interchange is needed to be modified, because of safety, higher delay time & less progression

Existing Interchange of the Project Location

V/C ratio for node 1 (3 phases): 1.13
V/C ratio for node 2 (3 phases): 1.80
Level of service for node 1: E
Level of service for node 2: F
Average crashes per year: 14 (MTCF)
2 Full 3 Phase signal in two nodes

Proposed Interchange of the Project Location

(Advantages of Parclo B)

Signalized ramp terminals do not require coordination because the outbound travel direction can be designed to receive a continuous green indication. [James, B. et al. 2003]

Its ramp terminal design is not conducive to wrong-way movements. [James, B. et al. 2003]

Proposed Interchange of the Project Location

(V/C ratio for node 1 (2 phases): 0.70
V/C ratio for node 2 (2 phases): 0.80

Comparison Between Existing and Proposed Interchange

Proposed Interchange of the Project Location

(Vertical curve diagram)

Recommendations and Conclusion

Current LOS of US23 and US12 interchange is F and need to be upgraded.
The condition gets worst in 2036 for increased traffic volume.
Parclo B with added two loops and ramps with free right improves LOS to C.
Parclo B is recommended for US 23 and US 12 interchange as it is better than the existing one.

References

SEMCOG, the Southeast Michigan Council of Governments.
Michigan Traffic Crash Facts Data Query Tool (MTCF)