

PURPOSE AND NEED FACTORS	Alternative A ¹ No Build	Alternative B ¹ US 41 expansion with minor ramp improvements to I-43/US 41 Interchange	Alternative C ¹ US 41 expansion with C/D roadways between US 141/Velp Avenue and I-43	Alternative D ¹ US 41 expansion with C/D roadways between US 141/Velp Avenue and I-43 and compatibility of I-43/US 41 interchange to full reconfiguration	Alternative E ¹ US 41 expansion with full reconfiguration of I-43/US 41 interchange
System Linkage/Route Importance • Backbone Highway (US 41) • NHS route (US 41) • Long truck route (US 41 and I-43) • US 41/I-43 = systems interchange (freeway-to-freeway interchange) • Future conversion to Interstate highway (US 41)	Not addressed	• Minor improvements to US 41/I-43 systems interchange • Future Interstate conversion compatibility to be determined	• Minor improvements to US 41/I-43 systems interchange • Future Interstate conversion compatibility to be determined	• Minor improvements to US 41/I-43 systems interchange • Future Interstate conversion compatibility to be determined	High-speed ramps at US 41/I-43 systems interchange provide free-flow movements for regional traffic
Traffic Volumes (Design Year 2035) (60,000 AADT threshold for 4-lane backbone highways) • US 41: 73,000-91,000 AADT • I-43: 55,200 AADT	Not addressed	Proposed 6-lane US 41 freeway mainline meets design standard	Proposed 6-lane US 41 freeway mainline meets design standard	Proposed 6-lane US 41 freeway mainline meets design standard	Proposed 6-lane US 41 freeway mainline meets design standard
Truck Volumes (Design Year 2035) (High truck volumes contribute to congestion) • US 41: 10.8% of AADT • I-43: 11% of AADT • US 141/Velp Avenue: 5.7% of AADT	Not addressed	• Tight loop ramps at I-43 interchange undesirable for high truck volumes • Additional US 41 mainline capacity benefits truck traffic	• Tight loop ramps at I-43 interchange undesirable for high truck volumes • Additional US 41 mainline capacity benefits truck traffic	• Tight loop ramps at I-43 interchange undesirable for high truck volumes • Additional US 41 mainline capacity benefits truck traffic	• High-speed ramps at US 41/I-43 interchange provide maximum benefits for truck traffic • Additional US 41 mainline capacity benefits truck traffic
Traffic Operations (Level of Service [LOS] C required for backbone highways) • SB US 41 south of US 141/Velp Avenue = LOS E in AM peak • NB US 41 at I-43 interchange = LOS F in PM peak • WB I-43 east of Military Avenue = LOS F in PM peak	Not addressed	Some operations below LOS C	Operations at LOS C or better	Operations at LOS C or better	Operations at LOS C or better
Geometric Deficiencies • Insufficient capacity/substandard roadway geometry • Grade separation structures have substandard vertical clearance • Interchange on/off ramps too short • Tight loop ramps at I-43 interchange have design speed less than 50% of freeway mainline design speed ² • Insufficient traffic weaving distance (US 41 from US 141/Velp Avenue to I-43) • Insufficient distance between interchange ramps and cross roads • Insufficient frontage road separation (US 41 from I-43 to County M)	Not addressed	• Does not improve tight loop ramps at I-43 interchange • Does not address insufficient weaving distance between US 141/Velp Avenue and I-43 • Does not address insufficient frontage road separation between I-43 and County M along northbound US 41 • Other geometric deficiencies addressed	• Does not improve tight loop ramps at I-43 interchange • C/D roads remove weaving movements from US 41 mainline • Does not address insufficient frontage road separation between I-43 and County M along northbound US 41 • Does not provide desirable 800 ft. spacing between northbound US 41 merge points for the CD road and northbound I-43 • Other geometric deficiencies addressed	• Does not improve tight loop ramps at I-43 interchange • C/D roads remove weaving movements from US 41 mainline • Does not address insufficient frontage road separation between I-43 and County M along northbound US 41 • Does not provide desirable 800 ft. spacing between northbound US 41 merge points for the CD road and northbound I-43 • Other geometric deficiencies addressed	• High-speed ramps replace existing tight loop ramps at US 41/I-43 interchange • Does not address insufficient frontage road separation between I-43 and County M along northbound US 41 • Other geometric deficiencies addressed
Access • Access between US 141/Velp Avenue and I-43 via US 41	Provided	Provided	Provided	Provided	Eliminated
Safety (Statewide crash rate comparison = 83.7 crashes per HMVMT) • NB US 41 from US 141/Velp Avenue to I-43 = 101.4 per HMVMT • SB US 41 from I-43 to US 141/Velp Avenue = 169.7 per HMVMT	Not addressed	Does not separate out mainline traffic for NB and SB US 41 weaving sections between US 141/Velp Avenue and I-43. Otherwise, improves safety	Improves safety	Improves safety	Improves safety

NOTES:

- Proposed improvements common to all of the Build Alternatives include the following:
 - Widen the US 41 freeway mainline from 4 to 6 lanes (Memorial Drive to County M).
 - Reconstruct the US 141/Velp Avenue interchange with roundabouts at the interchange ramp terminals, and at the US 141/Velp Avenue and Memorial Drive intersection.
 - Build new bridges over US 141/Velp Avenue, Canadian National Railroad, I-43, and Duck Creek.
 - Replace the Lakeview Drive and County M bridges over US 41.
 - Reconstruct the County M interchange with a slight shift of County M north of its present location to maintain traffic during construction; construct roundabouts at the interchange ramp terminals and frontage road intersections with County M.
 - Options for providing access to Wietor Wharf Park.
- Per WisDOT FDM Chapter 11-30-1, the ramp design speed for freeway to freeway interchanges should be in the upper range or 85% of the freeway mainline design speed (within 10 mph of the mainline design speed).

**PRELIMINARY ALTERNATIVES COMPARISON
to KEY PURPOSE and NEED FACTORS
Memorial Drive to County M
US 41 | Brown County, Wisconsin**

2010-02-27

