



# I-39/90 & US 12/18 Beltline Interchange

## Preferred Alternative Summary



**Purpose:** The purpose of the I-39/90 and US 12/18 (Beltline) Interchange project is to accommodate I-39/90 traffic levels with a focus on safety issues that affect interstate travel through the US 12/18 interchange and to ensure compatibility with the I-39/90 reconstruction project south of US 12/18 to the Illinois State Line.

**Needs:** Four components make up the need for the Beltline Interchange project.

1. Safety Issues
2. Interchange Traffic and Operations as they would affect I-39/90
3. Interchange Geometrics
4. Connection to the I-39/90 Project from south of the Beltline Interchange to the Illinois State Line

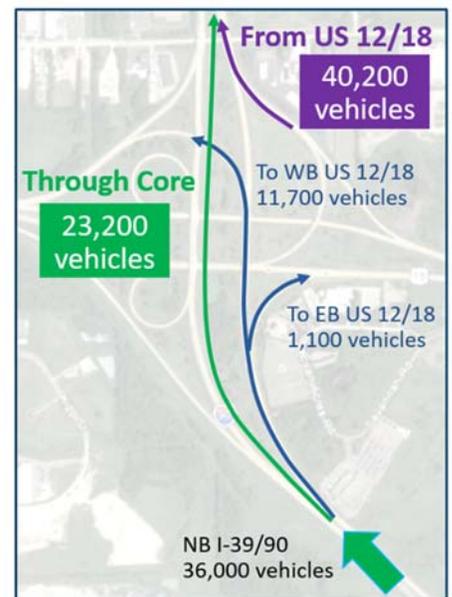
The needs for the Beltline Interchange project are inclusive to all needs within the project termini. **It is not WisDOT and FHWA’s intention to address all project needs within the project termini. Needs will be addressed within the Beltline Interchange traffic operations area of influence as well as any needs on US 12/18 as they impact safety and operations on I-39/90.** The alternatives development focused on satisfying the purpose of the Beltline Interchange project.

### Information Related to the Beltline Interchange Project

- WisDOT plans to improve the Beltline Interchange as part of the ongoing I-39/90 Expansion Project.
- The Interstate is currently under construction and is being expanded from four to six lanes between the Illinois State Line and the Beltline Interchange near Madison.
- The core of the interchange is the area of I-39/90 between the northbound ramps going to the Beltline and the northbound ramps coming from the Beltline. The proposed core is more than one mile long.

### Unique Traffic Patterns at the Beltline Interchange

- Northbound traffic approaching the Beltline interchange is anticipated to be 36,000 vehicles per day by the year 2040.
- Madison is a major destination for Interstate travelers. WisDOT expects one-third of northbound vehicles on the Interstate to exit at the Madison Beltline each day, leaving a lower volume of traffic in the core.
- Approximately 23,200 vehicles per day will travel northbound through the core of the interchange.
- What’s unique about the Beltline Interchange is that the daily traffic volume on I-39/90 within the core is significantly lower than the daily traffic volume on the ramp from the Beltline.
- The ramp from the Beltline onto I-39/90 northbound is anticipated to carry 40,200 vehicles per day by the year 2040, which is 73% more traffic than on I-39/90 traveling through the core of the interchange.
- Today, traffic volumes on the Beltline on-ramp are higher than I-39/90 at almost all hours of the day, even on Friday afternoons in the summer.



**Daily Traffic Volumes – BIC Core**

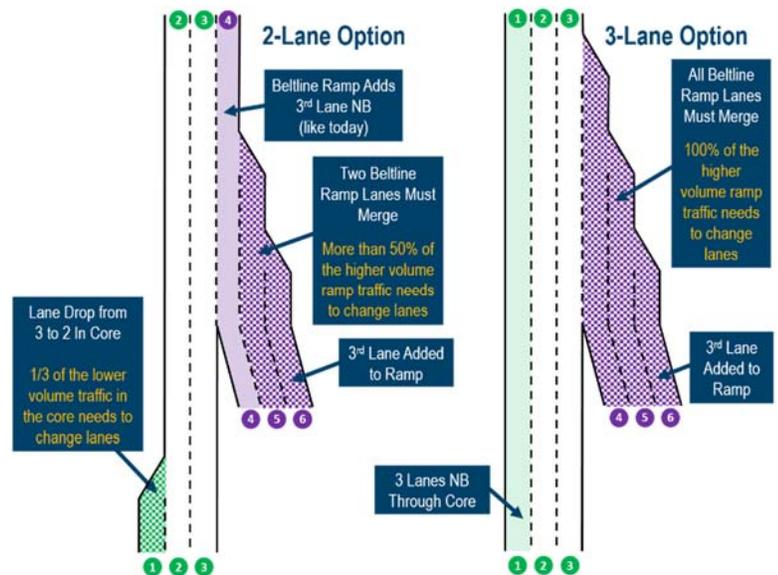
### Alternatives Considered for the Beltline Interchange

#### Southbound

- Based on the purpose and need of the project, three lanes will be built along southbound I-39/90 through the core of the interchange. The two existing lanes will remain in place with a third lane added to the inside along with a new 12-foot shoulder and concrete median barrier.
- A dedicated exit-only lane will also be added to southbound I-39/90 near the exit ramp to westbound US 12/18.

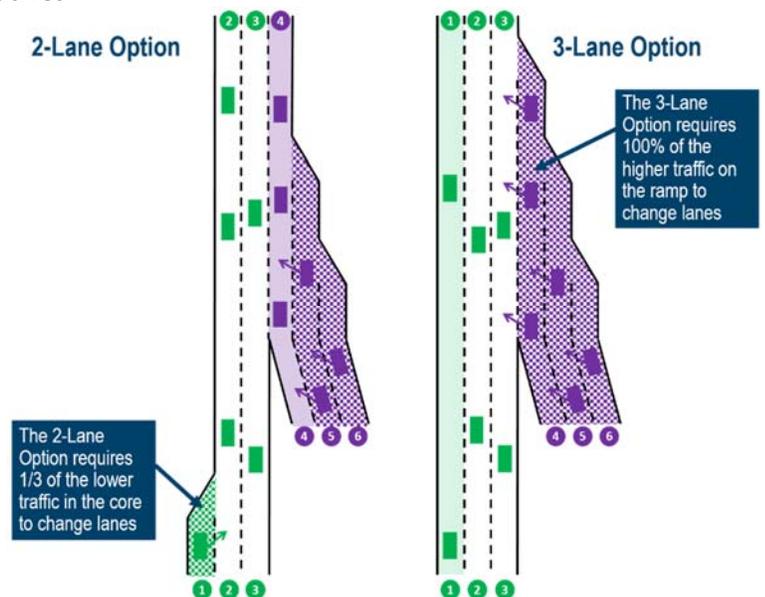
## Northbound

- WisDOT is considering alternatives for two or three lanes northbound through the core of the interchange.
- The two-lane interchange improvement option carries three lanes of I-39/90 past the off-ramp to the Beltline and drops one lane in the core, prior to the northbound on-ramp from the Beltline. With this option, a third through lane is added back to the Interstate from the Beltline on-ramp, like it does today. The on-ramp will also have an extended acceleration lane.
- The three-lane interchange improvement option carries three lanes of I-39/90 through the core of the Beltline Interchange. With this option, all three proposed lanes of the higher volume on-ramp from the Beltline merge into I-39/90.
- The alternative that drops from three lanes to two lanes within the core is being considered as the preferred alternative because of its operational benefits. Normally, a single travel lane can accommodate about 2,000 vehicles in an hour before reaching capacity. On I-39/90, in the core of the Beltline Interchange, 2,165 vehicles per hour are anticipated during a summer Friday afternoon in the year 2040. These 2,165 vehicles only require two lanes of traffic – and with plenty of capacity to spare. There is a need for three lanes south of the Beltline, but between the on and off ramps in the core of the interchange, there is only demand for two lanes.
- For both alternatives, the northbound I-39/90 to westbound US 12/18 exit ramp is to be reconstructed as a right-side exit and combined with the exit to eastbound US 12/18.



## Safety Consideration for the Beltline Interchange Alternatives

- The most significant reason for dropping a lane in the core of the interchange, aside from the lack of traffic demand, is to improve the overall safety of the interchange. More vehicles required to change lanes often means more crashes.
- If two lanes continue through the core of the interchange, total traffic on the Interstate and the northbound on-ramp from the Beltline will make a minimum of approximately 36,000 lane changes per day.
- If three lanes travel through the core of the interchange, total traffic on the Interstate and the northbound on-ramp from the Beltline will make a minimum of approximately 68,500 lane changes per day, about 90% more than the two-lane option.
- Why the large difference? If there are three lanes of travel through the core of the interchange, the higher traffic volume – which is on the ramp, not the interstate – is required to merge at least one lane, and sometimes up to three lanes.



## Summary

- At first glance, it might not seem like a good idea to drop a lane in the middle of an interchange, only to add another lane a few thousand feet later. Know that WisDOT considered the traffic and safety impacts of each alternative, and after thorough analysis and evaluation of each option, WisDOT determined that the two-lane alternative was the safest and most efficient of the alternatives considered.
- For more information, visit the project website at <https://projects.511wi.gov/i-39-90/us1218-beltline/>.