



## Department of Transportation

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Subject: WisDOT Interstate Study Staff Review

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The Wisconsin Department of Transportation (WisDOT) is studying the reconstruction of the Interstate from Madison to Wisconsin Dells, with eventual construction beginning in 2027 that could span a decade. Key objectives for WisDOT will likely include preserving mobility and improving safety on their “Backbone Routes,” shown in the adjacent figure. This also may include providing “system” or freeflow ramps at the Backbone interchanges of I-39-90/I-94 (Badger) and I-90-94/US 151.

The study and subsequent project provides several opportunities for local mobility in the Madison area. This includes:

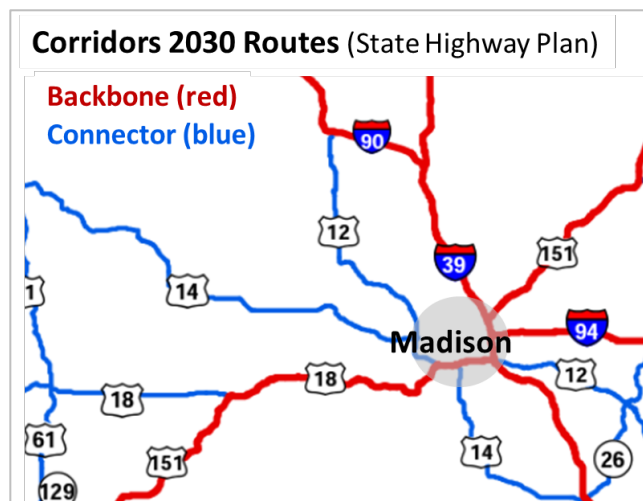
- An ability to rearrange the US 151 and I-39-90-94 interchange in a way that reduces speeds on East Washington Avenue and provides an urban street connection to the American Center.
- A new Interstate interchange at Hoepker Road, which would provide additional freeway access into the American Center.
- A new interchange at a Milwaukee Street extension with I-94. This interchange is planned in the Sprecher Neighborhood Development Plan and Comprehensive Plan.

This memo provides observations and staff recommendations for this WisDOT study that affects Madison.

### US 151/Interstate Interchange

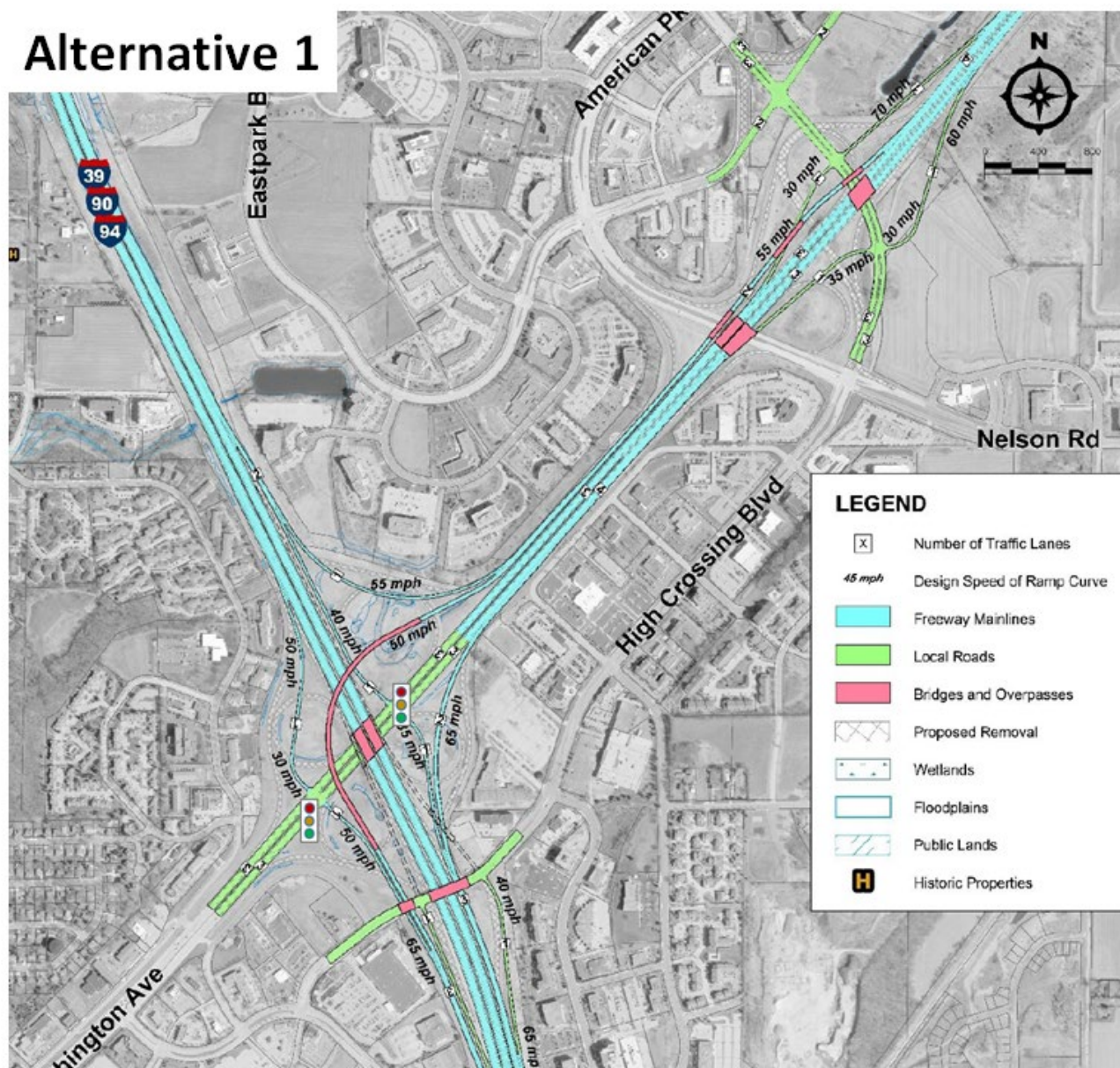
WisDOT developed five alternatives that generally accomplish their objective of providing system (freeflow) ramps at backbone to backbone connections. The alternatives have many features that can achieve local objectives. Pertinent local objectives include:

1. **Slowing speeds on East Washington Ave.** East Washington Ave is on the City’s High Injury Network, and experienced five pedestrian/bicycle fatalities in 2021. Speed is a primary contributor to fatalities and serious injuries on East Washington. Speed is a concern just west of the interchange where the US 151 freeway transitions to a street, and partial cloverleaf ramps join East Washington Ave. with posted street speeds of between 40 to 55 mph. Alternatives that extend an urban East Washington Ave with signals will help reduce speeds.
2. **Providing an Urban Connection to the American Center.** It is very difficult to access the American Center without using a freeway and it is almost impossible by bike. Providing an urban street connection to the American Center helps connect it to the whole of Madison.
3. **Reducing noise impacts to surrounding properties.** Generally, ramps that are not elevated have less potential to propagate highway noise.



4. **Enhance density/development opportunities.** Madison's area for expansion is finite, and efficient, interconnected land development is a goal of the City's Comprehensive Plan.
5. **Complement Bus Rapid Transit Service** – In this area BRT routing splits between servicing Sun Prairie and servicing the American Center/Hanson Road. Some alternatives enhance BRT connectivity and/or routing.
6. **Generally address entrance concepts contained in the Rattman Neighborhood Development plan.** This plan generally showed an additional connection into the American Center – most probably occurring through an extension of High Crossing to American Parkway. To provide acceptable ramp-to-ramp distances, WisDOT has modified and/or relocated the American Center entrance on several of the alternatives.

#### Staff Review of US 151/Interstate Alternatives



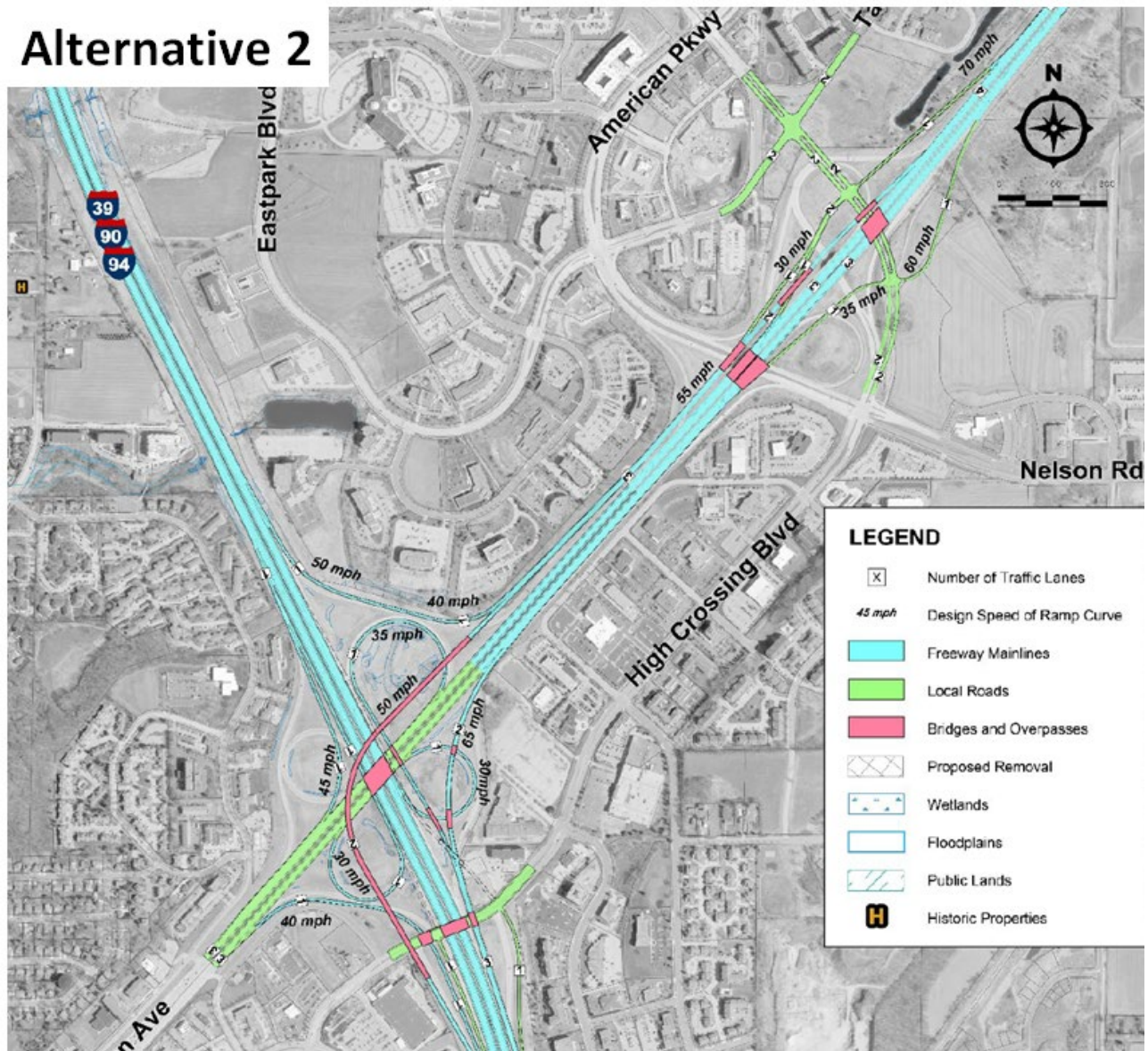
**Alternative 1** provides freeflow system ramps for the US 151/Interstate connection. The connection to East Washington Avenue is served with a more traditional diamond interchange with signalized ramp terminals (as opposed to the current cloverleaf interchange). It also relocates the American Center main entrance from American Parkway to American Family Drive.



### Alternative 1 Summary of Impacts

1. The signals on the East Washington Ramp terminals would help introduce an urban roadway with slower speeds.
2. There is no urban street connection to the American center with this alternative. Access without a motor vehicle remains difficult.
3. There is one elevated freeflow ramp, which could increase noise impacts.
4. This alternative would not influence density or development opportunities.
5. This alternative would not enhance BRT routing to the American Center.
6. This alternative relocates the US 151 entrance of the American Center from American Parkway to American Family Drive, yet maintains the Nelson Road/American Pkwy entrance from High Crossing Blvd.

### Alternative 2

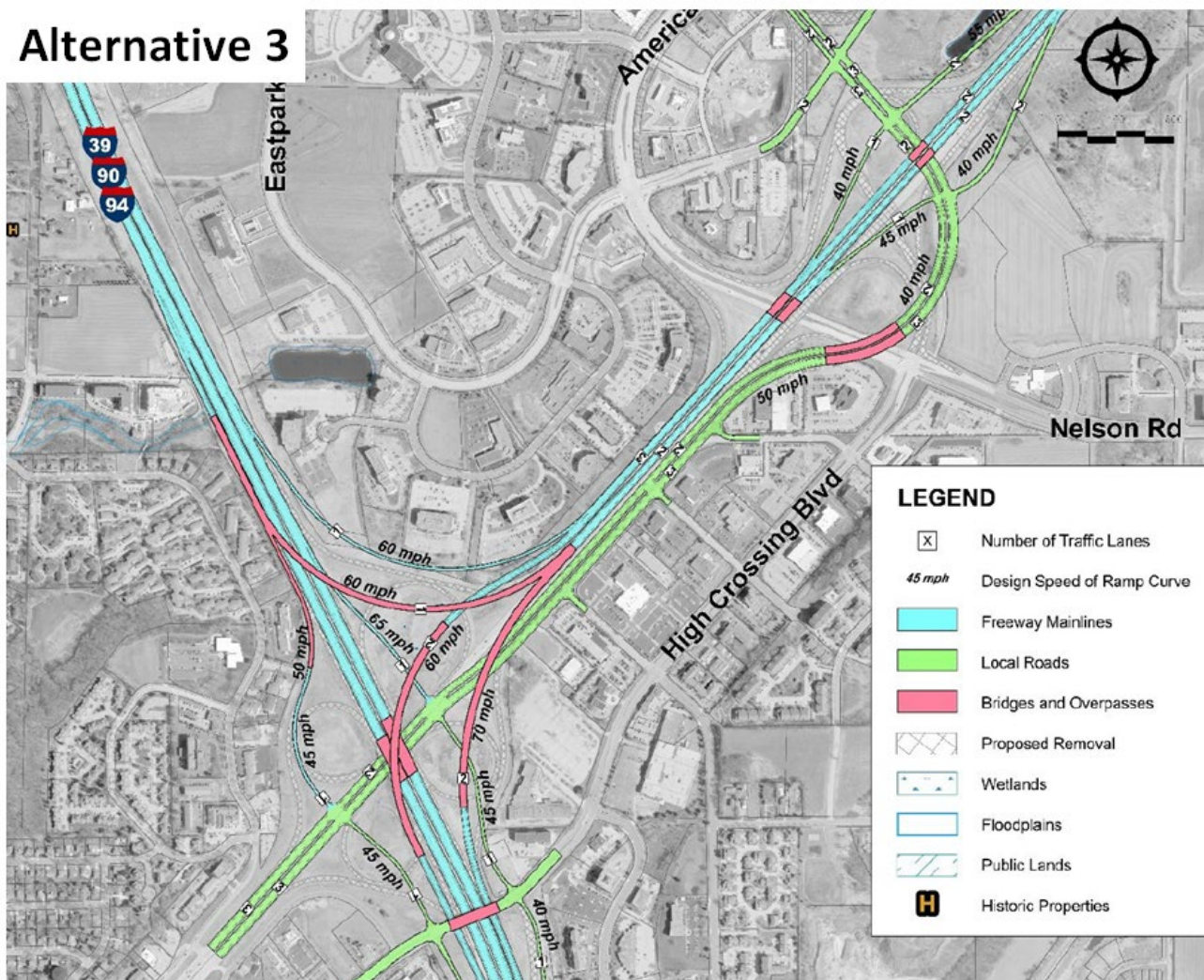


**Alternative 2** provides freeflow ramps for the US 151/Interstate movements. East Washington Ave continues to be served by the cloverleaf interchange ramps (without signals). It also relocates the American Center main entrance from American Parkway to American Family drive.

### Alternative 2 Summary of Impacts

1. The cloverleaf ramps remain, and East Washington speeds would remain high.
2. There is no urban street connection to the American Center with this alternative. Access without a motor vehicle remains difficult.
3. There is one elevated freeflow ramp, which could increase noise impacts.
4. This alternative would not influence density or development opportunities.
5. This alternative would not enhance BRT routing to the American Center.
6. This alternative relocates the US 151 entrance of the American Center from American Parkway to American Family Drive, yet maintains the Nelson Road/American Pkwy entrance from High Crossing Blvd.

### Alternative 3



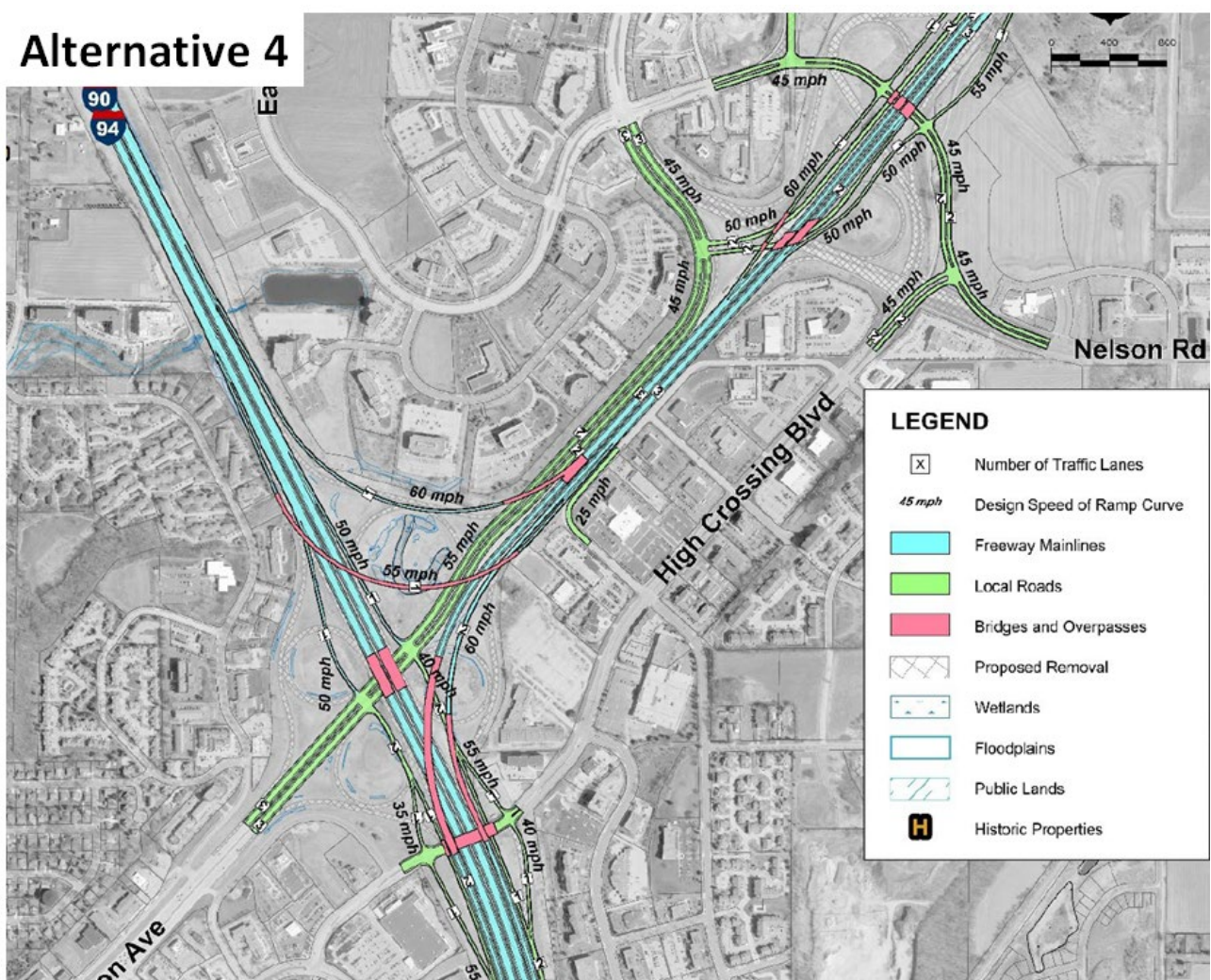
**Alternative 3** provides freeflow ramps for the US 151/Interstate movements, including the SW 151 to NW Interstate movement. East Washington Ave would be served through a split diamond interchange with High Crossing Blvd, with signals. It provides a direct urban street connection to the American Center through an extension of East Washington Avenue on top of Wayne Terrace, southeast of the US 151 freeway. It also relocates the American Center main entrance from American Parkway to American Family drive. With this alternative, traffic traveling from Sun Prairie to East Washington Ave would exit on American Family Drive.

### Alternative 3 Summary of Impacts

1. The signals on the East Washington Ramp terminals would help introduce an urban roadway with slower speeds. Additionally, the extension of East Washington Ave as an urban street with intersections would help to slow travel speeds east of the Interstate.



2. There is an urban street connection to the American Center with this alternative, which provides direct access for cyclists, pedestrians, and auto users who do not want use the freeway. This helps connect the American Center with the rest of the city. The urban street runs adjacent to the freeway, which could be less comfortable for some users.
3. There are three elevated freeflow ramps, which would increase noise impacts.
4. This alternative could enhance density or development opportunities. The extension of East Washington Ave along Wayne Terrace provides better access and visibility to the High Crossing area. This could create higher and better (denser) uses for the properties between Wayne Terrace and High Crossing.
5. This alternative probably would not affect BRT routing to the American Center. BRT probably would continue on High Crossing to serve the residential areas south.
6. This alternative relocates the US 151 main entrance of the American Center from American Parkway to American Family Drive through a diamond interchange. Access to American Parkway is maintained through High Crossing Blvd.

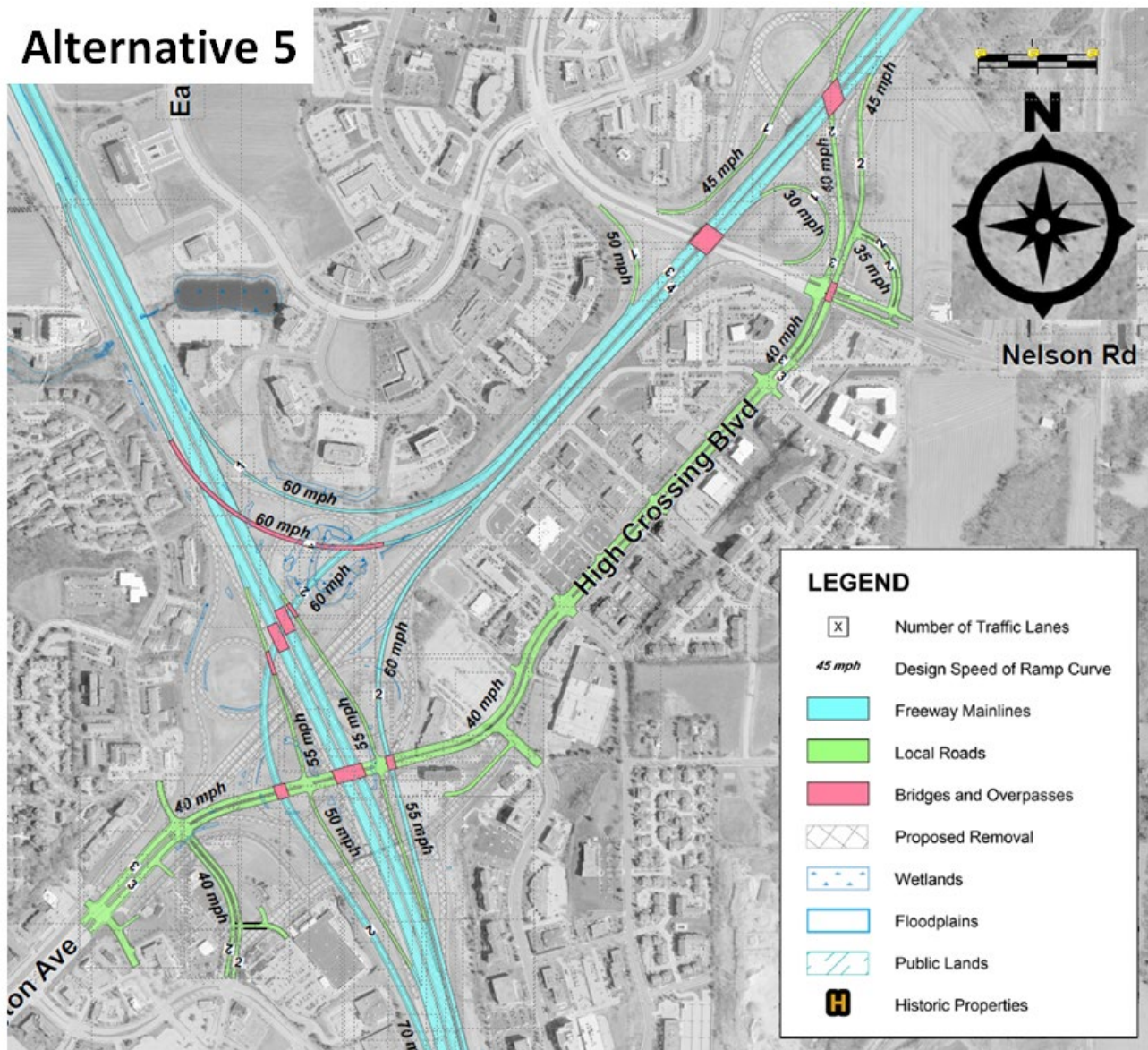


**Alternative 4** is similar to Alternative 3 in that it provides freeflow ramps for the US 151/Interstate movements, including the SW 151 to NW Interstate movement and provides a direct urban connection to the American Center. However, the urban street is on the north side of the US 151 freeway and does not connect with any side roads. As with Alternative 3, East Washington Ave is served through a split diamond interchange with High Crossing Blvd, with signals. Alternative 4 does not relocate the American Center main entrance, but does realign Nelson Road to connect with Eastpark Blvd. With this alternative, traffic traveling from Sun Prairie to East Washington Ave would exit on Nelson Road.

### Alternative 4 Summary of Impacts

1. The signals on the East Washington Ramp terminals would help introduce an urban roadway with slower speeds. However, the East Washington Ave extension would not provide as much speed moderation because there are no intersections or property accesses. This section of roadway would encourage higher than normal travel speeds.
2. The urban street connection to the American Center provides direct access for cyclists, pedestrians, and drivers who do not want use the freeway. Speeds on the East Washington Ave extension are a concern.
3. There are three elevated freeflow ramps, which would increase noise impacts.
4. This alternative would not enhance density or development opportunities. There is no property access or street intersections off of the extension, therefore the street would serve mainly as a local connection.
7. This alternative probably would have no effect on BRT routing to the American Center. BRT probably would continue on High Crossing to serve the residential areas south.
8. This alternative creates an addition US 151 entrance to the American Center through a modified diamond interchange connection of Nelson Road with Eastpark Blvd. It also provides an option for US 151 travelers to connect directly with the American Parkway/East Washington Ave extension.

### Alternative 5





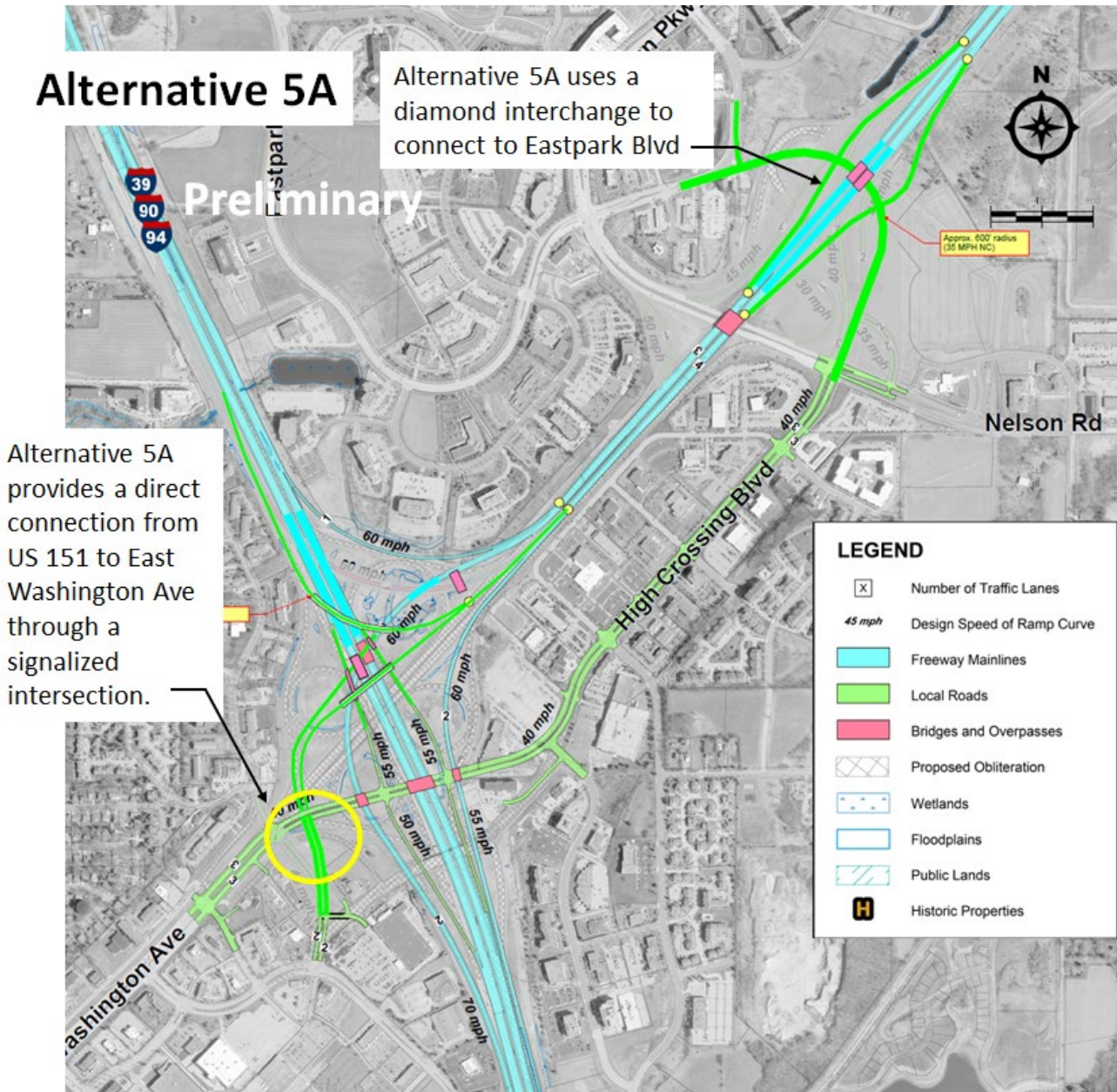
**Alternative 5** provides freeflow ramps for the US 151/Interstate movements, including the SW 151 to NW Interstate movement. However, two of the freeflowing ramps are at ground level, and only one is elevated. East Washington Ave. is extended and transitions into High Crossing Blvd before it joins US 151 east of Nelson Road. East Washington Ave/High Crossing would be served through a traditional diamond interchange. Northbound High Crossing joins Nelson Road with a jug handle intersection. The current entrance to the American Center is maintained from both US 151 and local streets (High Crossing Blvd., Nelson Road). With this alternative, traffic traveling from Sun Prairie to East Washington Ave would exit on Nelson Road.

#### **Alternative 5 Summary of Impacts**

1. The signals on the East Washington Ramp terminals would help introduce an urban roadway with slower speeds. Additionally, East Washington Ave as an urban street with intersections is extended northeast to Nelson Road/American Family Drive. The use of High Crossing Blvd as an urban street would also help to slow travel speeds, introducing city speeds a full mile east of the Interstate.
2. The urban street connection to the American Center provides direct access for cyclists, pedestrians, and drivers who do not want use the freeway, better connecting the American Center with the rest of the city.
3. There is only one elevated freeflow ramp, and two depressed freeflow ramps. The elevated ramp would increase noise levels, however the two depressed ramps would have lower noise impacts than Alternatives 3 and 4.
4. This alternative would enhance density or development opportunities. High Crossing Blvd is underutilized and has high redevelopment potential. The extension of East Washington Ave onto High Crossing Blvd would provide better access and visibility.
5. This alternative would enhance BRT routing to the American Center. Combining East Washington with High Crossing Blvd eliminates turns and provide a more direct connection to both the American Center and the Sun Prairie Park and Ride.
6. This alternative maintains the current main entrance of the American Center from American Parkway to American Family Drive through a jug handle similar to the current access. An additional access into the American Center is not provided.

Note: WisDOT is proposing expanding High Crossing Blvd. to three lanes in each direction with this alternative. With High Crossing Blvd. currently seeing approximately 15,000-18,000 average weekday traffic, which is low for a road of its size, Staff has encouraged WisDOT to examine traffic projections to see if this alternative requires an expansion of High Crossing Blvd. Similarly, staff has requested further information from WisDOT as to whether the jug handle shown at Nelson Road is needed.

**Alternative 5A** is a modification to Alternative 5 developed to address some of the traffic diversion effects of Alternatives 3, 4, and 5. By introducing an urban roadway sooner, Alternatives 3, 4 and 5 remove roughly 20,000 to 30,000 vpd from East Washington Avenue and divert this volume to I-39/90/94 and Highway 30. Removing traffic volumes from East Washington Ave could lead to less impactful East Washington/Stoughton Road alternatives from WisDOT's North Stoughton Road study. However, WisDOT may experience challenges in accommodating the diverted traffic on the Interstate and Highway 30.



As with Alternative 5, Alternative 5A provides freeflow ramps for the US 151/Interstate movements, including the SW 151 to NW Interstate movement. Two of the freeflowing ramps are at ground level, and only one is elevated. East Washington Ave. is extended and transitions into High Crossing Blvd before it joins US 151 east of Nelson Road. However, US 151 traffic destined to Central Madison would have the option to connect directly with East Washington Ave. through a signalized intersection. East Washington Ave/High Crossing would be served through a traditional diamond interchange.

Alternative 5A relocates the American Center main entrance to a traditional diamond interchange formed by extending High Crossing Blvd and connecting it to Eastpark Blvd.

### Alternative 5A Summary of Impacts

1. The signals on the East Washington Ramp terminals would help introduce an urban roadway with slower speeds. Additionally, East Washington Ave as an urban street with intersections is extended northeast to Nelson Road/American Family Drive. The use of High Crossing Blvd as an urban street would also help to slow travel speeds, introducing city speeds a full mile east of the Interstate.



2. The urban street connection to the American Center provides direct access for cyclists, pedestrians, and drivers who do not want use the freeway, better connecting the American Center with the rest of the city.
3. There is one elevated freeflow ramp, one elevated extension of US 151 to East Washington Ave., and two depressed freeflow ramps. The elevated ramp and US 151 extension would increase noise levels.
4. This alternative would enhance density or development opportunities. High Crossing Blvd is underutilized and has high redevelopment potential. The extension of East Washington Ave onto High Crossing Blvd would provide better access and visibility.
5. This alternative would enhance BRT routing to the American Center. Combining East Washington with High Crossing Blvd eliminates turns and provide a more direct connection to both the American Center and the Sun Prairie Park and Ride.
6. This alternative adds/relocates the main US 151 entrance of the American Center through a diamond interchange with an extension of High Crossing Blvd to Eastpark Blvd. American Parkway still serves as an entrance to the American Center through High Crossing Blvd.

### US 151/Interstate Alternative Summary

Objective	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 5A
1. Lower EW Speeds						
2. Urban Connection						
3. Noise/Elevated Ramps						
4. Development/Density						
5. Complement BRT Service						
6. American Center access configuration						

Generally, Alternative 5 accomplishes the greatest number of city objectives and therefore is favored by staff. It provides an urban connection to the American Center by routing East Washington on an underutilized road, and provides opportunity for greater development and density. The number of overhead freeflow ramps is also reduced. One added benefit is the reduction to East Washington Ave volumes prompted by this alternative.

If the diversion impacts are too great with Alternative 5, Alternative 5A satisfies many of the objectives, yet does not have the benefits of reducing traffic volumes on East Washington Ave. If Alternative 5A is selected, many features of Alternative 5 should be preserved, such as:

- An urban connection to East Washington Ave that slows traffic.
- All ages and abilities pedestrian and bicycle connections from East Washington Ave to High Crossing.

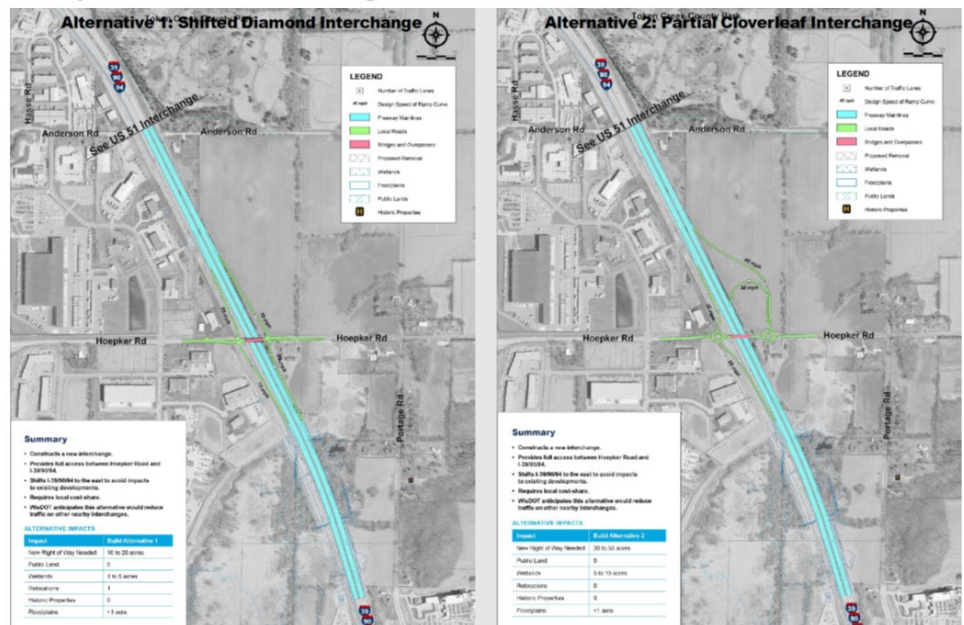
Alternative 3 satisfies some city objectives, and is a reasonable alternative.

## Hoepker Interchange

Reconstruction of the Interstate provides the opportunity to evaluate the installation of a new interchange at Hoepker Road. Stakeholders in the American Center have advocated for the installation of a new interchange at Hoepker Road. This interchange is not in the current Pumpkin Hollow Neighborhood Development Plan. It would provide more direct interstate access to employment and regional medical facilities in the American Center. It also would provide access to Sun Prairie's Prairie Lakes retail center via Hoepker Road.

The configuration of a potential interchange, either a standard diamond or partial cloverleaf, will largely be determined by WisDOT traffic modeling.

### Hoepker Road Interchange Alternatives



Preliminary Travel Demand Modeling was provided by WisDOT for the 2050 forecast year. If the US 151 Alternative 5 interchange is used as a base, the 2050 modeling indicates that Portage Road south of Hoepker Rd. would see roughly 2000 more vehicles per day (vpd), bringing the total to roughly 4000 vpd. The total daily volume is still well within the capacity of a typical two-lane roadway. Hoepker Road would see greater traffic volume increases, with up to 10,000 vpd being added to Hoepker Road east of the interstate. This would bring Hoepker Road traffic volumes to 20,000 vpd or above, perhaps affecting the capacity need on Hoepker Rd.

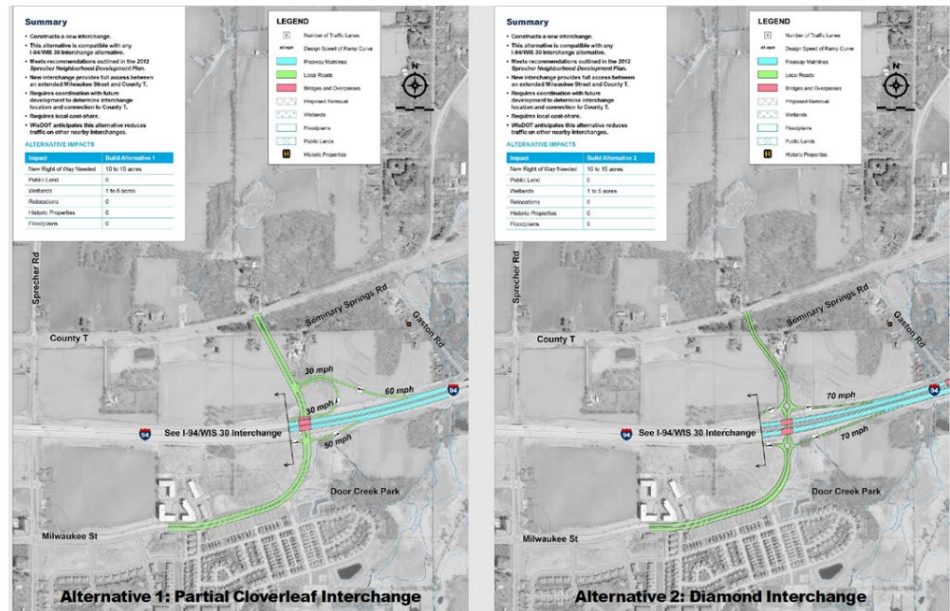
The City of Madison would be responsible for paying a local cost share associated with interchange construction. Madison has a policy that passes that cost onto benefiting properties through assessments/impact fees. This policy could be revised to include other funding sources. The Neighborhood Development Plan would also need to be modified to reflect land use changes that could occur with a new interchange.



## Milwaukee Street Interchange

The I-94 reconstruction also provides an opportunity to construct an interchange off an extension of Milwaukee Street. This interchange has been part of the Sprecher Neighborhood Development Plan for two decades, and is necessary for the commercial/ employment uses in the Neighborhood Development Plan and Comprehensive Plan to be realized. The Milwaukee St interchange could enable a commercial/ employment/ mixed-use node similar to highway frontage projects like Arbor Gate (by Todd Drive) or the “City Center West” area southwest of the Beltline/Old Sauk Road interchange (TDS/Johnson Bank, Deco mixed-use building, etc).

## Milwaukee Street Interchange Alternatives



The type of interchange, partial cloverleaf or conventional diamond, will largely be determined by WisDOT traffic modeling.

WisDOT provided preliminary Travel Demand Modeling for the 2050 forecast year. If the US 151 Alternative 5 is used as a base, there would be very modest changes to traffic in the area. Milwaukee St west of Sprecher would see a 10 to 15 percent increase of daily traffic volume. Sprecher Rd south of Milwaukee St. would see less than a 5 percent increase in traffic volume.

An interchange at this location provides new access opportunities for residents in the Sprecher neighborhood, as well as enhancing emergency response times from nearby Fire Station No. 13. With an interchange planned in the Sprecher Neighborhood Development Plan, Milwaukee Street has generally been constructed to accommodate additional traffic in this area. The Common Council adopted a resolution supporting study of a Milwaukee Street interchange in 2017 (see [Legistar #48640](#)).

As with the Hoepker Road interchange, the City of Madison would be responsible for paying a local cost share associated with the interchange. Madison has a policy that passes that cost onto benefiting properties through assessments/impact fees. This policy could be revised to include other funding sources, which for this area could include Tax Increment Financing (TIF)<sup>1</sup>.

This is probably the only opportunity in the coming decades to install this interchange. If the city were to decide not to install it, the Neighborhood Development Plan and Comprehensive Plan should be modified to reflect no access to the Interstate system, which would likely mean multifamily residential replacing planned employment.

<sup>1</sup> Note that this would require a change in the assessment policy

## Interstate Mainline Expansion Alternatives

The Interstate facility is under state jurisdiction, and WisDOT has and will favor their objectives for the facility. It is well documented that capacity expansion leads to greater vehicle miles travel with the associated environmental and land use effects. Consequently, Madison favors no capacity expansion. If capacity expansion is incorporated into the preferred alternative, staff recommends advocating for limited measures, such as managed lanes, rather than traditional lane addition.

In all capacity expansion alternatives, staff requests that WisDOT revise its noise policy FDM Chapter 23 (associated with 23 CFR 772.7), which uses a “feasible and reasonable” criteria for noise walls. Many Type 1 highway projects have noise impacts, and noise mitigation is feasible. Yet this policy defines “reasonable” as costing less than \$50,000 per receptor, which often results in noise mitigation not being provided. This places an undue burden for reasonableness in mitigating legitimate noise impacts. For example, with the Beltline Flex Lane project there were over 100 receptors with an impact (66 dbA or greater), yet none of the noise walls investigated satisfied the “reasonable” criteria to warrant noise mitigation walls. If it is reasonable to invest hundreds of millions to expand capacity, the “reasonability” criteria should be adjusted to allow noise mitigation.

## Pedestrian and Bicycle Connections

The Interstate forms a barrier between central Madison and its growth areas to the east. The reconstruction of the interstate provides a once in a 40 year opportunity to include crossings that would help ameliorate the barrier the Interstate poses. Most of the neighborhood development plans and area plans recommend pedestrian/bicycle crossings of the Interstate. For some of these connections, the need is high because the Interstate severs existing development. Other connections are not as urgent in that they will serve development planned in the future. Generally, all Interstate crossings for motor vehicles should also provide all ages and abilities bicycle and pedestrian accommodations. For dedicated pedestrian bicycle crossings, the following map indicates requested crossings, and their order of importance. Milwaukee Street, while a motor vehicle crossing, is shown as the first priority because it is of critical importance. The Milwaukee Street bridge has no pedestrian facilities, yet pedestrian volumes are increasing substantially.

