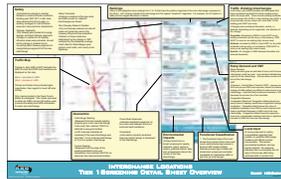


I-39/90/94 Traffic Impact Analysis Process

- In early 2012, WisDOT and FHWA agree to complete the TIA
- The I-39/90/94 TIA started in January 2013



- Develop screening criteria

QUESTIONNAIRE FOR LOCAL OFFICIALS TO PROVIDE INPUT FOR SCREENING INTERCHANGE AND CROSSING LOCATIONS

LOCATION: _____ COUNTY: _____ DATE: _____
 Municipality: _____
 Name of Person/ Agency Being Contacted: _____

What is your government's position on the new location?
 In Favor Neutral Opposed

What are the reasons for your position?

Would your government consider cost sharing for this location? Yes No

Would the general land use change if the new location were constructed?
 Yes No

Describe the effect the new location would have on local roadway connectivity (location and spacing). Describe the effect it would have on residents, businesses, emergency services, existing and proposed roadway, etc...

Describe the effect the new location would have on bicycle, pedestrian and transit connectivity (location and spacing).

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- Recommendations to remove from consideration and locations to evaluate further in Tier 2

- Questionnaires sent to local officials requesting input on the potential interchange and crossing locations

- No new interchanges should be allowed on I-39/90/94 between US 12/18 and US 151
- Further analysis is needed during the I-39/90/94 Study to evaluate viability of two potential interchange areas and four crossing locations



- Evaluate existing traffic operations and crash rates

Location	Crash Type	Crash Count	Crash Rate
US 151 & I-39/90/94	Multi-Vehicle	12	0.08
US 151 & I-39/90/94	Single-Vehicle	8	0.05
US 151 & I-39/90/94	Other	5	0.03

- Hold Future Land Use Meetings with local municipalities



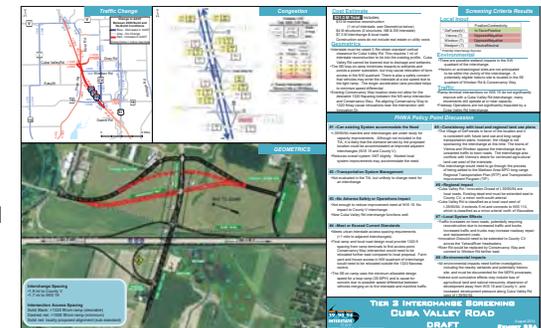
- Identify natural and cultural environmental resources

- Identify potential locations for a new interchange and crossing



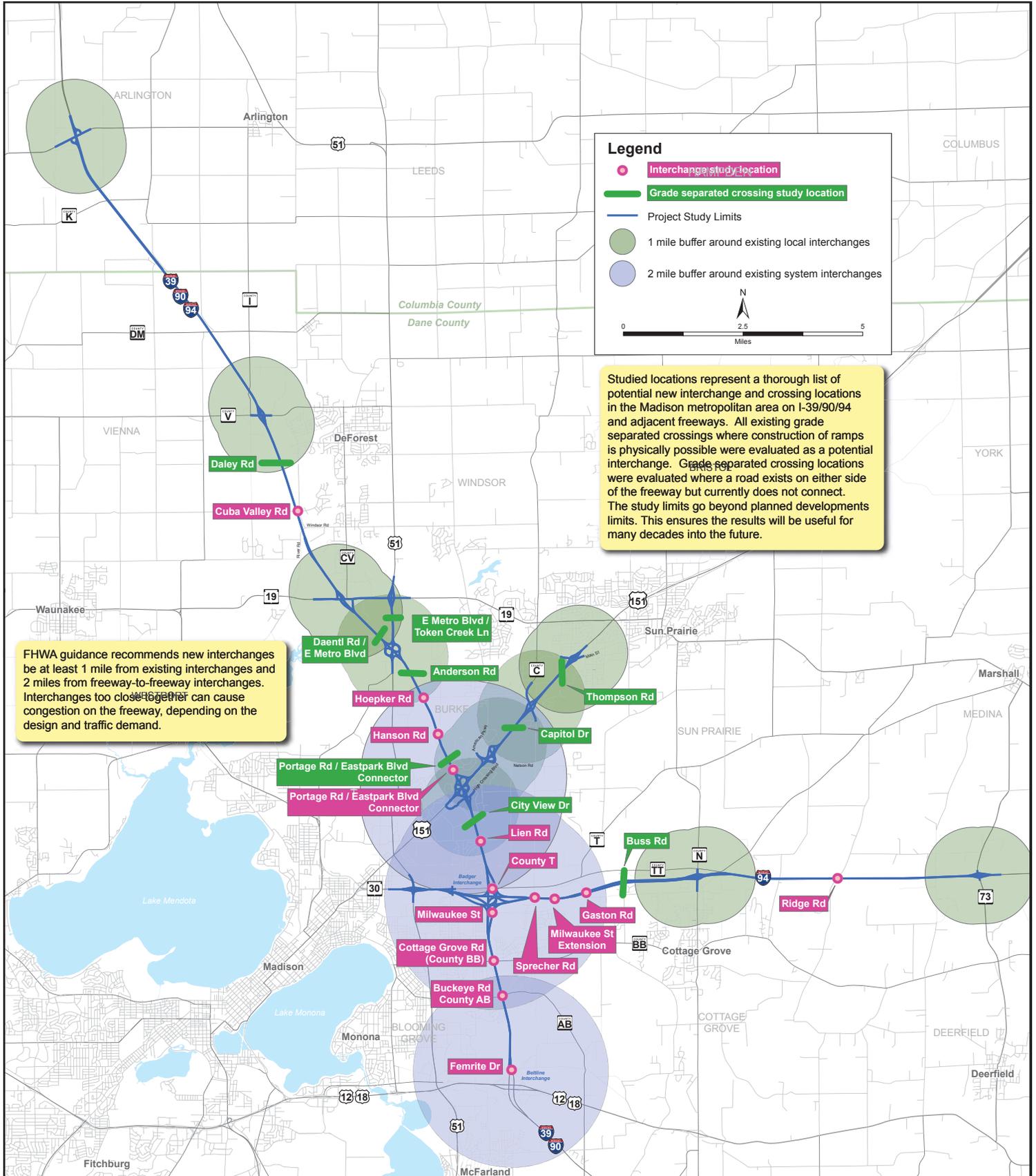
- Develop conceptual interchange layouts and evaluate impacts to the Interstate system and environment

- Requested input from local officials on conceptual interchange layouts

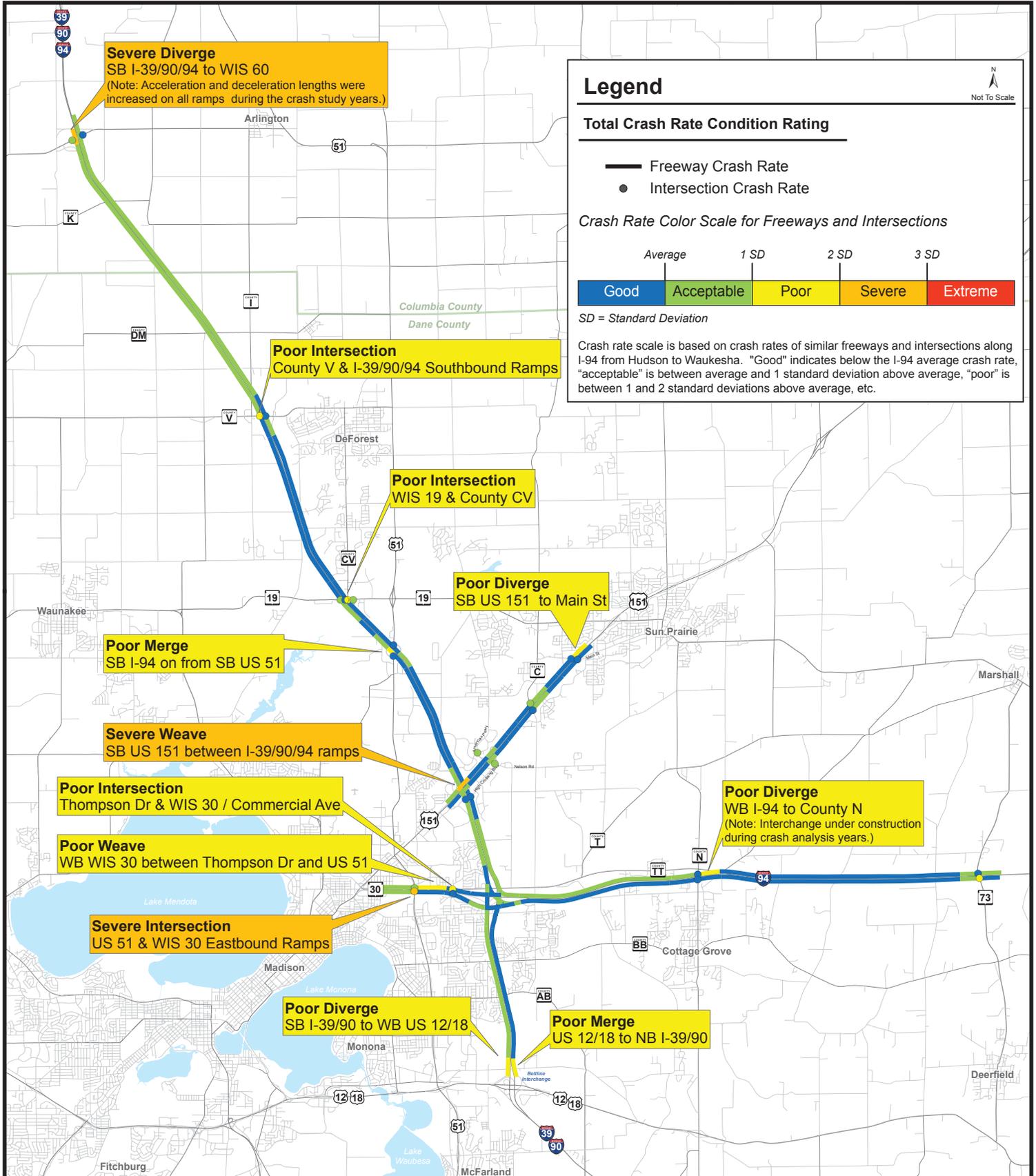


Sample Exhibit from Study Summary Report

Interchange and Crossing Locations Evaluated

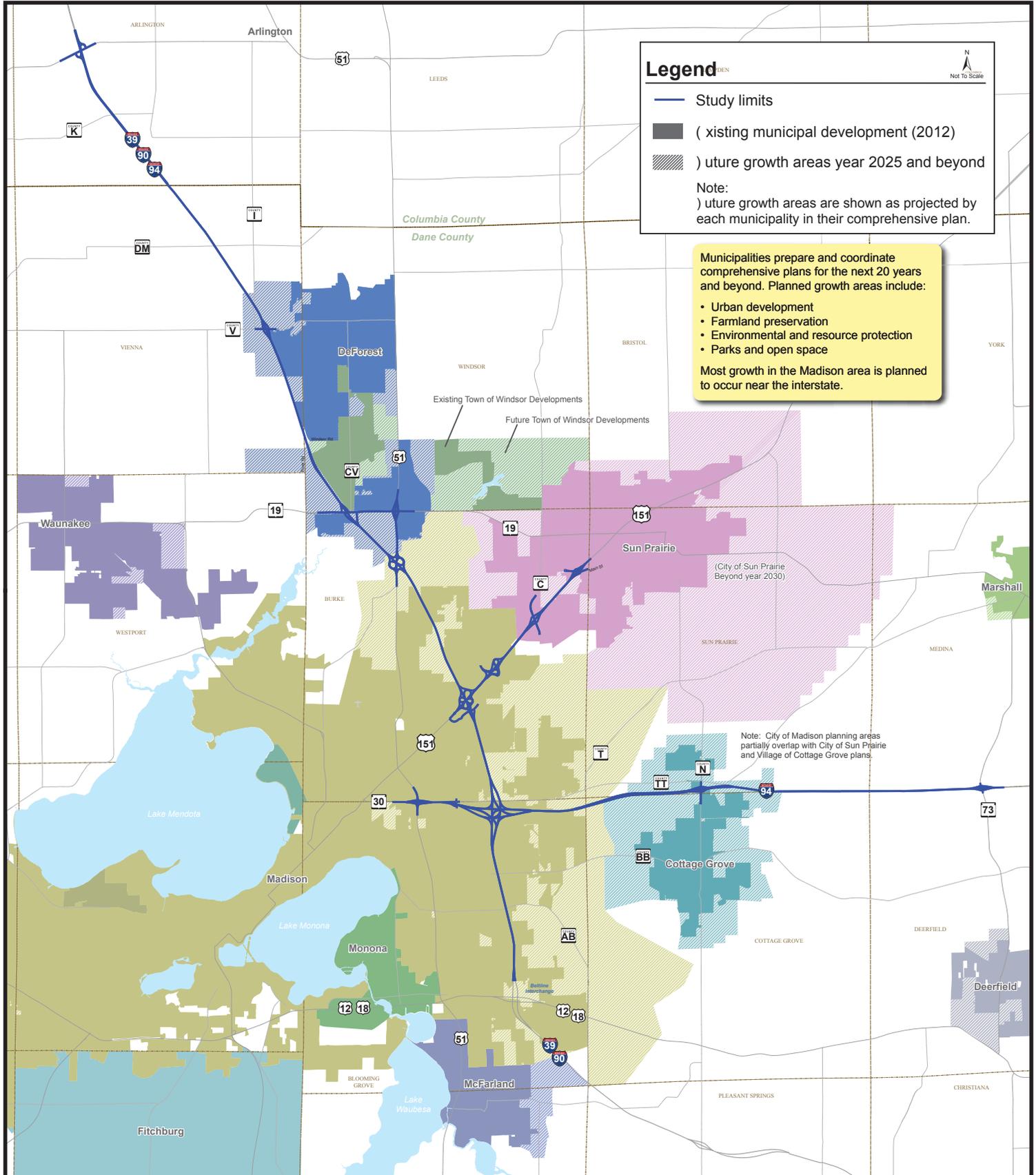


Crash History - Years 2007 - 2011



Existing Development and Future Growth Areas

Year 2025 and Beyond



Tier 1 Screening Process - Data Evaluation

Screening Process

Tier 1 Screening evaluated many different & types of data. Detailed summaries, like the & one shown here, were prepared for each & interchange and crossing location. These & summaries helped identify positives and & negatives about each location. Data & evaluated included:

- 7UDLF
- Local input
- Safety
- Environment
- Geometrics
- Functional class

Safety

Evaluates the change in crashes between no-build and build conditions. Existing year 2007-2011 crash rates were assumed for future years, or existing averages for new influence areas and ramp terminal intersections.

- **Freeway Segments**
The freeway was divided into merge, diverge, and basic freeway segments. Change in crashes for all existing influence areas was evaluated, as well as the change in crashes due to converting basic freeway segments to merge/diverge segments for the new interchange.
- **Ramp Terminals**
Change in crashes at the new ramp terminals as well as adjacent interchanges are shown.
- **Non-Freeway Network Crashes**
The non-freeway network includes all roads not previously used in the Freeway Influence Area evaluation. Crashes on these roads was determined by the change in VMT multiplied by the statewide average crash rates for Meta-Manger peer groups, local roads, and county trunk highways.

Traffic - Existing Interchanges

- Lists future year traffic increases and decreases that were considered significant at critical existing ramps within the study area. These include existing moderate volume ramps with 5,000 or more existing year AADT per ramp and high volume ramps with more than 10,000 existing year \$7 per ramp.

- Changes were considered favorable, neutral, or adverse, depending on the magnitude and direction of the change. Favorable: Decrease by 2000 or more AADT on an existing moderate volume ramp, or decrease by 1000 AADT or more on an existing high volume ramp. Adverse: Increase by 2000 or more AADT on an existing moderate volume ramp, or increase by 1000 AADT or more on an existing high volume ramp. Neutral: All changes in traffic between favorable and adverse thresholds.

Traffic Map

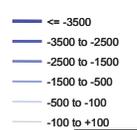
Change in daily traffic (AADT) between the 2050 no-build and 2050 build scenarios are displayed on the map.

- Blue = decrease in traffic
- Red = increase in traffic

Thicker and Darker lines indicate higher magnitudes. See Legend in lower left area of map.

Only roads included in the Dane County Model are displayed. This model was used to obtain all traffic volume information used to derive the safety and traffic information for each new interchange.

Change in AADT Between 2050 Build and No-Build Conditions



Geometrics

- **Interchange Spacing**
Measured from the nearest existing physical gore to the new interchange cross-road, then subtract 1200 ft to estimate a new gore location. A CD road was indicated as necessary if the new interchange was less than 1 mi to a service interchange or 2 mi to a system interchange.
- **Access Spacing**
Measured from the edge of the existing interchange to the next intersection, then subtract 250 ft for an assumed new ramp terminal location.
- **Cross Road Expansion**
Indicates estimated expansion on the cross road between future no-build and build conditions.
- **Constraints**
Lists nearby physical constraints that may impact design or placement of the interchange.

Environmental Impacts

Shows results from a broad screening for nearby wetlands, parks, resource waters, potential historic sites and archeological sites in the vicinity of the new interchange.

Functional Classification

The functional class of the road shows the purpose of the cross road. Local roads provide high access to land but offer limited mobility. Arterials provide high mobility with limited land access and are better candidates for distributing WU&to and from an interchange.

Local Input

A survey was sent to nearby municipalities regarding their position on potential interchange locations and effects on their communities. This section summarizes feedback and key points received. No response indicates that a municipality did not reply to the survey after being reminded after a months time.

Ramp Demand and VMT

- **Ramp Demand**
Ramp demand gives an estimate of how much the new interchange would be used. Less demand indicated less need for a new interchange. Also provides a sense of the size of the interchange.
- **VMT**
Change in Vehicle Miles Traveled (VMT) between the 2050 no-build and 2050 build scenarios shows the relative change of traffic patterns on different routes due to a new interchange. Important factor because increases in VMT decrease the service life of the interstate.
- **Congestion Measures**
Congestion Relief and Congestion Added shows how many miles of roadway would have a significant change in congestion. Congestion Relief shows the miles of congested roadways in the 2050 no-build scenario that have a significant decrease in WU&due to the new interchange. Congestion Added shows the opposite—previously uncongested roadways that have a significant increase in traffic with the new interchange.

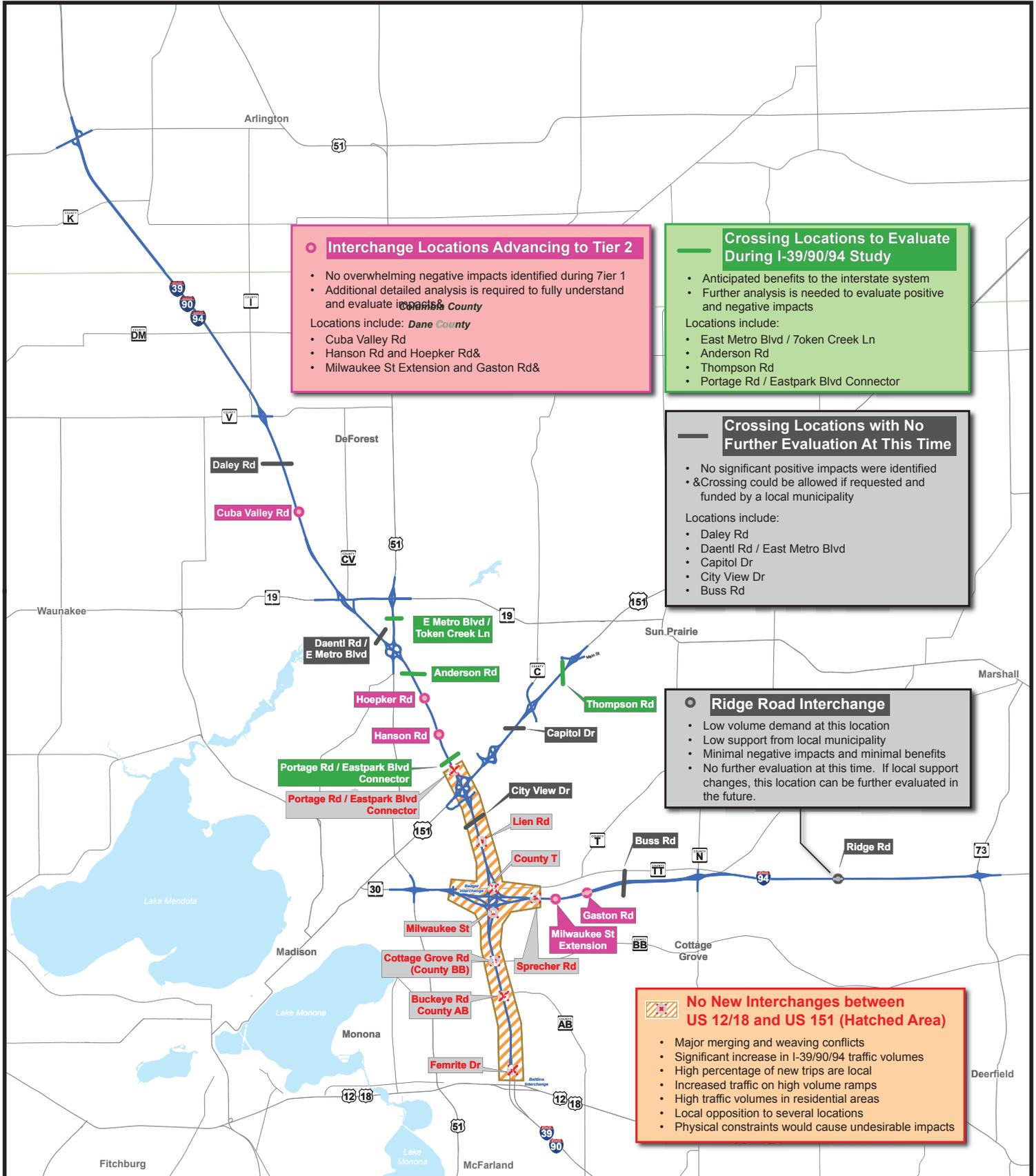
Safety	Freeway Segments	#14 of 14
Interchange Crashes (Merge & Diverge)	County BB	+9.5
	I-39/90 & I-94/WIS 30	+17.7
	I-39/90 & I-94/12/18	+5.3
	WIS 30 & US 51	-0.8
	All Others	+3.0
Freeway Crashes	All Basic Freeway Segments	+7.6
Net Change in Crashes/Yr		+26.3
Safety	Ramp Terminal Intersections	#11 of 14
	Change in Crashes/Yr	
	County BB	+13.3
	High Crossing Blvd	+0.4
	WIS 30 & US 51	-1.0
	WIS 30 & Thompson	-2.5
Net Change in Crashes/Yr		+10.6
Safety	Non-Freeway Network Crashes	#1 of 14
	Net Change in Crashes/Yr	-135
Geometrics		
	Interchange Spacing	
	To I-94/WIS 30	0.75 mi X
	7R BS 12/18	2.1 mi ✓ - marginal
	CD Road Required?	YES
	Access Spacing	
	N Star Dr	750 ft east X
	Thompson Dr	250 ft w/MW X
	Cross Road Expansion?	Expansion to 6-Lanes
Constraints		
	• No Section on ZIN	
	• \$B&ments in 1E TXD&L&uses to SW Q&B&M	
	• 3&B&M&to NW TXD&B&M	
Environmental Impacts		
	• Significant natural resources are not anticipated to be within the vicinity of the interchange.	
	• Historic or archaeological sites are not anticipated to be within the vicinity of the interchange.	

Traffic	Existing Interchanges with High/Moderate Volume Ramps	#5 of 7		
	Favorable, Neutral, or Adverse, Changes			
	US 12/18 & US 51			
	EB off to BS 51	-1,500		
	WB off to BS 51	-2,100		
	WB on from BS 51	-2,100		
	WIS 30 & US 51			
	EB on from BS 51	-3,800		
	WB off to BS 51	-3,600		
	I-39/90 & I-94/WIS 30 - Badger			
	NB R&B&E&I-94	+3,200		
	SB on from WB I-94	+3,100		
	I-39/90 & US 12/18 - Beltline			
	NB R&B&E&B&E 12/18	+2,400		
	SB off to BS 12/18	+2,300		
	I-39/90/94 & US 151			
	NB off to +1&B&R&W&L&J&+2,400			
	NB off to 1B BS 151	+2,800		
	SB on from SB BS 151	+3,200		
Traffic - Ramp Demand		#1 of 14		
	Average Ramp Demand:	15,275		
Traffic - Freeway VMT		#14 of 14		
	Change on TIA Freeways:	+122,300		
Traffic - Non-Freeway VMT		#1 of 14		
	US & WIS:	-66,700		
	County Local VMT:	-72,400		
	Overall Dane Co.:	-16,800		
	Non-Freeway Congestion Added:	10.8 PL		
	Non-Freeway Congestion Reduced:	6.3 PL		
Local Input				
	Position	Land Use	Connectivity	
	Madison (C)	Oppose	No Comment	Negative
	Blooming Grove (T)	No Response	No Response	No Response
	Dane County	No Response	No Response	No Response
Functional Classification				
	• 8&R&X&M&B&V&D&V&L&B&M&P&L&O&R&M&M&L&D			

TIER 1 INTERCHANGE SCREENING

I12: COTTAGE GROVE RD (COUNTY DD) R

Tier 1 Screening Results



Interchange Locations Advancing to Tier 2

- No overwhelming negative impacts identified during Tier 1
- Additional detailed analysis is required to fully understand and evaluate impacts

Locations include: **Dane County**

- Cuba Valley Rd
- Hanson Rd and Hoepker Rd&
- Milwaukee St Extension and Gaston Rd&

Crossing Locations to Evaluate During I-39/90/94 Study

- Anticipated benefits to the interstate system
- Further analysis is needed to evaluate positive and negative impacts

Locations include:

- East Metro Blvd / Token Creek Ln
- Anderson Rd
- Thompson Rd
- Portage Rd / Eastpark Blvd Connector

Crossing Locations with No Further Evaluation At This Time

- No significant positive impacts were identified
- Crossing could be allowed if requested and funded by a local municipality

Locations include:

- Daley Rd
- Daentl Rd / East Metro Blvd
- Capitol Dr
- City View Dr
- Buss Rd

Ridge Road Interchange

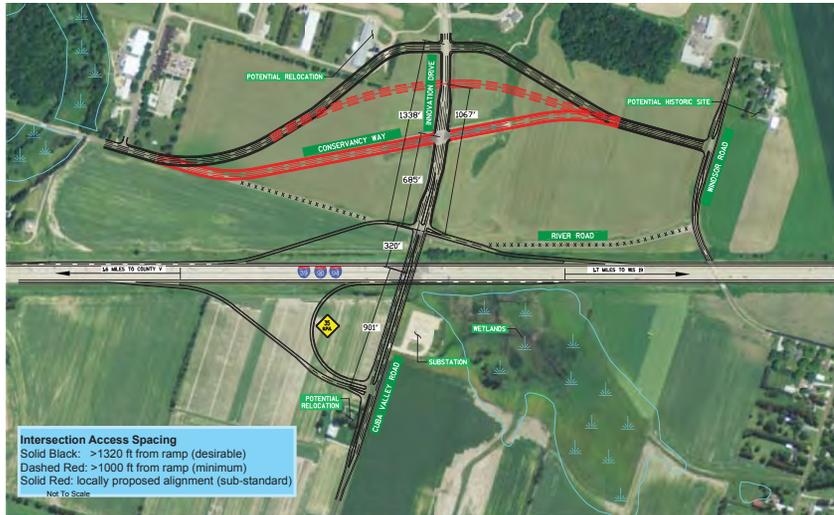
- Low volume demand at this location
- Low support from local municipality
- Minimal negative impacts and minimal benefits
- No further evaluation at this time. If local support changes, this location can be further evaluated in the future.

No New Interchanges between US 12/18 and US 151 (Hatched Area)

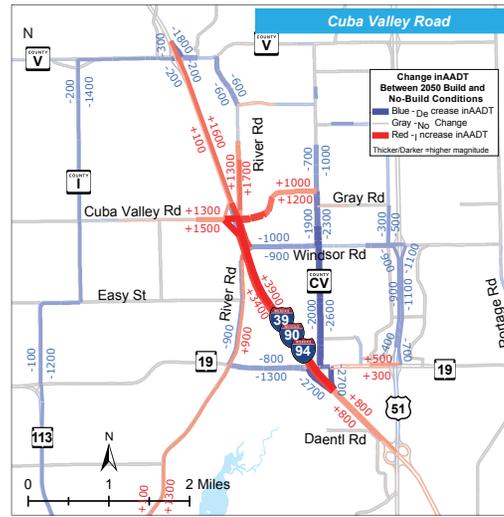
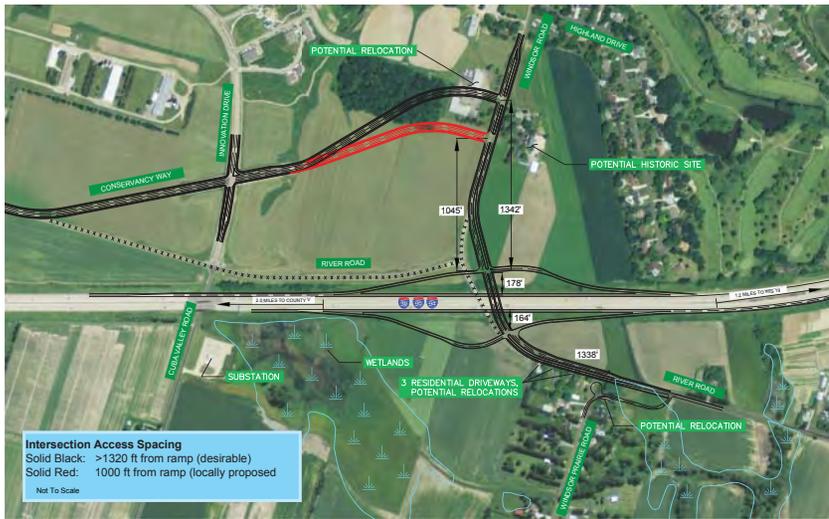
- Major merging and weaving conflicts
- Significant increase in I-39/90/94 traffic volumes
- High percentage of new trips are local
- Increased traffic on high volume ramps
- High traffic volumes in residential areas
- Local opposition to several locations
- Physical constraints would cause undesirable impacts

Tier 2 Interchange Screening - Cuba Valley Road and Windsor Road

Cuba Valley Road Interchange Conceptual Layout



Windsor Road Interchange Conceptual Layout



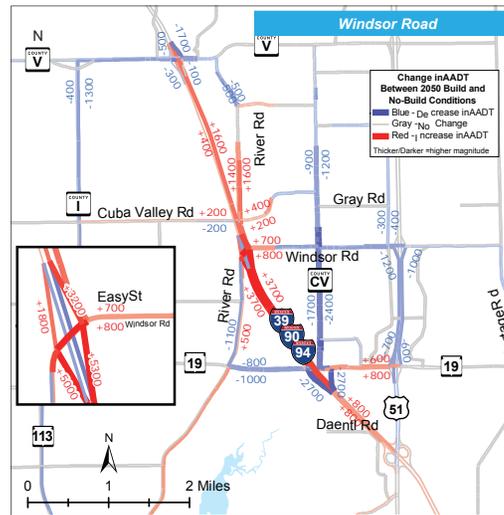
Preliminary Cost Estimate

\$20.2M Total
 \$10 M mainline reconstruction
 \$4 M for structures
 \$7.3 M interchange & local roads

Local Input

	Position	Connectivity
*DeForest (V)	In Favor	Positive
Vienna (T)	Opposed	Negative
Windsor (T)	Opposed	Negative
Westport (T)	Neutral	Neutral

*Potential Interchange Sponsor



Preliminary Cost Estimate

\$9.6M Total
 \$3.2 M for structure
 \$6.6 M interchange & local roads

Local Input

	Position	Connectivity
*DeForest (V)	No official position	
Vienna (T)	Opposed	Negative
Windsor (T)	Opposed	Negative
Westport (T)	Opposed	Negative

*Potential Interchange Sponsor

Study Findings

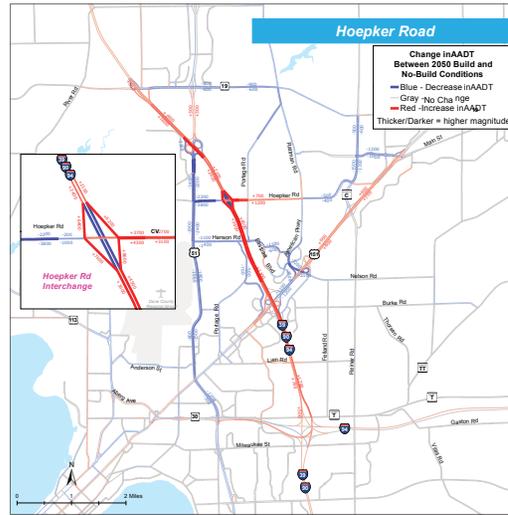
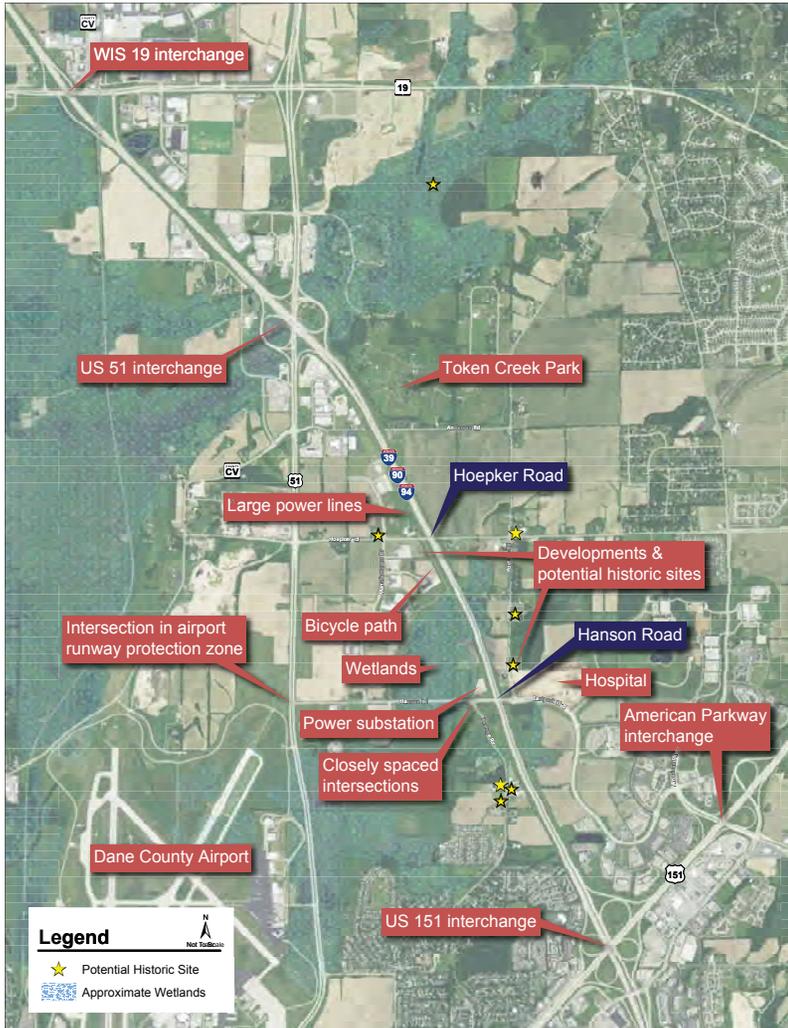
- Some local municipalities are opposed** - Consensus is needed by the nearby townships and village for the interchange to be consistent with long-term planning in the area.
- Interchange design must meet desirable geometric standards** - Changes to locally proposed layout alternatives must be investigated in the future if a local sponsor emerges. The final design must meet WisDOT standards, desirable intersection spacing, and address safety issues.
- Traffic impacts and benefits are minimal** - A new interchange at this location has minimal benefits for existing interchanges and minor impacts to the mainline.
- Costs** - The local municipality requesting the interchange is responsible for up to 100% of the cost.
- WisDOT will not pursue an interchange at Cuba Valley Road or Windsor Road** - A local municipality may pursue an interchange at this location if desired.

Local Municipality Requirements

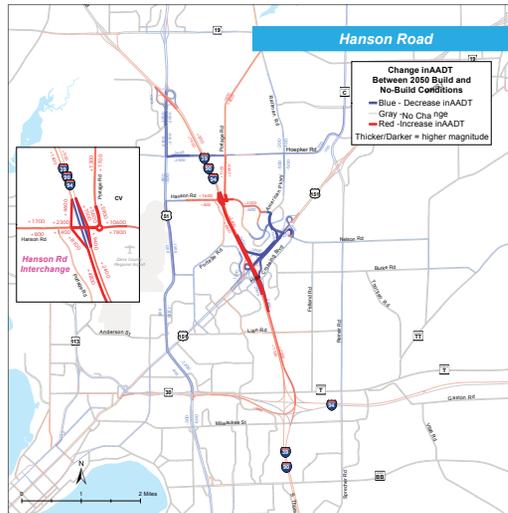
- Sponsorship** - A local municipality must decide to sponsor the request for a new interchange.
- Federal Approval Process** - The sponsoring municipality is responsible for completing an Interstate Access Justification Report (IAJR) and submitting the IAJR to WisDOT. If WisDOT supports the request, it goes to the local FHWA Division Office and FHWA Headquarters in Washington DC for approval.
- Inclusion in Regional Long Range Plans** - The interchange would need to be added to the Madison Area Metropolitan Planning Organization Long Range Transportation Plan and Transportation Improvement Plan.
- Environmental Documentation** - The sponsoring municipality must complete an environmental document to establish a need for the interchange and investigate all potential environmental effects in detail.

minimum)

Tier 2 Interchange Screening - Hoepker and Hanson Road



Local Input	Position	Land Use	Connectivity
Madison (C)	In Favor	Consistent	Positive
Burke (T)	No Response	No Response	No Response
Dane Co. Airport	In Favor	N/A	Positive



Local Input	Position	Land Use	Connectivity
Madison (C)	In Favor	Consistent	Positive
Sun Prairie (C)	In Favor	Consistent	Positive
Burke (T)	No Response	No Response	No Response
Dane Co. Airport	Neutral	N/A	Negative

Study Findings

- **Viability of a new Hanson Road or Hoepker Road interchange depends on mainline and adjacent interchange configuration** - Due to the closely spaced US 151 and US 51 interchanges, the viability of a new interchange will be evaluated further during the I-39/90/94 Study.
- **Potential congestion relief for existing interchanges** - Operations at the I-39/90/94 & US 151 and US 151 & American Parkway interchanges may improve.
- **Reduction of traffic on US 51** - A new interchange would remove traffic from US 51 but would increase traffic on I-39/90/94.

Next Steps

- **Additional traffic and geometric investigations** - Further analysis is needed to understand the impacts to the existing interstate system, environment, and Dane County Regional Airport runway protection zone.
- **Sponsorship** - If deemed viable, either WisDOT or a local municipality must decide to sponsor the request for a new interchange.
- **Federal Approval Process** - An Interstate Access Justification Report must be completed and submitted to WisDOT. If WisDOT supports the request, it goes to the local FHWA Division Office and FHWA Headquarters in Washington DC for approval.
- **Inclusion in Regional Long Range Plans** - The interchange would need to be added to the Madison Area Metropolitan Planning Organization Long Range Transportation Plan and Transportation Improvement Plan.
- **Environmental Documentation** - An environmental document must be completed to establish a need for the interchange and investigate all potential environmental effects in detail.

Tier 2 Interchange Screening - Milwaukee Street Extension and Gaston Road

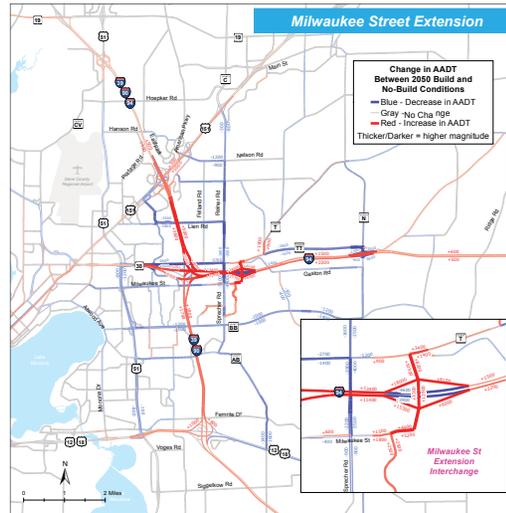
Milwaukee Street Conceptual Layout Alt B



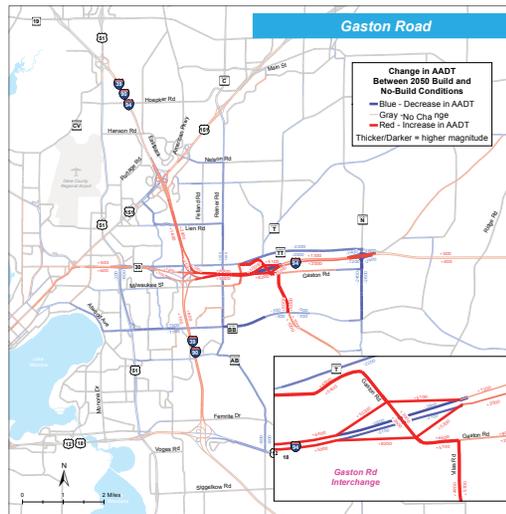
Milwaukee Street Conceptual Layout Alt C



Gaston Road Conceptual Layout



Local Input			
	Position	Land Use	Connectivity
Madison (C)	In Favor	Consistent	Positive
Burke (T)	No Response	No Response	No Response
Bloomington (T)	No Response	No Response	No Response



Local Input			
	Position	Land Use	Connectivity
Madison (C)	In Favor	Consistent	Positive
Burke (T)	No Response	No Response	No Response
Bloomington (T)	No Response	No Response	No Response
Cottage Grove (V)	In Favor	Consistent	Positive
Cottage Grove (T)	Opposed	No Comment	No Comment

Study Findings

- **Impacts operations and safety at the existing Badger Interchange** - Traffic volumes at some Badger Interchange ramps would increase causing congestion and safety concerns.
- **Viability depends on the configuration of the Badger Interchange** - The existing left-hand exits at the Badger Interchange would cause short weaving segments.
- **Traffic shifts away from existing service interchanges may not eliminate the need for capacity improvements** - Traffic growth will slow at the WIS 30 & Thompson Drive and I-94 & County N interchanges, but improvements will likely still be needed at these interchanges in the future.
- **Impacts to local roads** - Intersection improvements and roadway widening to increase capacity would be needed along Milwaukee Street, County T, County TT, Gaston Road, and Vilas Road.
- **Costs** - The local municipality requesting the interchange is responsible for up to 100% of the cost.

Next Steps

- **Additional traffic and geometric investigations** - Further analysis is needed to understand the impacts to the Badger Interchange, existing interstate system, and environment.
- **Sponsorship** - If deemed viable, either WisDOT or a local municipality must decide to sponsor the request for a new interchange.
- **Federal Approval Process** - An Interstate Access Justification Report must be completed and submitted to WisDOT. If WisDOT supports the request, it goes to the local FHWA Division Office and FHWA Headquarters in Washington DC for approval.
- **Inclusion in Regional Long Range Plans** - The interchange would need to be added to the Madison Area Metropolitan Planning Organization Long Range Transportation Plan and Transportation Improvement Plan.
- **Environmental Documentation** - An environmental document must be completed to establish a need for the interchange and investigate all potential environmental effects in detail.

I-39/90/94 Traffic Impact Analysis Findings and Next Steps



No New Interchanges between US 12/18 and US 151

- Major merging and weaving conflicts
- Significant increase in I-39/90/94 traffic volumes
- High percentage of new trips are local
- Increased traffic on high volume ramps
- High traffic volumes in residential areas
- Local opposition to several locations
- Physical constraints would cause undesirable impacts

The I-39/90/94 Study will evaluate viability of two potential new interchange areas and four new crossing locations

- Hanson Road / Hoepker Road Interchange
- Milwaukee Street Extension / Gaston Road Interchange
- East Metro Boulevard / Token Creek Crossing
- Anderson Road Crossing
- Portage Road / Eastpark Boulevard Crossing
- Thompson Road Crossing

These findings will be used to support or reject future new interchange requests

WisDOT will not pursue an interchange at Cuba Valley Road or Windsor Road - A local municipality may pursue an interchange if desired

- The sponsoring municipality requesting the interchange may be responsible for 100% of the associated costs
- The sponsoring municipality would be responsible for completing an Interstate Access Justification Report, an Environmental Report, and receiving the necessary approvals to design or construct.

