

# WisDOT US 14 Corridor Study (East)

WIS 78 to US 12 (Mazomanie to Middleton)

Study ID: 5310-08-09

## Final Public Information Meeting

We thank you for attending and  
providing your input!

March 9, 2010

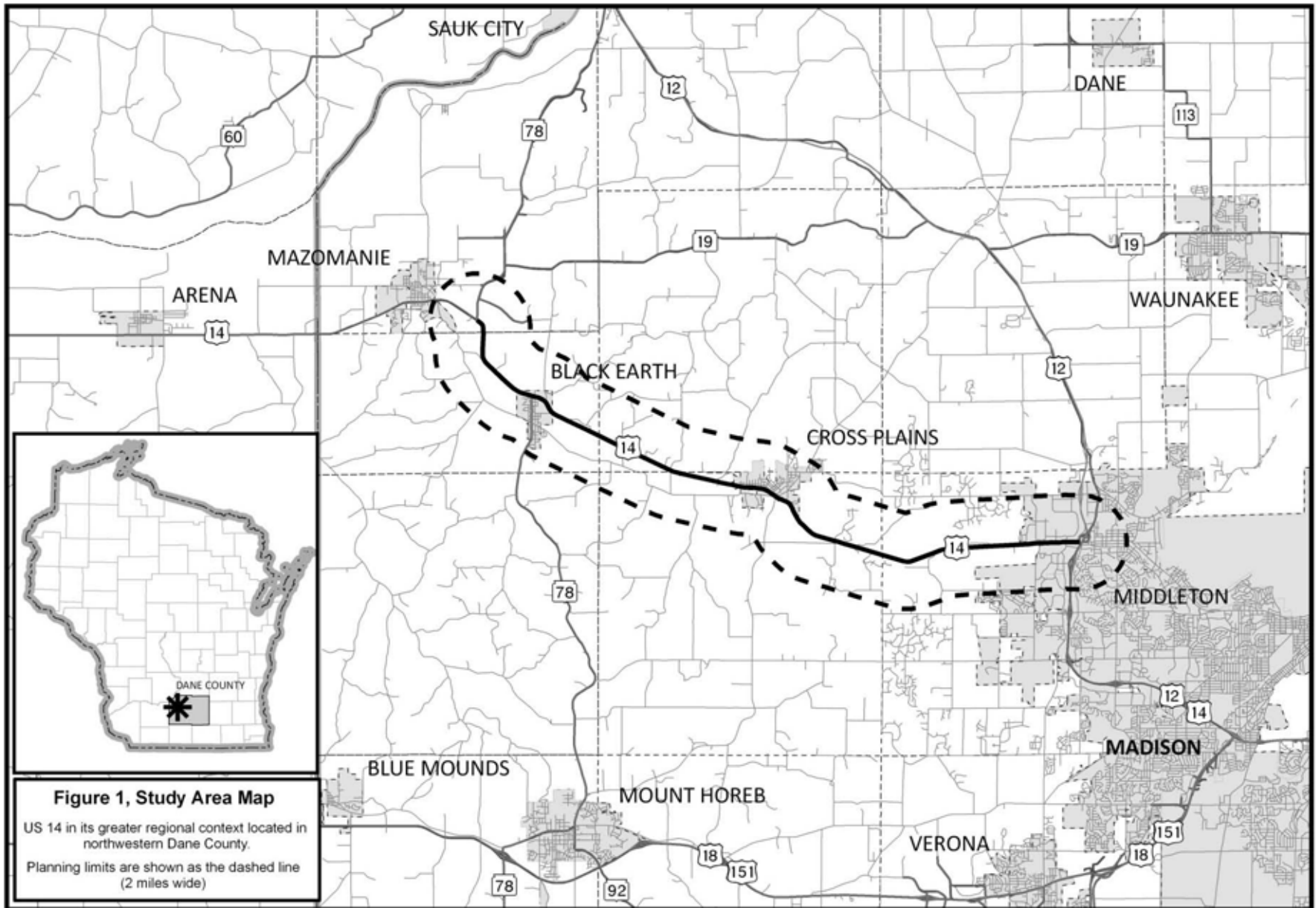


# Welcome & Introductions

- **WisDOT, Southwest Region**
  - Tom Koprowski – Project Manager
  - Mary Pamperin-Volk – Project Engineering Support
- **TranSmart Technologies, Inc.**
  - Manfred Enburg, PE – Consultant Project Manager
  - Charles Wade, AICP – Transportation Planner
  - Rich Kedzior – Planner
  - Joel Brown – Planner
  - Seth Johnson – Traffic Engineer

**LOM-took place on March 3<sup>rd</sup> in Cross Plains**

# Study Limits





# Meeting Overview

## 1. Presentation:

### *Main sections of presentation:*

- *Study overview, Background, Scope, limits, etc*
- *Corridor Analysis Methods/data*
- *Access Management Concepts*
- *Short and long-term recommendations*
- *Benefits to systematic implementation of recommendations and access modifications (safety and operational)*

## 2. Question and answer session – 10 minutes (approximately)

## 3. Open House, Exhibit Review, and Feedback

# Key Points of meeting/study

1. Two distinct plan sets designed to fit together when possible during plan development & project scoping and design
  - 1. Access Management Plan dealing with each access point and development. Long-term framework for local roads.
  - 2. Strategies and Recommendations - Roadway and intersection improvements needed.
2. DRAFT (Planning level)- concepts-not design phase - usually without construction funding. (*Need your public input and comments to finalize plan*)
3. Not capacity expansion related (*no lane additions or hwy. bypass alternatives*)

# Purpose and Need for Study

- **Purpose of Study:**

- Act as a central clearinghouse of corridor information for WisDOT/Others
  - *WisDOT scoping & design, GNC, local communities, Agencies, local groups like Trout Unltd.*
- Provide framework for developing a long-term systematic plan that maintains the existing corridor for as long as possible by improving safety and operations

- **Needs driving the Study:**

- Priority WisDOT corridor connecting Madison and La Crosse (US HWY)
- Important corridor for tourism, truck, and commuter traffic
- Growing communities causing increasing traffic

# Study Scope and Analysis

## 1. Inventory of existing conditions

*Socio-economic, Environmental, Transportation Constraints, Traffic operations, land use: comp plans -(report online and copies at local libraries)*

## 2. Perform base corridor analysis

- Safety (crashes)
- Operations (*LOS measurements*)
- Deficiencies (*skew angle, vision, right turn lane, etc.*) items not meeting hwy design standards

## 3. Develop AMP & Roadway/Intersection improvement strategies and recommendations

- Access management
- Local circulation
- Short- and long-term roadway/intersection improvements
- System approach

# Safety data and analysis example: US 14 Crashes by Segment, 2002-2006

Segment Location	Crashes	Injury Crashes	Fatal Crashes
WIS 78 to Black Earth	<b>60</b>	<b>22</b>	<b>2</b>
Village of Black Earth	<b>52</b>	<b>16</b>	0
Black Earth to Cross Plains	70	13	0
Village of Cross Plains	<b>113</b>	<b>32</b>	0
Cross Plains to Middleton	184	37	2
Middleton	<b>138</b>	<b>52</b>	0

*\*Numbers in red indicate segment crash rate is above state average (w/o Deer ).*

## Some notes on intersection analysis:

- 44 total intersections along corridor – almost half experience crash severity rates greater than 30% with injury
- *Rocky Dell Road: 6 crashes with 83% severity rate*
- *STH 78: 14 crashed with 64% severity rate*



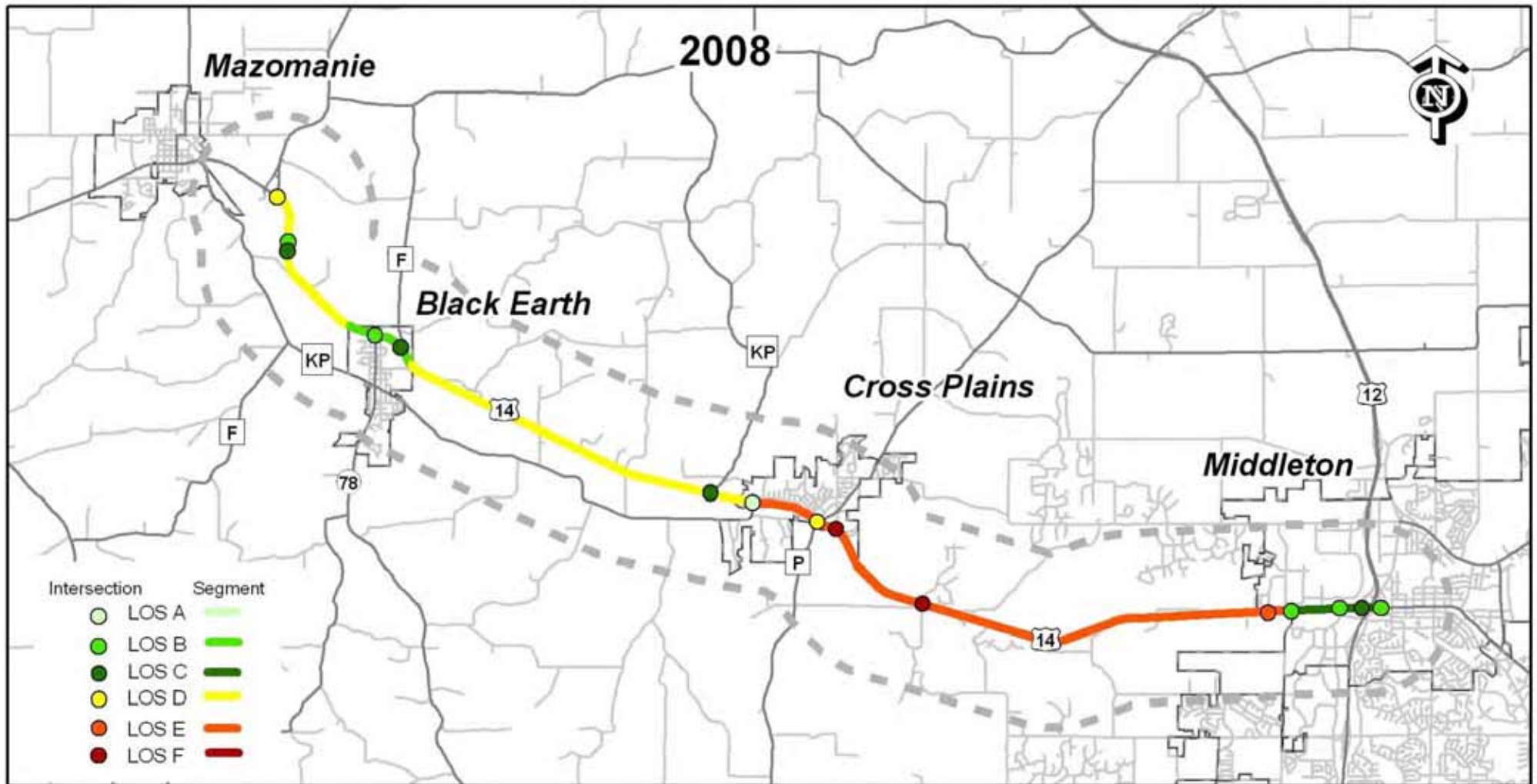
# Hwy operations data and analysis example: Segment Level of Service (LOS)

(Measured primarily by queue length and delay-based on existing and projected traffic levels and facility type)

LOS A	Primarily free-flow operations at average travel speeds; unimpeded maneuvering; delay at intersections is minimal
LOS B	Reasonably unimpeded operations; average travel speeds; maneuvering is only slightly restricted; unsubstantial delay at intersections
LOS C	Stable operations; maneuvering and lane-changing is more restricted than at LOS B; lower travel speeds but good throughput <i>(goal for rural highways)</i>
LOS D	Typical operations goal; generally stable operations; small increases in flow can cause larger increases in delay and decreases in speed <i>(goal for urban highways)</i>
LOS E	Congestion; unstable operations; significant delays; low travel speeds; commonly occurs when a facility is near capacity
LOS F	Extremely low speeds; significant congestion; extensive queuing; usually indicates an over-capacity condition

# US 14 Level of Service – 2008

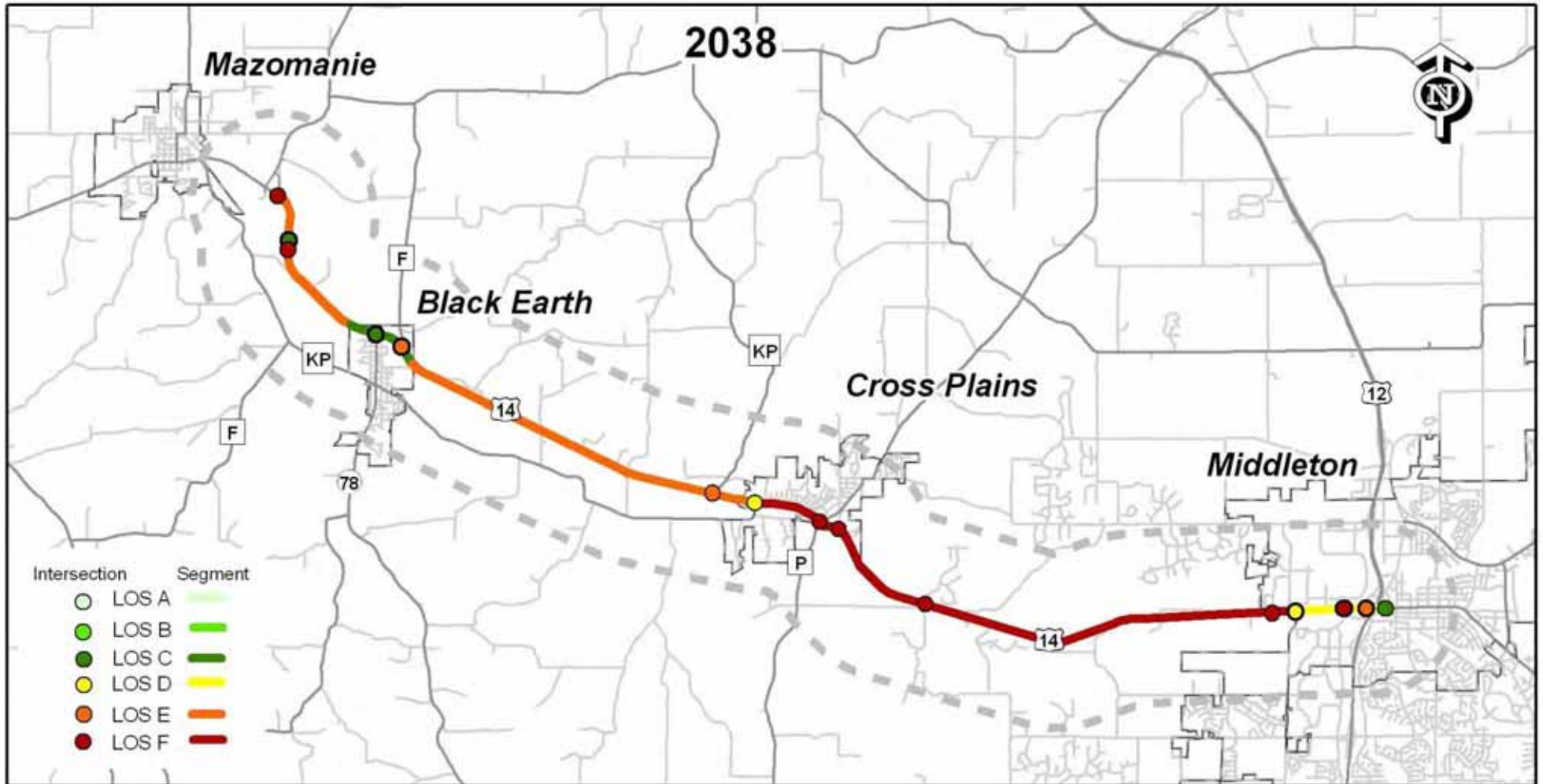
AADT's for the six segments: 10,700, 10,200, 10,300, 14,250, 12,300, 21,600



Notes: LOS shown for worst peak hour. Unsignalized intersection LOS shown for worst approach.

# US 14 Level of Service – 2038

AADT's for the six segments: 17,500,15,900,16,500,21,100,17,000,31,400



Notes: LOS shown for worst peak hour. Unsignalized intersection LOS shown for worst approach.

# Hwy Deficiency data/analysis example: US 14

## Existing Deficiencies

Location	Horizontal curve	Cross-slope rollover	Gradient	Skew angle	Vision	Right-turn lane	Left-turn lane	Passing lane	Acceleration lane
Olson Road	•	•	•		•	•			
County F	•				•		•		
Kahl Road				•	•	•	•		
Schultz Road		•	•	•	•				
South Valley Road				•	•	•			
Scherbel Road	•	•	•	•	•	•	•		
County KP					•	•		•	
Brewery Road					•				
Westview Court	•	•			•	•			
Stagecoach Road						•	•		•
Rocky Dell Road					•	•			
Cleveland Road			•	•	•	•			
Twin Valley Road					•				
Pinehurst Drive					•				
Deming Way						•	•		
US 12/14 eastbound ramps						•	•		



# Develop Strategies and Recommendations

- **Access Management Plan**
- **Geometric strategies (Strategies and Recommendations) Roadway and Intersection**
- **Two off-alignment strategies near Wisconsin Heights High School**



# What is Access Management?

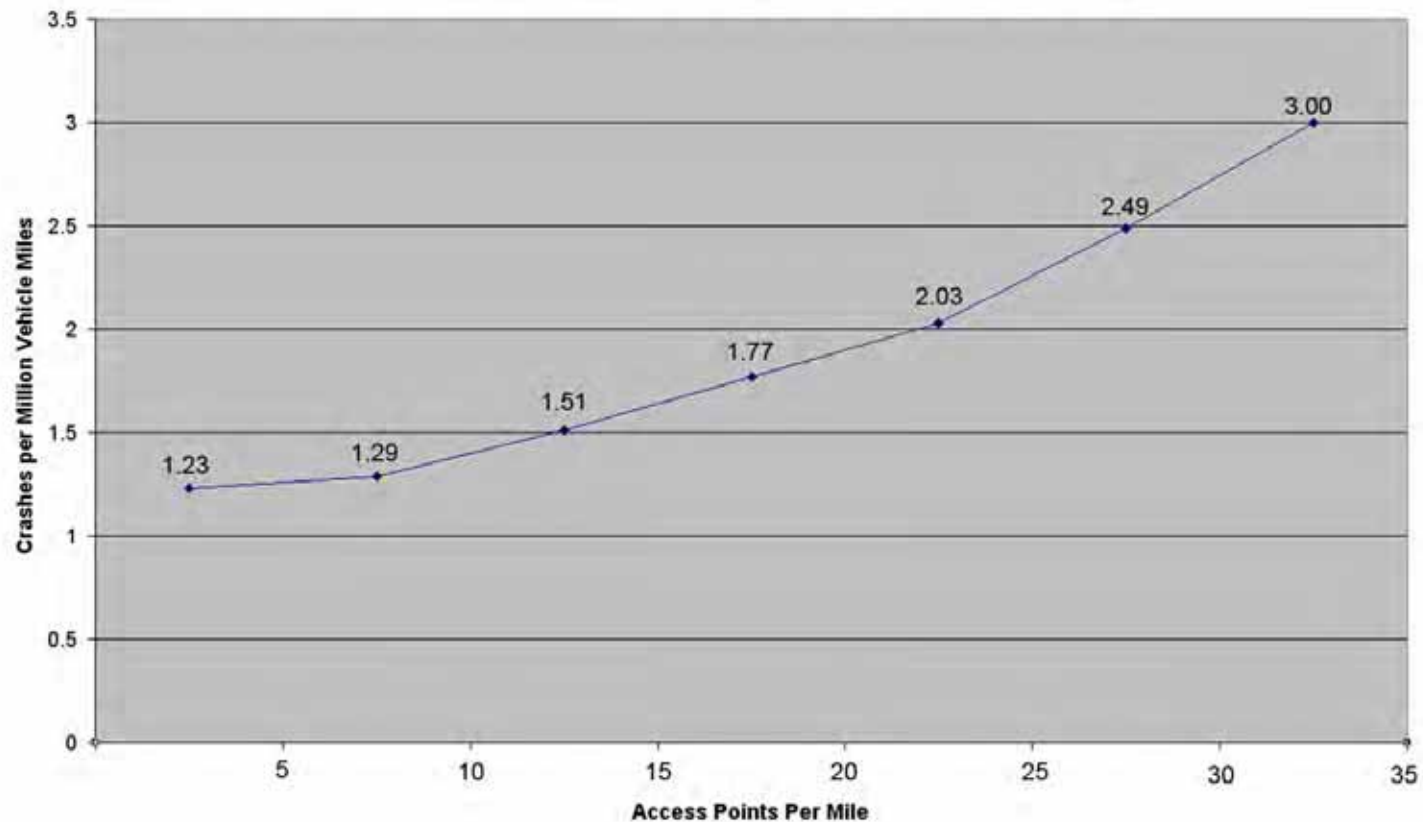
**“Access Management is the process that provides access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity, and speed”.**

**(Federal Highway Administration)**

**The Access Management Plan for US 14 is an advisory document focused on long-term preservation, intended as a guide for future decisions along the corridor.**

# High Number of Access Points Can Lead to Higher Crash Rates

**Relationship Between Access Points and Crash Rates**



Source: Federal Highway Administration

# WisDOT Access Spacing Guidelines

Intersecting highway		Rural arterial under study			
Type	Design year ADT	Principal arterial	Minor arterial		
			>5000	1000-5000	<1000
Minor arterial	>5000	2 miles	2 miles	1 mile	1 mile
	3000-5000	1 mile	1 mile	1 mile	2,000 feet
	<3000	1 mile	2,000 feet	2,000 feet	2,000 feet
Major collector		1 mile	2,000 feet	2,000 feet	2,000 feet
Minor collector		2,000 feet	2,000 feet	2,000 feet	1,000 feet
Local		2,000 feet	2,000 feet	2,000 feet	1,000 feet
Private	>100	1,000 feet	1,000 feet	1,000 feet	1,000 feet
	<100	1,000 feet	1,000 feet	500 feet	500 feet

Source: WisDOT Facility Development Manual, Procedure 11-5-5, Attachment 1



# Recommended Strategies

Location	Add right-turn lane	Add left-turn lane	Add raised median	Add curb and gutter	Add acceleration lane	Add bypass lane	Improve intersection geometry	Relocate intersection (long term)
Olson Road	•							
County F	•	•	•				•	
Kahl Road	•	•						•
Schultz Road								•
South Valley Road	•	•					•	
Scherbel Road								•
County KP								•
County P	•						•	
Westview Court	•							
Stagecoach Road	•		•		•	•		
Rocky Dell Road		•						•
Cleveland Road	•		•					
Twin Valley Road				•				
Pinehurst Drive			•					
Deming Way	•	•						
US 12/14 eastbound ramps	•	•						



# Right-in/Right-out (Raised Median)





# Left-turn Lanes (Striping)



# Study Long-term Geometric Strategies



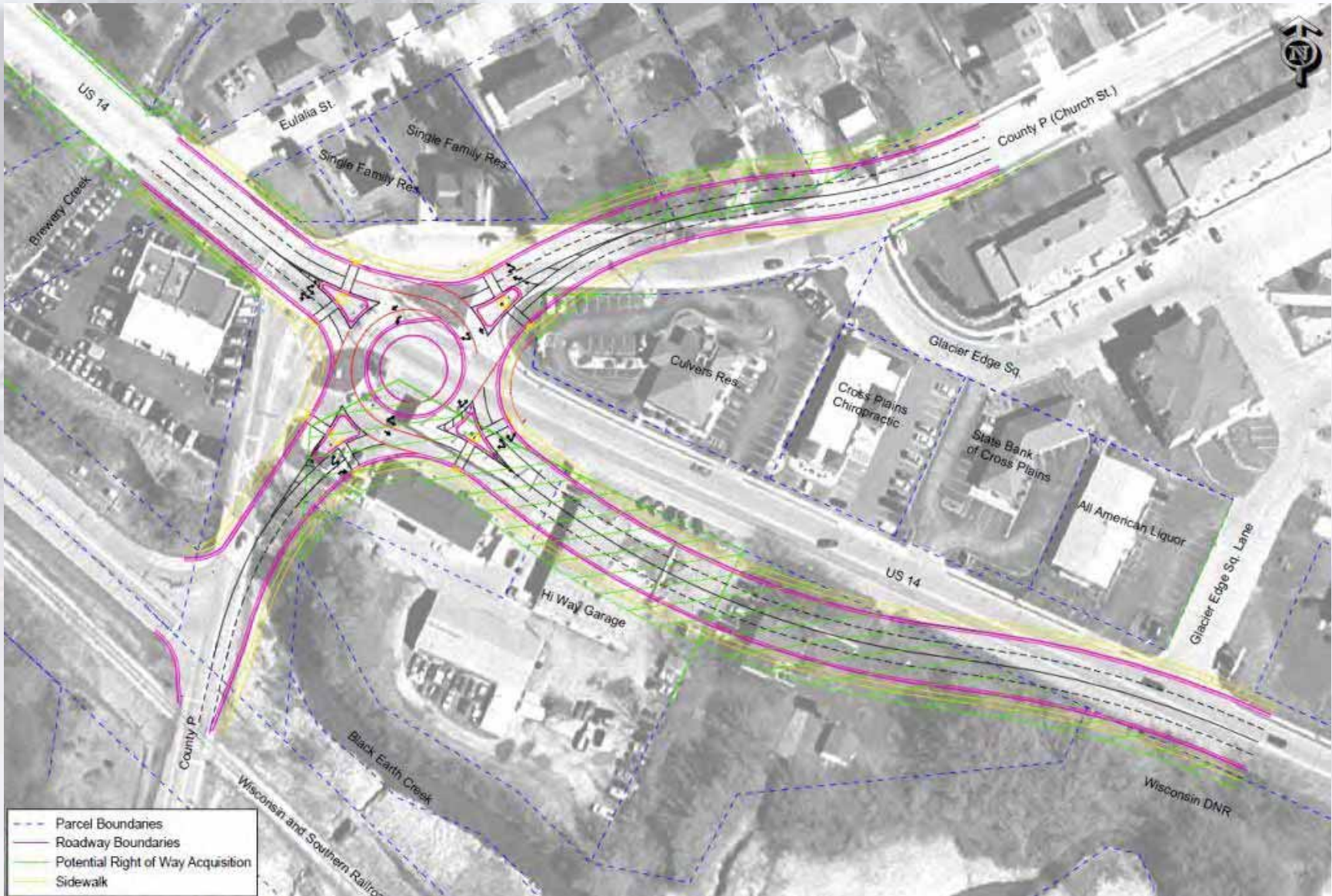


# US 14/County P Intersection Concept 1





# US 14/County P Intersection Concept 2



# Benefits of Corridor-wide Implementation

- Improved function and levels of service
- Reduced corridor travel times
- Reductions of crash, injury, and fatality rates



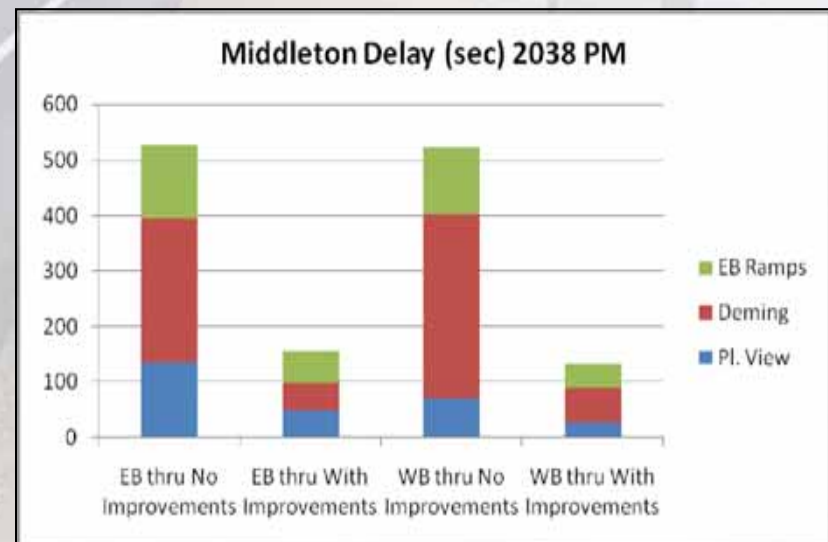
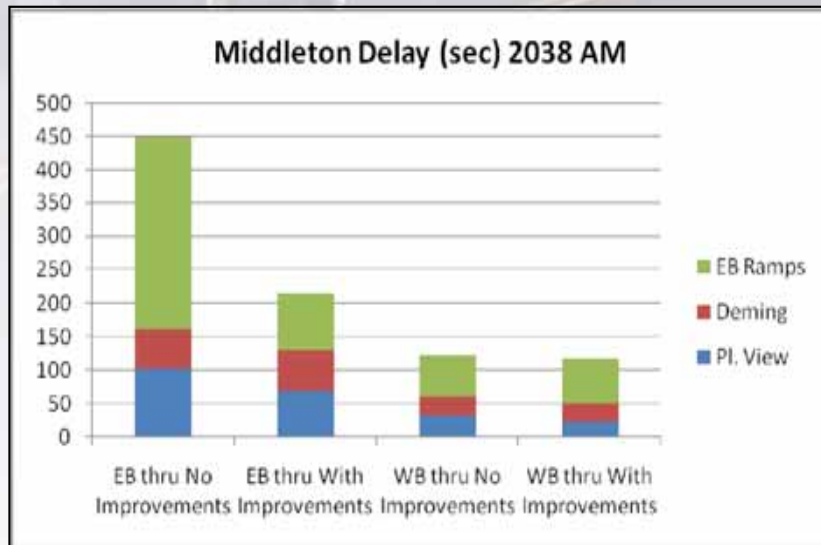
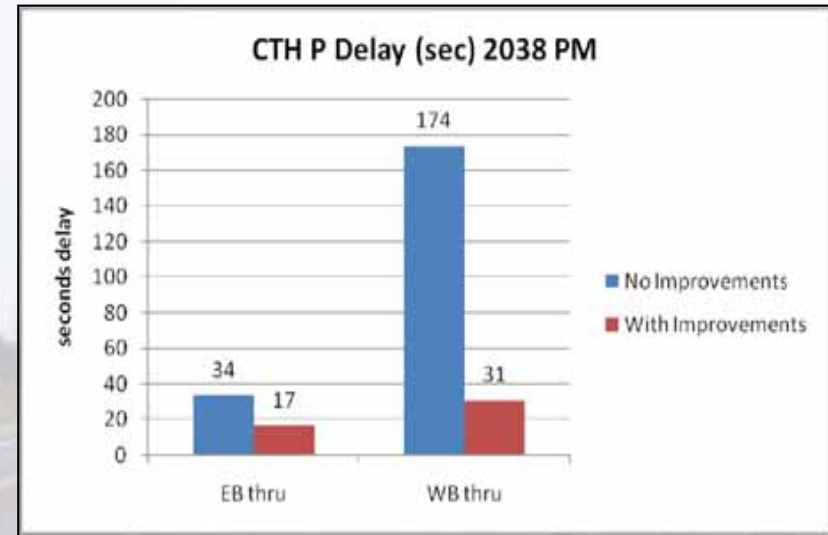
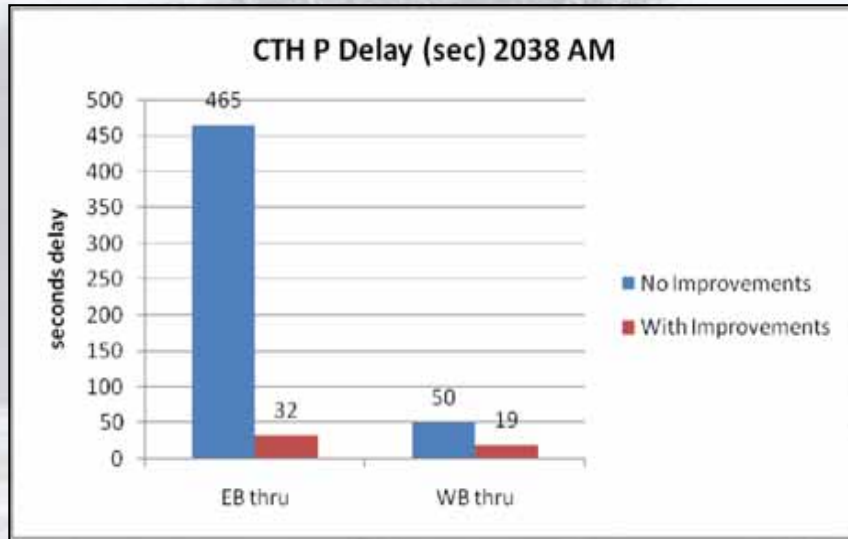
# Improved Function and Peak-Hour Levels of Service

	With improvements			Without improvements		
Intersections	LOS	Delay (seconds)	Queue (feet)	LOS	Delay (seconds)	Queue (feet)
County P, Cross Plains	C/C	28/25	452/306	F/F	337/102	2,314/1,138
Pleasant View Road, Middleton	D/C	47/35	788/401	E/F	72/95	1006/877
Deming Way, Middleton	D/D	48/50	686/516	D/F	52/212	738/1084
US 12 eastbound ramps	D/C	48/30	700/631	F/E	83/77	794/1098

Note: Longest queue in AM is eastbound through and longest in PM is westbound through.



# Reduced Travel Times (seconds of delay)



# Reductions of Crash, Injury, and Fatality Rates

## Signalized Intersections

- Addition of left-turn lane
  - All crash types: 10%
  - Involving left-turning vehicles: 13%
- Addition of right-turn lane: 4%
- Addition of channelized right-turn lane: 35% reduction in fatal/injury crashes
- Dual left-turn lanes
  - Fatal/injury crashes involving left-turning vehicles: 47%
  - Property-damage-only crashes involving left-turning vehicles: 71%
- Conversion to roundabout
  - All crash types: 35 to 67%
  - Fatal/injury crashes: 32 to 80%

## Unsignalized Intersections

- Correction of intersection skew (improve approach angles to, or closer to, 90 degrees): 7 to 25% reduction
- Improve sight distance by relocating intersection or removing obstructions
  - All crashes: 5 to 17%
  - Fatal/injury crashes: 36 to 57%
- Addition of right-turn lane
  - All crashes: 14 to 26%
  - Fatal/injury crashes: 23 to 40%
  - Crashes involving right-turning vehicles: 50 to 56%
  - Rear-end crashes: 65%
- Addition of turn and bypass lane
  - All crashes: 5%
  - Injury crashes: 18 to 36%
- Addition of left-turn lane
  - All crashes: 28 to 48%
  - Fatal/injury crashes: 35 to 58%
  - Crashes involving left-turning vehicles: 37 to 68%
- Addition of median
  - All crashes: 25 to 27%
  - Fatal/injury crashes: 25%

# Exhibit Legend - AMP

Driveways	Land Use
○ Field Entrance	■ Parklands
● Commercial Drive	■ State Lands
● Industrial Drive	■ Federal Lands
● Public Drive	■ Commercial
○ Residential Drive	■ Industrial
	■ Institutional-Government
	■ Outdoor Recreation
	■ Residential
	■ Utilities
	■ Woodlands
	■ Wetlands
	■ Open Water
	■ City/Village Limits
	■ Town Boundaries
	■ Study Limits
	■ Ice Age Trail

Access Management Recommendations
▲ Right-in/Right-out
■ Right-in Only
● Close Street
▨ Close Roads
⚡ Existing Signal
⚡ Potential Signal
✕ Remove Driveway
▬ Potential Roads
- - - Potential Driveways
▨ Changes in Land Use
○ Ideal Intersection Spacing

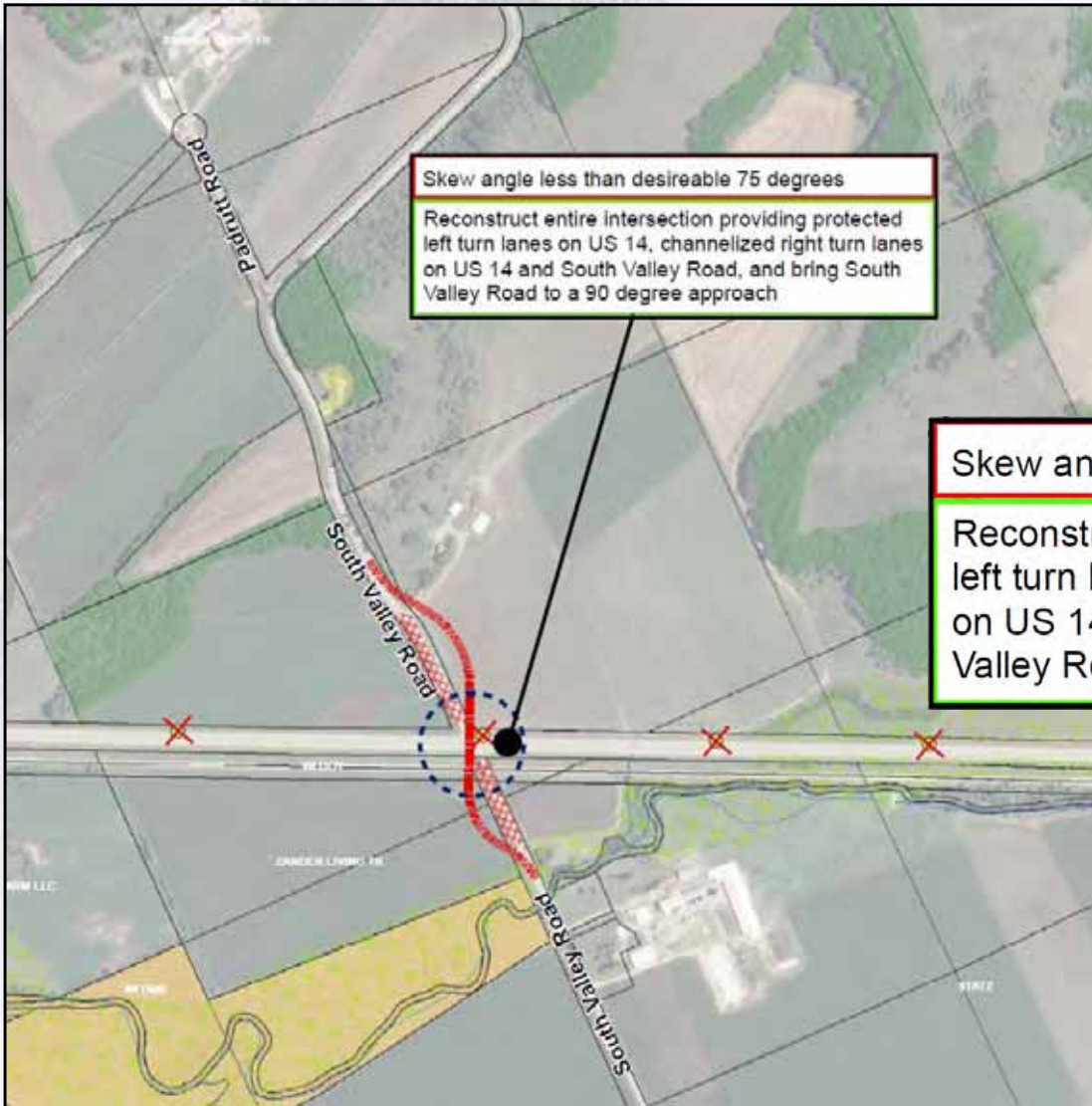
Issues identified from the study
Strategies that address issues

## Access Management Recommendations

- ▲ Right-in/Right-out
- Right-in Only
- Close Street
- ▨ Close Roads
- ⚡ Existing Signal
- ⚡ Potential Signal
- ✕ Remove Driveway
- ▬ Potential Roads
- - - Potential Driveways
- ▨ Changes in Land Use
- Ideal Intersection Spacing



# Exhibit Example - AMP

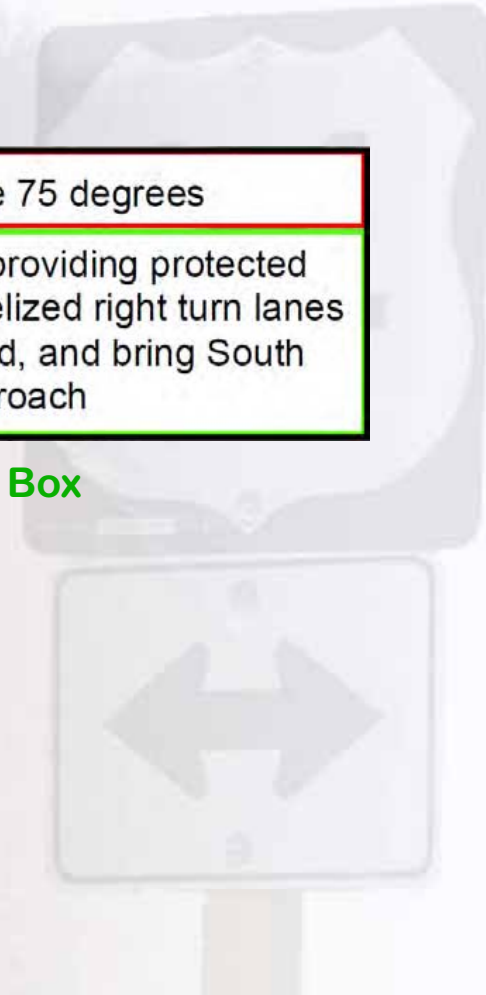


Skew angle less than desirable 75 degrees  
Reconstruct entire intersection providing protected left turn lanes on US 14, channelized right turn lanes on US 14 and South Valley Road, and bring South Valley Road to a 90 degree approach

Issue – Red Box

Skew angle less than desirable 75 degrees  
Reconstruct entire intersection providing protected left turn lanes on US 14, channelized right turn lanes on US 14 and South Valley Road, and bring South Valley Road to a 90 degree approach

Strategy – Green Box



# Study Access Recommendations




Private driveways would only be relocated if:

- Land use changes
- Parcels consolidate
- Safety warrants relocation
- Alternative access can be provided
- Property owner volunteers
- Driveway is illegal

In many cases the low volume rural driveways would likely remain for many years. Existing access controls and driveway permitting procedures remain in effect. Future coordination would be required unless driveway is illegal or poses a safety hazard.



# Input Form



**US 14 Corridor Study (East) Comment Form**

Use the spaces below to provide your comments for specific locations that you identify on the map with the numbered stickers.

1	This intersection experiences long wait times.

- Additional Space for general comments is provided on the other side of this comment form -

Space is provided on the back for general comments.



Please place in comment box or mail by March 14, 2008:  
Thomas Koppowski, Project Manager  
Wisconsin Department of Transportation, Southwest Region  
101 Wright Street  
Madison, WI 53704  
(608) 246-3869  
Thomas.koppowski@dot.state.wi.us



Place numbered sticker on map in desired location,  
Write number of sticker on form in space provided,

Write your comment on the form.

# Next Steps

- Evaluate input from this meeting
- Review comments
  - Local Official Meeting
  - Voluntary Agency Review
  - Public Information Meeting
- Issue final report (Spring 2010)



# Sub-studies

- **Middleton Transportation Center Site Evaluation**
  - City pursues TIGER Grant Funding
- **Park-and-Ride Facility Analysis**
- **Middleton Traffic Impact Analysis (to be started)**
  - Long-term development plans near US 12/14
- **US 14/Pleasant View Road Options (to be started)**
  - City and Town of Middleton want to plan long-term options now
- **US 14/County P Intersection Improvements**
  - Pushed ahead in schedule to match village and county efforts
- **Other issues related to local activities**



# **US 14 Corridor Study (East)**

**WIS 78 to US 12 (Mazomanie to Middleton)**

**Study ID: 5310-08-09**

**Questions**  
**Exhibit Review**  
**Feedback**

