

Compass Report

Wisconsin State Highway 2008 Maintenance, Traffic, and Operations Conditions

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Table of Contents

Executive Summary	
Compass Annual Report	
About this report	
Background	
Process	
Maintenance Report Card	
Wisconsin 2008: Compass Report on Highway Maintenance Conditions	
Wisconsin 2008: Targets for Highway Maintenance Conditions	
WisDOT Regional Boundaries	
2008 Traveled Way: Compass Report on Maintenance Condition	
Wisconsin 2008: Traveled Way Condition Distribution	
Pavement Inspection Schedule Map	
Regions 2008: Traveled Way Condition Distribution	
2008 Highway Maintenance Conditions: Report on Traffic, Shoulders, Drainage, Roadsides	
Regions 2008: Compass Report on Highway Maintenance Conditions	22
2008 Signs: Compass Report on Routine Replacement and Age Distribution	24
Wisconsin and Regions 2008: Sign Condition	25
Regions 2008: Routine Replacement of Signs	
Wisconsin and Regions 2008: Sign Face Material Distribution	
Wisconsin and Regions 2008: Sign Face Material Trends	
Wisconsin and Regions 2008: Sign Age Distribution	
2008 Winter: Compass Report on Winter Operations	
2007-2008 Winter season snowfall for Wisconsin	
2007-2008 Wisconsin Winter Severity Index	
Winter by the numbers	
Compass winter operations measures	34
Winter Data, Definitions, and Categories	
2008 Bridges: Compass Report on Condition, Maintenance, and Inspection Backlog	
Wisconsin 2008: Bridge Condition Distribution	
Region 2008: Bridge Condition Distribution	
Wisconsin and Regions 2008: Bridge Condition	
Wisconsin and Regions 2008: Bridge Maintenance Needs	41
Wisconsin and Regions 2008: Bridge Special Inspection Backlog	
Appendices	
A. Program Contributors	
B. Compass Feature Thresholds and Grade Ranges	
C. Feature Contribution Categories	
D. 2008 Highway Operations Targets	
E. 2008 Compass Rating Sheet	
F. County Data	
Counties 2008: Traffic and Shoulders	
Counties 2008: Drainage and Roadsides	67
Counties 2008: Sign Condition	
Counties 2008: Bridge Maintenance Needs	81
Counties 2008: Bridge Special Inspection Backlog	84

Executive Summary

The "Compass" program collects rating data each year to help the department understand current infrastructure conditions and trends. The data also helps WisDOT managers set reasonable maintenance targets that reflect department priorities and respond to limited resources. To ensure that maintenance targets are consistently reflected in work programs around the state, these priorities are shared with the WisDOT regions to help structure the Routine Maintenance Agreements with counties. And to evaluate the maintenance target setting process, existing conditions are compared to their target levels to see if the annual goals were met or exceeded.

The <u>2008 Compass Annual Report</u> has been completed based on the yearly field review process and current data from the WisDOT Sign Inventory Management System, winter storm reports and Highway Structures Information System. Below are the significant messages on the current condition of the state highway system and specific examples of how the Bureau of Highway Operations uses the information to manage the system:

- Continued focus on reducing shoulder drop-off: There has been continued emphasis on fixing drop-off along unpaved shoulders so that drivers who veer off the traveled way can safety get back onto the paved surface. More aggressive maintenance targets have been set over the last five years to deal with this problem. The actual amount of drop-off increased four percentage points between 2007 and 2008 and there will be a continued focus on improving safety by reducing shoulder drop-off. The emphasis on fixing shoulder drop-off is also reflected in the department adding this feature to the "critical safety" category in 2008, creating a tougher "A through "F" grading curve to illustrate existing conditions. The increasing sensitivity to shoulder drop-off was also addressed in 2003 when the Compass program reduced the deficiency threshold for drop-off from over 2" to over 1-1/2".
- Removing hazardous debris on shoulders: For several years the department has emphasized the safety benefits of removing hazardous debris from roadways. This year the backlog for hazardous debris remained consistent with the 9% level in 2007, which is the lowest level recorded during the previous five-year period.
- *More visible, longer lasting traffic signs*: Almost 25,000 new high-intensity signs were installed along the state highway system between 2007 and 2008. Sixty percent of the 287,000 signs on the state system now have high-intensity face material, providing better illumination to drivers during low light conditions and evenings. An added benefit is that the new signs last 72% longer than the older generation "engineering" grade signs.
- Targeted replacement of regulatory and warning signs: Over 105,000 signs around the state are older than their suggested useful life. This is a reduction of 5,000 signs from the 2007 backlog level. With limited sign replacement funds, the routine replacement of regulatory and warning signs (such as stop signs and speed limit signs) has been prioritized over the replacement of other types of signs. Based on this policy, 23% of the regulatory and warning signs are beyond their recommended service life, a two percentage point reduction from the 2007 level. Fifty-five percent of detour/object marker/recreation/guide signs are older than their suggested useful life. This is a one percentage point drop from last year.
- Additional data on pavement markings. The Compass evaluation process includes a visual assessment of pavement markings during daylight hours. WisDOT has started a pilot project to expand the evaluation process for pavement markings to include the assessment of the retro-reflectivity of markings during low light conditions and evenings.

Compass Annual Report

About this report

The Compass *Annual Report* is issued each year to communicate the condition of Wisconsin's state highway network and to demonstrate accountability for maintenance expenditures. The primary audience for this report includes Maintenance Supervisors and Operations Managers at the Wisconsin Department of Transportation (WisDOT) and partner organizations including the 72 counties. Compass reports are used to understand trends and conditions, prioritize resources, and set future target condition levels for the state highway system. The condition data is also used to estimate the costs to reduce maintenance backlogs to varying levels of service.

This report *includes* data on traveled ways (paved traffic lanes), shoulders, drainage, roadsides, selected traffic devices, specific aspects of winter maintenance activities, and bridges. The report *does not include* measures for preventive maintenance, operational services (like traveler information and incident management), or electrified traffic assets (like signals and lighting). It is important to consider what is not in the report when using this information to discuss comprehensive investment choices and needs.

The first section of this report provides a program overview and scorecard based on current conditions. Subsequent sections of the report provide detailed information on each roadway feature. The document available on the Compass website (http://dotnet/dtid bho/extranet/compass/reports/index.shtm from within **WisDOT** https://trust.dot.state.wi.us/extntgtwy/dtid bho/extranet/compass/reports/index.shtm from outside WisDOT.

Feedback on format, content, and other aspects of the report is welcome and should be sent to Scott Bush, Compass Program Manager, at Scott.Bush@dot.wi.gov or (608) 266-8666.

Background

Compass was implemented statewide in 2002 as WisDOT's maintenance quality assurance and asset management program for highway operations. The Compass report is intended to provide a comprehensive overview of highway operations by integrating information from field reviews with inventory data and other information sources.

Process

The Compass report is issued annually in cooperation with the research team from the Wisconsin Transportation Center (WTC) at University of Wisconsin – Madison. Starting in September of each year, WTC and the Compass Program Manager work on the analysis of each element. The project team presents the draft report at the Compass Advisory Team meeting and the WisDOT Operations Managers meeting in the spring. The report is revised based on feedback from these meetings. The report is finalized and officially published in the summer each year.

This report uses inventory data for bridges, pavement, routine maintenance of signs, and winter storms. It uses sample data for highway maintenance features. The project team collected data from the WisDOT business areas between December 2008 and May 2009.

The highway maintenance data includes data sampled from the field. Two hundred and forty 1/10-mile segments are randomly selected in each of the five WisDOT regions. A WisDOT Maintenance Coordinator and a County Patrol Superintendent collect the field data in each county between August 15 and October 15 every year. The field survey includes a condition analysis of shoulders, drainage features, roadside attributes, pavement markings and signs.

Winter maintenance data is gathered from the winter season 2007-08 and includes Time to Bare Wet, Winter Severity Index, Winter VMT, and crash data. Figures and tables are taken directly from the 2007-08 WisDOT *Annual Winter Maintenance Report* prepared by WisDOT's Winter Operations unit, including the "Winter by the Numbers" table and the statewide snowfalls and Winter Severity Index figures.

Pavement data was obtained from the Pavement Information File (PIF) and contains the complete highway pavement inventory data in Wisconsin. Inspections of state-maintained highway pavements in Wisconsin are done regularly in two-year cycles, with half of the state's pavements inspected in one year and the other half in the next year. In the past two years, the pavement condition is calculated for the current year of the report, which means that at any one year, statewide numbers of pavement condition will represent half of the state. Starting with the 2008 Compass Annual Report, the pavement conditions on traveled ways are exclusively reported based on the deficiency thresholds and condition categories in the WisDOT Pavement Maintenance Management System (PMMS). Because of the two-year inspection cycles, data from 2008 and 2007 were combined to get a complete picture of the current pavement distresses from all WisDOT regions.

The routine replacement needs for signs comes from the Sign Inventory Management System (SIMS) and the bridge data comes from the Highway Structure Information System (HSIS).

Compass identifies backlog percentages for each feature at the county, region and statewide level. Backlog percentages indicate what percent of that feature is in a condition where maintenance work is required, assuming available budget. Therefore, an increasing backlog percentage reflects fiscal constraints rather than inadequate work in the field.

Appendix B identifies when assets are considered backlogged for highway maintenance features. For pavement features, the backlog is determined based on logic in the PMMS. In the PMMS, each segment of road receives a rating for each distress type. The ratings include "excellent", "fair", "moderate", or "bad", depending on the extent and severity of distress. For the Compass report, a pavement segment that receives a rating other than "excellent" requires maintenance and is considered backlogged. Traffic signs are considered backlogged for maintenance if it is in use past its expected service life.

WisDOT Maintenance Supervisors and Operations Managers annually set the targets for backlog percentage levels for each feature. These targets are intended to reflect priorities and goals for the year in light of fiscal constraints. Appendix D provides the maintenance targets for 2008.

Maintenance Report Card

Compass uses predefined backlog percentage thresholds to assign a letter grade to the overall maintenance condition of each feature (from "A" to "F"). A feature grade declines as more of a feature is backlogged. These grading scales are curved to account for the importance of the feature to the motorist and roadway system. The contribution categories include "Critical Safety", "Safety", "Ride/Comfort", "Stewardship", and "Aesthetics". For example, a feature that

contributes to critical safety would see its grade decline more rapidly than a feature that is primarily aesthetic in nature. A feature grade of "A" means that all basic routine maintenance needs have been met within the maintenance season and there is not a significant backlog. Appendix B lists the grading curve for each Compass feature and Appendix C identifies the contribution category for each feature.

System Overview

Below is a summary of the 2008 condition grades for the 28 features that are evaluated in the field each year for the Compass program. The individual grades for the 28 features translate to an overall system condition grade point average of 2.7 or grade level C. The one failing grade is for drop-off/build-up on unpaved shoulders.

A grade: 12 features (43%)
B grade: 4 features (14%)
C grade: 5 features (18%)
D grade: 6 features (21%)
F grade: 1 feature (4%)

The condition grade for most features stayed constant between 2007 and 2008. Of the 28 features surveyed, the condition grade remained unchanged for 22 roadway components (79%). The grade for two features (7%) improved since 2007: the routine replacement of regulatory and warning signs went from a D in 2007 to a C grade in 2008 while protective barriers went from a B condition to an A. The condition grade for four features (14%) declined during the past year. Features that received a lower grade in 2008 include delineators (C to a D), flumes (C to a D), noxious weeds (C to a D), and drains (B to a C).

Eighteen features (64%) met the target condition in 2008, which is defined as within five percentage points of the actual target level. Six features (21%) exceeded the maintenance target, including two Safety features (special pavement markings and fences) one Ride/Comfort feature (routine replacement of other signs), two Stewardship features (cracking on paved shoulders and noxious weeds) and the one Aesthetics feature (litter). Four features (14%) had a condition below the targeted level, including one Critical Safety feature (drop-off/build-up on unpaved shoulders) and three Stewardship features (culverts, flumes and storm sewer systems).

The following tables identify the five-year trend in Compass feature grades by contribution category. Key observations are also provided for each contribution category.

Critical Safety Features

The roadway features considered critical for safety are those that require immediate action, with overtime pay if necessary, to remedy a problem situation.

Feature	2008	2007	2006	2005	2004	Element
Hazardous debris	C	C	D	D	D	Shoulders
Centerline markings	В	В	В	В	В	Traffic and safety devices
Regulatory/warning signs (emergency repair)	A	A	A	A	A	Traffic and safety devices
Drop-off/build-up (unpaved)	F	F	F	F	F	Shoulders

- The individual grades for the four Critical Safety features translate to an overall condition grade point average of 2.3 or grade level C.
- Drop-off/build-up on unpaved shoulders continued to receive an F grade, with the amount of deficiency increasing from 40% in 2007 to 44% in 2008. The actual condition was far worse than the targeted D grade at a 20% deficiency level.
- The emergency repair of regulatory/warning signs, centerline markings, and removal of hazardous debris on shoulders received grades of A, B and C, respectively. These grades are consistent with their 2007 condition grades and the 2008 targets.

Safety Features

Safety features are highway attributes and characteristics that protect users against -and provide them with a clear sense of freedom from -danger, injury or damage.

Feature	2008	2007	2006	2005	2004	Element
Delineators	D	C	С	D	С	Traffic and safety devices
Regulatory/warning signs (routine replacement)	C	D	D	F	D	Traffic and safety devices
Mowing	C	C	C	C	С	Roadsides
Edgeline markings	A	A	В	В	В	Traffic and safety devices
Special pavement markings	В	В	A	A	C	Traffic and safety devices
Protective barriers	A	В	A	A	A	Traffic and safety devices
Fences	A	A	A	A	A	Roadsides
Mowing for vision	A	A	A		D	Roadsides
Woody vegetation control	A	A	A	A	A	Roadsides
Woody vegetation control for vision	A	A	A	A	A	Roadsides

- The individual grades for the ten Safety features translate to an overall condition grade point average of 3.2 or grade level B.
- The grade for the routine replacement of regulatory and warning signs improved in 2008 to C, after receiving a D or F in the previous four years. The 2008 target was a grade of D.
- The grade for delineators declined from a C in 2007 to a D, but the feature still met the 2008 target of a D.
- The grade for protective barriers improved from a B in 2007 to an A, although the 2008 target was B.
- There was no grade change in 2008 for the other seven Safety features.
- The grade for all safety features met or exceeded their 2008 target.

Ride/Comfort Features

The ride quality and comfort features provide a state of ease and quiet enjoyment for highway users. These features include proper signing and lack of obstructions.

Feature	2008	2007	2006	2005	2004	Element
Detour/object marker/recreation/guide signs (routine replacement)	D	D	D	D	D	Traffic and safety devices
Potholes/raveling (paved)	A	A	A	В	A	Shoulders
Cross-slope (unpaved)	В	В	С	В	В	Shoulders
Detour/object markers/ recreation/ guide/signs (emergency repair)	A	A	A	A	A	Traffic and safety devices

- The individual grades for the four Ride/Comfort features translate to an overall condition grade point average of 3.0 or grade level B.
- There were no changes in the grades for the four Ride/comfort features. These features have seen little or no change in grade levels during the five-year period.
- The routine replacement of detour, object markers, recreation, and guidance signs has a D grade but is better than the targeted F grade level.
- The grades for shoulder potholes/raveling and cross-slope exceeded the targets of B and C, respectively.

Stewardship Features

Stewardship monitors performance on routine and preventive maintenance activities that preserve investments and ensure they function for their expected service life.

Feature	2008	2007	2006	2005	2004	Element
Cracking (paved)	D	D	D	D	D	Shoulders
Culverts	C	C	В	В	В	Drainage
Flumes	D	C	C	C	C	Drainage
Noxious weeds	D	C	C	C	С	Roadsides
Storm sewer system	В	В	В	В	В	Drainage
Under-drains/edge-drains	С	В	В	В	В	Drainage
Erosion (unpaved)	A	A	A	A	A	Shoulders
Curb & gutter	A	A	A	A	A	Drainage
Ditches	A	A	A	A	A	Drainage

- The individual grades for the nine Stewardship features translate to an overall condition grade point average of 2.4 or grade level C.
- The grades for three of the nine Stewardship features declined in 2008. The condition of flumes (C to a D), noxious weeds (C to a D) and drains (B to a C) declined since 2007.
- Most stewardship features met or exceeded their targets. The two exceptions were culverts (feature grade of C and a target grade of B) and flumes (feature grade of D and a target grade of C).

Aesthetics Feature

Aesthetics concerns the display of natural or fabricated beauty along highway corridors including landscaping and architectural features. Compass measures one Aesthetics feature - the presence of litter that detracts from roadway sightlines.

Feature	Feature 2008		2007 2006		2004	Element
Litter	D	D	D	D	D	Roadsides

• Litter has consistently received a D grade during the five-year period. The grade matches the 2008 target grade of D.

The Compass report also includes measures for winter maintenance and bridges. Target levels and grade curves have not been established for winter maintenance and bridges. Some key observations on winter maintenance and bridges include:

Winter maintenance:

- The winter of 2007-08 was significantly more severe than normal in the southern half of the state, with many locations shattering seasonal snowfall records. In northern Wisconsin, snowfall was closer to an average winter. Snowfall came relatively early across the southern part of the state, and never really abated until March. Nineteen winter storms or lake-effect events produced 6 or more inches of snow across at least a portion of the state. Nine of these events produced more than a foot of snow, and three produced at least 18 inches.
- The statewide average Winter Severity Index (WSI) in 2007-08 was 37.2 versus 28.4 in the previous year.
- In keeping with WisDOT guidelines, during similar storm events, drivers on major urban freeways and highways had less time to wait until they saw bare/wet pavement than did drivers on secondary roads. From storm to storm, however, variability in this time was due to specific local weather effects (type, duration and severity of storms throughout the winter season).
- The average time to bare/wet pavement during winter 2007-08 was 3 hours and 16 minutes, which is one hour and 48 minutes more than the previous winter.

Bridges:

- Thirty-two percent of bridge decks are in "Fair" condition and in need of reactive maintenance, based on their NBI ratings of 5 or 6. This is a 1% improvement from the 33% level in 2007.
- Twenty-eight percent of bridge superstructures are in "Fair" condition and in need of reactive maintenance, based on their NBI ratings of 5 or 6. The percentage of bridge superstructures in "Fair" condition stayed the same between 2007 and 2008.
- Twenty-nine percent of bridge substructures are in "Fair" condition and in need of reactive maintenance, based on their NBI ratings of 5 or 6. The percentage of bridge substructures in "Fair" condition stayed the same between 2007 and 2008.

Wisconsin 2008: Compass Report on Highway Maintenance Conditions

ıt	,	What ar	e we sp	ending	?		How much of the system still needs work at the end of the maintenance season?							system?					
Element			ollars sp			Feature					2008 Feature grades								
ā	FY 04	FY 05	FY 06	FY 07	FY 08		n change: 2007 to 2008 ²	2004	2005	2006	2007	2008	A	В	С	D	F		
						Centerline markings		5	5	4	3	3		X					
						Delineators	Ψ	21	24	21	21	26				X			
						Edgeline markings		7	5	6	4	4	X						
safety (selected)	16.9	15.8	16.4	17.3	17.3	Detour/object marker/recreation/guide signs (emergency repair)		0	1	1	0.3	0.4	x						
& safety	18.7 0.54 0.60	16.9 0.50 0.54	17.0 0.52 0.54	17.9 0.54 0.56	17.3 0.54 0.54	Detour/object marker/recreation/guide signs (routine)	1	46	59	55	56	55				X			
ic &	0.00	0.51	0.51	0.50	0.51	Protective barriers	^	3	4	4	5	3	X						
Traffic &						Reg./warning signs (emergency)		1	1	1	1	1	X						
						Reg./warning signs (routine)	^	36	41	31	25	23			X				
						Special pavement markings	^	13	5	3	10	7		X					
LS	8.2	7.5	8.2	9.8	8.2	Hazardous debris		13	12	13	9	9			X				
Shoulders	9.1 0.26	8.0 0.24	8.5 0.26	10.2 0.31	8.2 0.26	Cracking (paved)		51	52	50	53	53				X			
S	0.29	0.26	0.27	0.32	0.26	Potholes/raveling (paved)		5	7	5	6	6	X						

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¹ The dollar values listed in each column show the nominal dollars, real dollars (in 2008 constant dollars), nominal dollars per one thousand lane miles, and real dollars (in 2008 constant dollars) per one thousand lane miles, respectively.

² Arrows indicate a condition change from 2007 to 2008 (\uparrow = improved condition/lower backlog percentage, \checkmark = worse condition/higher backlog percentage). Double arrows indicate a change of 8 or more percentage points.

	•	What ar	e we sp	ending	?		How muc			still nec		k at the	How well maintained is the system?				he
Element		Do	ollars sp	ent		Feature	Conditio		% of sy	ystem bac	klogged		2	2008 1	Featur	e grad	les
Ele		(ir	million	$(s)^1$			n										
	FY 04	FY 05	FY 06	FY 07	FY 08		change: 2007 to 2008 ²	2004	2005	2006	2007	2008	A	В	С	D	F
						Cross-slope (unpaved)		15	14	25	18	18		X			
						Drop-off/build-up (unpaved)	Ψ	37	36	40	40	44					X
						Erosion (unpaved)	↓	3	3	3	1	2	X				
						Culverts	-	17	18	15	20	28			X		
e	6.5	5.7	5.1	7.2	8.0	Curb & gutter	<u> </u>	6	7	8	8	5	X				
Drainage	7.2	6.1	5.3	7.5	8.0	Ditches		2	2	3	2	2	X				
rai	0.21	0.18	0.16	0.23	0.26	Flumes	-	32	19	27	25	39				X	
Д	0.23	0.19	0.17	0.24	0.26	Storm sewer system	<u> </u>	9	9	9	11	16		X			
						Under-drains/edge-drains	-	14	20	13	20	30			X		
						Fences	^	4	2	3	2	1	X				
						Litter	V	70	62	64	60	61				X	
S	19.4	20.2	21.9	24.0	19.4	Mowing	V	40	35	39	36	42			X		
side	21.5	21.7	22.7	24.9	19.4	Mowing for vision	V	26	n/a	2	2	3	X				
Roadsides	0.62	0.64	0.69	0.76	0.61	Noxious weeds	$\downarrow \downarrow \downarrow$	30	29	34	29	38				X	
m Ro	0.69	0.69	0.72	0.79	0.61	Woody vegetation	<u> </u>	4	3	3	3	2	X				
						Woody veg. control for vision	^	1	1	1	2	1	X				

Wisconsin 2008: Targets for Highway Maintenance Conditions

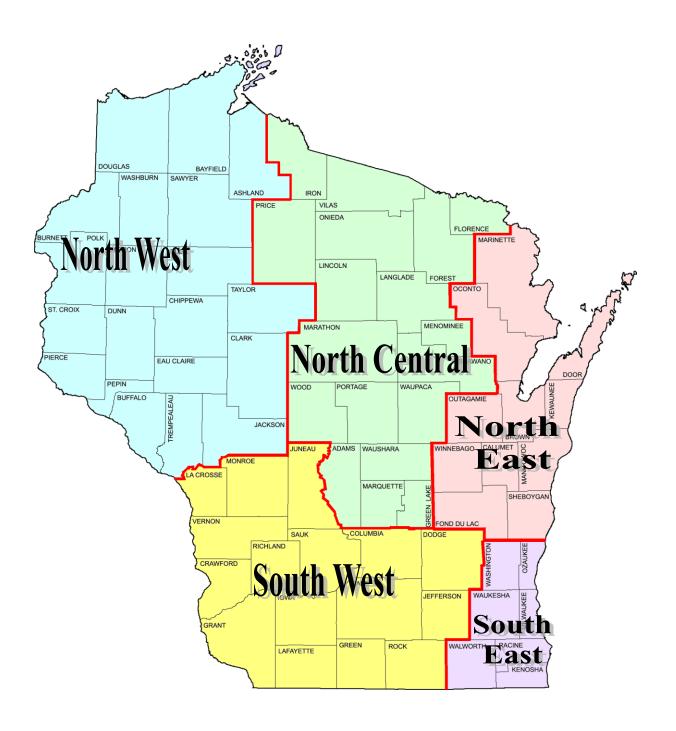
Targets are set annually, and are intended to reflect priorities for that year, given fiscal constraints. They are a measure of effective management, not system condition.

			Statewide								Regions				
							Gap	if tar	get mi	ssed					
Contribution			Actual % backlog	backlog	On	Worse condition				Better ondition		Worse	On	Better	
Category	Feature	Element	2008	2008	target ³	20	10	0	0	10	20	condition	Target	condition	
	Centerline markings	Traffic and safety devices	3	5	©								All		
Critical	Regulatory/warning signs (emergency)	Traffic and safety devices	1	0	0								All		
Safety	Hazardous debris	Shoulders	9	6	0							SW	NC, NE, NW, SE		
	Drop-off/build-up (unpaved)	Shoulders	44	20		24						All			
]	Delineators	Traffic and safety devices	26	25	©							SE, SW		NC, NE, NW	
	Edgeline markings	Traffic and safety devices	4	6	0								All		
	Protective barriers	Traffic and safety devices	3	3	0								All		
	Regulatory/warning signs (routine)	Traffic and safety devices	23	25	©							NE	SE	NC, NW, SW	
Safety	Special pavement markings	Traffic and safety devices	7	25						18				All	
	Fences	Roadsides	1	14						13				All	
	Mowing	Roadsides	42	40	0							NE	NW, SE, SW	NC	
	Mowing for vision	Roadsides	3	5	0								All		
	Woody vegetation control	Roadsides	2	5	0								All		
	Woody vegetation control for vision	Roadsides	1	3	©								All		

³ © This symbol indicates that the percent backlogged for that feature is the same as the target, or within 5 percentage points.

			Statewide							Regions				
									get mi					
Contribution			Actual % backlog	Target % backlog	On	co	Worse Inditio			Better ondition	on	Worse	On	Better
Category	Feature	Element	2008	2008	target ³	20	10	0	0	10	20	condition	Target	condition
	Detour/object marker/recreation/guide signs (routine)	Traffic and safety devices	55	70						15			NE	NC, NW, SE, SW
	Potholes/raveling (paved)	Shoulders	6	10	0								NE, NW, SE	NC, SW
Ride/Comfort	Cross-slope (unpaved)	Shoulders	18	20	0								NC, NE, NW, SW	SE
	Detour/object marker/recreation/guide signs (emergency repair)	Traffic and safety devices	0	1	©								All	
	Cracking (paved)	Shoulders	53	60					7				NE, SE	NC, NW, SW
	Erosion (unpaved)	Shoulders	2	5	0								All	
	Culverts	Drainage	28	15			13					All		
	Curb & gutter	Drainage	5	10	0							SW	NC, NW	NE, SE
C4	Ditches	Drainage	2	5	0								All	
Stewardship	Flumes	Drainage	39	30				9				SE, SW	NC, NE, NW	
	Storm sewer system	Drainage	16	10				6				NW, SE, SW	NC, NE	
	Under-drains/edge- drains	Drainage	30	25	0							SE, SW		NC, NE, NW
	Noxious weeds	Roadsides	38	61							23			All
Aesthetics	Litter	Roadsides	61	75						14			SW	NC, NE, NW, SE

WisDOT Regional Boundaries



2008 Traveled Way: Compass Report on Maintenance Condition

Data for this section comes from the Pavement Inventory File (PIF) dated April 2009 received from Mike Malaney.

Wisconsin 2008: Traveled Way Condition Distribution

A l14 4 l115-4	% of miles ⁴ in condition ⁵										
Asphalt traveled way distress	Excellent	Fair	Moderate	Poor							
Alligator Cracking ⁶	98%	1%	1%	0%							
Block Cracking ⁶	95%	2%	2%	1%							
Edge Raveling	93%	6%	0%	1%							
Flushing	100%	0%	0%	0%							
Longitudinal Cracking ⁶	30%	52%	16%	2%							
Longitudinal Distortion	100%	0%	0%	0%							
Patch Deterioration	91%	2%	2%	4%							
Rutting	88%	12%	0%	1%							
Surface Raveling	100%	0%	0%	0%							
Transverse Cracking ⁶	33%	49%	17%	1%							
Transverse Distortion	100%	0%	0%	0%							

Concrete traveled way	% of miles in condition										
distress	Excellent	Fair	Moderate	Poor							
Distressed Joint/Cracks	77%	16%	7%	1%							
Longitudinal Joint Distress	92%	4%	2%	2%							
Patch Deterioration	80%	14%	4%	2%							
Surface Distress	94%	3%	3%	0%							
Transverse Faulting	54%	46%	0%	0%							

Key Observations:

• Starting with the 2008 Compass Annual Report, the pavement conditions on traveled ways are exclusively reported based on the deficiency thresholds and condition categories in the WisDOT Pavement Maintenance Management System (PMMS).

• Eighty eight percent of roads are in excellent condition for rutting, a critical safety feature. Approximately 12% of the roads are in fair condition for rutting, which is defined in PMMS as ruts between 1/4" and 1/2" in depth. And 1% of roads are in poor condition for rutting, with ruts over 1/2" in depth.

⁴ Rows may not sum to 100% due to rounding.

⁵ Condition comes from WisDOT's Pavement Maintenance Management System and reflects extent and severity of distress

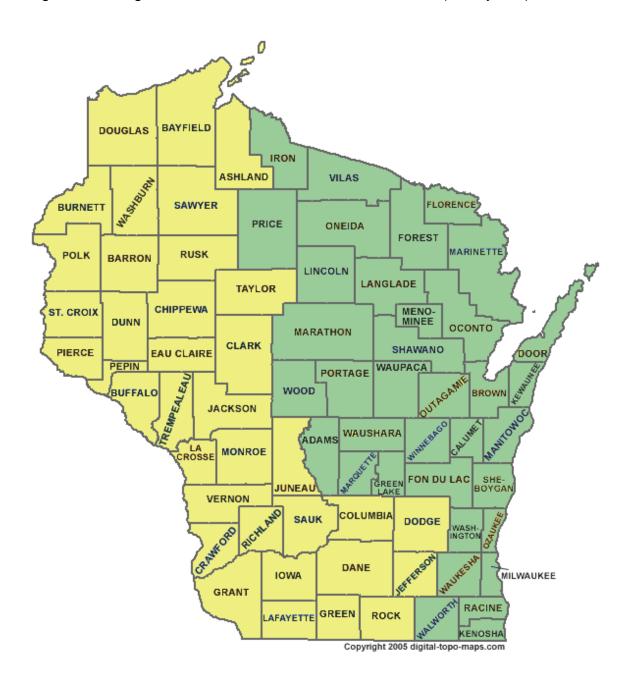
⁶ Cracks in asphalt pavement may be sealed or unsealed. Only miles with unsealed cracks are included in the % backlogged.

- A large amount of asphalt roads have longitudinal cracking and transverse cracking. Almost two-thirds of roads are in fair or moderate condition for these cracking distresses while only about one-third of the roads are in excellent condition.
- All asphalt roads are in excellent condition with regard to flushing, longitudinal distortion, surface raveling and transverse distortion.
- Over 90% of all asphalt roads are in excellent condition with regard to alligator cracking (98%), block cracking (95%), edge raveling (93%) and patch deterioration (91%). Four percent of asphalt roads, though, are in poor condition for patch deterioration.
- There are varied results for the five pavement distresses on concrete traveled ways. Over 90% of all concrete roads are in excellent condition with regard to longitudinal joint distress (92%) and surface distress (94%).
- The amount of concrete roads in excellent condition for other pavement distresses is lower, including distressed joints/cracks (77%) and patch deterioration (80%).
- Almost half of the concrete roads are in excellent condition for transverse faulting (54%) and the balance of concrete roads (46%) are in fair condition for this pavement distress.

Pavement Inspection Schedule Map

Note: The map below has two colors. If you are not viewing a color copy, please contact the Compass Program Manager at the Bureau of Highway Operations for a color version to be mailed or emailed to you

The map below shows the pavement evaluation schedule in Wisconsin. Pavement inventory data is collected every two years with the data from half the state collected in one year and the other half of the state in the other year. The yellow (lightly shaded) counties show the NW and SW regions with segments evaluated in 2003, 2005, and 2007 (odd years), while the green (darker shaded) counties show the NC, NE, and SE regions with segments evaluated in 2002, 2004, and 2006 (even years).



Regions 2008: Traveled Way Condition Distribution

Asphalt traveled way	Condition	% of miles in Region							
distress		NC	NE	NW	SE	SW			
	Excellent	98%	97%	99%	95%	97%			
Alliantan Constains	Fair	1%	2%	1%	1%	2%			
Alligator Cracking	Moderate	1%	1%	0%	2%	1%			
	Poor	0%	0%	0%	1%	0%			
	Excellent	94%	95%	98%	95%	94%			
Dia ale Cua aleina	Fair	2%	1%	1%	1%	2%			
Block Cracking	Moderate	3%	3%	1%	2%	2%			
	Poor	1%	1%	0%	2%	2%			
	Excellent	100%	99%	92%	97%	82%			
Edge Daveling	Fair	0%	1%	7%	2%	15%			
Edge Raveling	Moderate	0%	0%	0%	0%	1%			
	Poor	0%	0%	1%	0%	2%			
	Excellent	100%	100%	98%	100%	100%			
Flushing	Fair	0%	0%	1%	0%	0%			
-	Poor	0%	0%	1%	0%	0%			
	Excellent	31%	27%	35%	21%	30%			
T 1 1 1 C 1 1	Fair	59%	56%	51%	48%	46%			
Longitudinal Cracking	Moderate	9%	17%	11%	31%	20%			
	Poor	0%	1%	3%	0%	4%			
	Excellent	100%	100%	100%	100%	100%			
I amaite din al Distantian	Fair	0%	0%	0%	0%	0%			
Longitudinal Distortion	Moderate	0%	0%	0%	0%	0%			
	Poor	0%	0%	0%	0%	0%			
	Excellent	95%	94%	95%	80%	88%			
Patch Deterioration	Fair	1%	2%	1%	9%	2%			
Patch Deterioration	Moderate	2%	2%	1%	6%	3%			
	Poor	2%	2%	3%	6%	7%			
	Excellent	92%	97%	82%	94%	84%			
Rutting	Fair	8%	3%	17%	6%	16%			
	Poor	0%	0%	1%	0%	1%			
	Excellent	100%	100%	100%	100%	100%			
Sunface Boyeline	Fair	0%	0%	0%	0%	0%			
Surface Raveling	Moderate	0%	0%	0%	0%	0%			
	Poor	0%	0%	0%	0%	0%			
	Excellent	35%	31%	30%	21%	42%			
Transvarsa Crastina	Fair	52%	56%	55%	48%	37%			
Transverse Cracking	Moderate	13%	13%	14%	30%	19%			
	Poor	0%	0%	2%	0%	3%			
	Excellent	100%	100%	100%	100%	100%			
Towns District	Fair	0%	0%	0%	0%	0%			
Transverse Distortion	Moderate	0%	0%	0%	0%	0%			
	Poor	0%	0%	0%	0%	0%			

Concrete traveled way distress	Condition	% of miles Region							
_		NC	NE	NW	SE	SW			
	Excellent	80%	84%	73%	80%	74%			
Distressed Joint/Cracks	Fair	16%	13%	17%	14%	16%			
Distressed John/Cracks	Moderate	4%	3%	10%	4%	9%			
	Poor	0%	0%	1%	2%	1%			
	Excellent	87%	83%	100%	75%	100%			
Longitudinal Joint Distrace	Fair	6%	8%	0%	10%	0%			
Longitudinal Joint Distress	Moderate	3%	4%	0%	7%	0%			
	Poor	3%	5%	0%	7%	0%			
	Excellent	84%	79%	80%	81%	79%			
Patch Deterioration	Fair	11%	16%	15%	12%	14%			
Patch Deterioration	Moderate	3%	4%	4%	4%	6%			
	Poor	2%	1%	1%	3%	1%			
	Excellent	100%	99%	86%	99%	91%			
Surface Distress	Fair	0%	0%	4%	0%	7%			
	Moderate	0%	1%	10%	1%	2%			
	Excellent	99%	91%	15%	82%	23%			
Transverse Faulting	Fair	1%	8%	85%	16%	77%			
Transverse Faulting	Moderate	0%	1%	0%	1%	0%			
	Poor	0%	0%	0%	0%	0%			

2008 Highway Maintenance Conditions: Report on Traffic, Shoulders, Drainage, Roadsides

Data in this section comes from the field review of random road segments performed by WisDOT region Maintenance Coordinators and county Patrol Superintendents. No statistical analysis has been completed on the county level data in Appendix F. Readers should take the number of observations into account when reviewing the information. Extreme caution should be exercised when analyzing data that has less than 30 observations.

Below is a summary of the change between 2007 and 2008 in the percentage of roadways that are backlogged for maintenance. These changes didn't necessarily result in a new level of service grade. Refer to the "Maintenance Report Card" in the front part of the report for a complete summary of condition grade level changes between 2007 and 2008.

- Eight features (29%) had a reduction in the percentage of roadways that are backlogged for maintenance.
- Nine features (32%) did not have a change in the amount of roadways that are backlogged for maintenance.
- Eleven features (39%) had an increase in the percentage of roadways that are backlogged for maintenance.
- All of the changes in backlog levels were ten percentage points or less, except for the 14% change in Flumes.

Traffic Control and Safety Devices:

- The individual grades for the nine Traffic Control and Safety Devices translate to an overall condition grade point average of 2.9 or grade level C+.
- Four of the nine features had a reduction in the percentage of roadways that are backlogged for maintenance. These features include the routine replacement of regulatory and warning signs (-2%), the routine replacement of other signs (-1%), protective barriers (-2%), and special pavement markings (-3%). Two of these changes were significant enough to change the level of service grade: the routine replacement of regulatory and warning signs went from a D to a C grade while protective barriers went from a B condition to an A.
- Four of the features did not have a change in the amount of roadways that are backlogged for maintenance. These features include centerline markings, edgeline markings, the emergency repair of regulatory and warning signs, and the emergency repair of other signs.
- One feature, delineators, had an increase in the percentage of roadways (+5%) that are backlogged for maintenance. The change was significant enough to change the level of service grade from a C to a D.

Shoulders:

• The individual grades for the six Shoulder features translate to an overall condition grade point average of 2.3 or grade level C.

- No Shoulder features had a reduction in the percentage of roadways that are backlogged for maintenance.
- Four of the six features did not have a change in the amount of roadways that are backlogged for maintenance. These features include hazardous debris, cracking, potholes/raveling, and cross-slope on unpaved shoulders.
- Two features had an increase in the percentage of roadways that are backlogged for maintenance. These features include drop-off/buildup on unpaved shoulders (+4%) and erosion (+1%).
- No backlog changes were significant enough to change the level of service grade for any Shoulder feature.
- Drop-off /buildup on unpaved shoulders received a feature grade of F for the fifth consecutive year. The percentage of roadways that are backlogged for maintenance increased from 40% in 2007 to 44% in 2008.

Drainage:

- The individual grades for the six Drainage features translate to an overall condition grade point average of 2.7 or grade level C.
- One of the six Drainage features, curb and gutter, had a reduction in the percentage of roadways (-3%) that are backlogged for maintenance.
- One feature, ditches, did not have a change in the amount of roadways that are backlogged for maintenance.
- Four features had an increase in the percentage of roadways that are backlogged for maintenance. These features include culverts (+8%), flumes (+14%), storm sewer systems (+5%), and drains (+10%). The changes were significant enough to change the level of service grade for flumes from a C to a D, and for drains from a B to a C.

Roadsides:

- The individual grades for the seven Roadside features translate to an overall condition grade point average of 2.9 or grade level C+.
- Three of the seven Roadside features had a reduction in the percentage of roadways that are backlogged for maintenance. These features include fences (-1%), woody vegetation control (-1%), and woody vegetation control for vision (-1%).
- Four features had an increase in the percentage of roadways that are backlogged for maintenance. These features include litter (+1%), mowing (+6%), mowing for vision (+1%), and noxious weeds (+9%).
- The change was significant enough to change the level of service grade for noxious weeds from a C to a D. However, the maintenance backlog of 38% is much lower than the 2008 target of 61%. Due to budget limitations, current WisDOT policy includes a moratorium on spraying noxious weeds.

Regions 2008: Compass Report on Highway Maintenance Conditions

		How much of the system needs work at the end of the season? What did it cost to achieve this condition?								
Element	Feature	Region Percent of System Backlogged								
		NG	1							
ED CC		NC	NE	NW	SE	SW	Statewide			
Traffic	Centerline markings	1	2	5	3	3	3			
and safety	Delineators	15	15	12	41	34	26			
(selected devices)	Edgeline markings	6	1	6	5	4	4			
devices)	Detour/object marker/recreation/guide signs									
	(emergency repair)	0	0	1	1	0	0			
	Detour/object marker/recreation/guide signs						55			
	(routine)	51	65	55	51	54				
	Protective barriers	5	3	0	3	5	3			
	Regulatory/warning signs (emergency)	0	1	1	1	1	1			
	Regulatory/warning signs (routine)	18	38	16	28	18	23			
	Special pavement markings	4	6	0	7	17	7			
	Dollars spent on traffic and safety (selected) (in millions)	3.14	2.04	3.74	3.74	4.62	17.28			
Shoulders	Hazardous debris	8	8	5	5	18	9			
	Cracking (paved)	47	56	44	63	53	53			
	Potholes/raveling (paved)	4	5	6	11	4	6			
	Cross-slope (unpaved)	19	17	24	14	15	18			
	Drop-off/build-up (unpaved)	38	46	35	60	44	44			
	Erosion (unpaved)	0	1	1	2	4	2			
	Dollars spent on shoulders (in millions)	0.26	1.26	2.74	1.47	2.48	8.22			
Drainage	Culverts	21	23	25	36	34	28			
Č	Curb & gutter	8	3	9	3	16	5			
	Ditches	1	1	1	5	2	2			
	Flumes	32	25	33	42	67	39			
	Storm sewer system	15	13	26	16	21	16			
	Under-drains/edge-drains	7	9	0	36	76	30			
	Dollars spent on drainage (in millions)	0.66	0.58	2.02	1.71	3.05	8.01			
Roadsides	Fences	4	0	0	1	4	1			
	Litter	49	69	57	57	71	61			
	Mowing	32	49	41	43	45	42			
	Mowing for vision	3	2	4	0	6	3			
	Noxious weeds	38	50	9	49	45	38			
	Woody vegetation control	1	1	4	1	4	2			
	Woody vegetation control for vision	0	0	2	1	0	1			
	Dollars spent on roadsides (in millions)	2.53	2.44	4.14	5.51	4.75	19.36			

Mowing

The following table shows the number of segments that are backlogged for Mowing and the statewide distribution of the deficiencies: 'how' (shown as columns) and 'why' (shown as rows). For the report, all of the segments shown are considered backlogged and contributed to the backlog percentage reported for Mowing. Note that multiple reasons for mowing deficiency are allowed; therefore the sum of percentages for each deficiency type can be more than 100%.

How roadway segments are backlogged for mowing is based on WisDOT policy for grass height and width. The following are the general components of the WisDOT mowing policy:

- Height: Grass should be between six inches and twelve inches.
- Outside shoulder width: Grass should be cut a maximum of fifteen feet in width or to the bottom of the ditch, whichever is less.
- Inside shoulder width (medians): Grass should be cut a maximum of five feet in width or one pass with a single unit mower. If the remaining vegetation width is ten feet or less, the entire median should be mowed.
- No-Mow Zones: Grass should not be cut in areas that have been designated and signed as "No-Mow" zones.

		How is it deficient?								
		# of segments with observed deficiency								
		% of segment								
		Too Wide Too Short Too High Mow Zone								
~.	Safety/Equipment	6	0	9	0					
ır,	Salety/Equipment	2%	0%	4%	0%					
icie	Mayad by Branarty Owner	248	396	73	1					
deficient?	Mowed by Property Owner	85%	96%	31%	33%					
.=	Woody Vogetation Control	8	0	2	0					
/ is	Woody Vegetation Control	3%	0%	1%	0%					
Why	Maintanana Dagisian	89	80	219	2					
>	Maintenance Decision	31%	19%	92%	67%					
	Total	291	411	238	3					

2008 Signs: Compass Report on Routine Replacement and Age Distribution

Data in this section comes from the WisDOT Sign Inventory Management System (SIMS). This section covers only routine replacement, not emergency replacement of knocked-down signs and related work.

The analysis looks at the age distribution and service life of highway signs. The expected service life is determined relative to the date signs are manufactured rather than the date they are installed. It is possible that a sign is installed one year or more after it is manufactured.

Regulatory and warning signs on Wisconsin's highways are critically important for the safety of Wisconsin's motorists. As such, WisDOT prioritizes the routine replacement of regulatory and warning signs over the routine replacement of other signs, including detour, object marker, recreation and guide signs.

Key Observations:

- The backlog for routine replacement of all signs decreased slightly. The backlog for routine replacement of regulatory and warning signs dropped from 25% in 2007 to 23%. The backlog for replacement of detour/object marker/recreation/guide signs dropped from 56% in 2007 to 55%.
- Regulatory and warning signs are being used for an average 4.7 years beyond their recommended service lives. On average, detour/object marker/recreation/guide signs remain in service for 6.3 years beyond their recommended service lives.
- Wisconsin had 13,516 regulatory or warning signs and 39,574 detour/object marker/recreation/guide signs in service more than five years beyond their recommended service life. This represents 9% and 32%, respectively of the state's highway signs.
- WisDOT is migrating from engineering grade sign face material (i.e. grade 1) to more visible high intensity sign face material (grade 2). Currently 60% of all signs have high intensity sign face material and 40% of all signs have engineering grade face material.
- This year notes a big progress in the migration of sign face material. Almost 25,000 signs switched out from grade 1 to grade 2. This is a nearly 10% increase compared to last year's composition of only 49% signs with high intensity and 51% signs with engineering grade.

Wisconsin and Regions 2008: Sign Condition

	Regu	ılatory/Warn	ing/School	Signs	Detour/object marker/recreation/guide Signs						
	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ⁷	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ⁷			
2005	160,185	41%	65,092	5.7	113,693	59%	67,449	6.0			
2006	157,742	31%	49,457	5.0	126,362	55%	69,051	5.9			
2007	160,206	25%	40,548	4.8	125,891	56%	70,099	6.3			
2008	163,215	23%	37,060	4.7	124,333	55%	68,430	6.3			

	Reg	ulatory/War	ning/School	Signs	Detour/object marker/recreation/guide Signs					
Region	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ⁷	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life ⁷		
NC	28,917	18%	5,272	4.5	18,477	51%	9,456	6.7		
NE	22,375	38%	8,426	5.4	22,138	65%	14,314	6.5		
NW	32,837	16%	5,321	4.3	29,798	55%	16,337	5.2		
SE	37,249	28%	10,461	4.7	27,477	51%	14,133	6.2		
SW	41,837	18%	7,580	3.9	26,443	54%	14,190	7.4		

-

⁷ When comparing the 'Average years beyond service life column', please note that starting with the 2006 data the useful life standard for signs with high intensity face material changes from 10 years to 12 years. Useful life standard for engineer-grade signs remained at 7 years.

Regions 2008: Routine Replacement of Signs

			Regulatory/V	Varning/School Signs		De	tour/object m	arker/recreation/gui	de Signs
Region	Total	l Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	2005	26,164	45%	11,746	6.1	18,480	66%	12,177	6.6
NC	2006	26,117	35%	9,097	5.4	20,152	61%	12,342	6.5
110	2007	26,663	25%	6,660	4.5	19,226	60%	11,494	6.5
	2008	28,917	18%	5,272	4.5	18,477	51%	9,456	6.7
	2005	22,246	47%	10,346	5.4	20,367	62%	12,647	5.5
NE	2006	21,520	39%	8,463	5	21,517	60%	12,953	5.5
NL	2007	21,887	39%	8,459	5.3	21,776	64%	13,831	6.1
	2008	22,375	38%	8,426	5.4	22,138	65%	14,314	6.5
	2005	36,737	37%	13,606	5.4	29,848	59%	17,541	5.2
NW	2006	34,087	26%	8,883	4.7	31,874	52%	16,544	5.1
14 44	2007	33,786	19%	6,372	4.4	31,566	54%	16,962	5.3
	2008	32,837	16%	5,321	4.3	29,798	55%	16,337	5.2
	2005	32,872	32%	10,533	4.9	21,077	50%	10,439	5.7
SE	2006	35,226	30%	10,426	4.7	26,987	48%	12,835	5.7
SE	2007	36,390	28%	10,234	5	27,341	49%	13,386	6.2
	2008	37,249	28%	10,461	4.7	27,477	51%	14,133	6.2
	2005	42,166	45%	18,861	6.3	23,921	61%	14,645	7.0
SW	2006	40,792	31%	12,588	5.1	25,832	56%	14,377	6.9
S W	2007	41,480	21%	8,823	4.7	25,982	56%	14,426	7.4
	2008	41,837	18%	7,580	3.9	26,443	54%	14,190	7.4

Wisconsin and Regions 2008: Sign Face Material Distribution

	Face			Statewide				
Grade	Туре	NC	NE	NW	SE	SW	Total	Percentage
	Non-Reflective	5	75	355	124	107	666	0.2%
1	Other or Varies	149	63	335	37	825	1,409	0.5%
	Reflective - Engineering Grade	14,802	23,328	24,297	27,628	23,978	114,033	39.7%
	Type D - Diamond Grade	32	15	4	4	122	177	0.1%
2	Type F - Fluorescent	529	196	341	795	739	2,600	0.9%
2	Type H - High Intensity		16,017	23,702	23,300	26,444	106,251	37.0%
	Type HP - Prismatic High Intensity	15,089	4,819	13,601	12,838	16,065	62,412	21.7%
	Total	47,394	44,513	62,635	64,726	68,280	287,548	100.0%

Wisconsin and Regions 2008: Sign Face Material Trends

	200)6	200)7	2008		
Region	Engineering Grade	High Intensity	Engineering Grade	High Intensity	Engineering Grade	High Intensity	
NC	24,877	21,392	20,112	25,777	14,956	32,438	
NE	25,942	17,095	25,225	18,438	23,466	21,047	
NW	38,240	27,721	32,395	32,957	24,987	37,648	
SE	34,430	27,783	31,927	31,804	27,789	36,937	
SW	34,528	32,096	29,962	37,500	24,910	43,370	
Statewide	158,017	158,017 126,087		139,621 146,476		171,440	
	56% 44%		49%	51%	40%	60%	

Wisconsin and Regions 2008: Sign Age Distribution

Regulatory/warning/school signs

		Yea	ırs prior t	o the end	of service	life			Y	ears beyo	nd service	life		
	6-10	5	4	3	2	1	0	1	2	3	4	5-10	>10	Total
NC	17,592	915	913	1,267	1,071	1,039	848	609	867	1,297	774	1,461	264	28,917
NC	61%	3%	3%	4%	4%	4%	3%	2%	3%	4%	3%	5%	1%	100%
NE	9,132	1,081	645	679	527	985	900	1,196	1,048	774	1,019	3,600	789	22,375
NE	41%	5%	3%	3%	2%	4%	4%	5%	5%	3%	5%	16%	4%	100%
NW	22,405	973	801	1,107	789	718	723	995	967	766	1,064	1,202	327	32,837
IN VV	68%	3%	2%	3%	2%	2%	2%	3%	3%	2%	3%	4%	1%	100%
SE	20,459	1,095	1,054	910	565	866	1,839	2,175	1,296	1,378	1,146	3,399	1,067	37,249
SE	55%	3%	3%	2%	2%	2%	5%	6%	3%	4%	3%	9%	3%	100%
SW	26,740	1,134	1,189	1,677	1,094	1,278	1,145	1,313	963	1,440	1,457	1,774	633	41,837
311	64%	3%	3%	4%	3%	3%	3%	3%	2%	3%	3%	4%	2%	100%
State	96,328	5,198	4,602	5,640	4,046	4,886	5,455	6,288	5,141	5,655	5,460	11,436	3,080	163,215
State	59%	3%	3%	3%	2%	3%	3%	4%	3%	3%	3%	7%	2%	100%

Detour/object marker/recreation/guide signs

		Yea	rs prior to	the end o	f service li	fe			7	Years bey	ond servi	ce life		
	6-10	5	4	3	2	1	0	1	2	3	4	5-10	>10	Total
NC	5,468	314	981	322	521	536	879	770	946	1,462	1,022	3,527	1,729	18,477
NC	30%	2%	5%	2%	3%	3%	5%	4%	5%	8%	6%	19%	9%	100%
NE	3,868	504	639	221	507	782	1,303	1,067	874	987	1,658	7,668	2,060	22,138
NE	17%	2%	3%	1%	2%	4%	6%	5%	4%	4%	7%	35%	9%	100%
NW	9,109	253	1,105	407	422	687	1,478	2,534	2,036	1,660	2,615	5,523	1,969	29,798
IN VV	31%	1%	4%	1%	1%	2%	5%	9%	7%	6%	9%	19%	7%	100%
SE	7,327	1,198	1,293	358	625	950	1,593	1,673	1,195	1,805	1,359	4,974	3,127	27,477
SE	27%	4%	5%	1%	2%	3%	6%	6%	4%	7%	5%	18%	11%	100%
SW	7,253	372	1,166	589	613	1,008	1,252	1,554	972	1,382	1,285	5,085	3,912	26,443
311	27%	1%	4%	2%	2%	4%	5%	6%	4%	5%	5%	19%	15%	100%
State	33,025	2,641	5,184	1,897	2,688	3,963	6,505	7,598	6,023	7,296	7,939	26,777	12,797	124,333
State	27%	2%	4%	2%	2%	3%	5%	6%	5%	6%	6%	22%	10%	100%

2008 Winter: Compass Report on Winter Operations

This section of the report looks at winter operations on state highways from November 1, 2007 to April 30, 2008.

The Bureau of Highway Operations issues two reports on winter. This Compass report presents measures for winter maintenance focused on a few key winter operations outcomes critical to drivers and taxpayers, and is directed toward a general audience. The Annual Winter Maintenance Report focuses on operational measures and analysis, and is directed toward front-line operations managers.

The Winter Severity Index (WSI) is a tool WisDOT uses to analyze individual storms and the winter as a whole. It facilitates comparisons from one winter to the next and from county to county within the same season. The average WSI in 2007-08 was 37.2 versus 28.4 in the previous year.

The winter of 2007-2008 was one of the snowiest on record. The amount of snowfall and lack of road salt at the end of the season led to some unusual challenges. These challenges involved stretching out the existing salt supplies and moving salt to where it was needed most. During this winter season, the state experiences severe winter and salt shortage (plus the potential for future salt shortages), and also a February snowstorm that left many motorists stranded on Interstate 90 for several hours.

Statewide measures for winter

	2003-04	2004-05	2005-06	2006-07	2007-08
Time to bare/wet	2 hours 38	2 hours 4	1 hour 55	1 hour 28	3 hour 16
pavement	minutes after				
	the storm				
	ended	ended	ended	ended	ended
Cost per lane mile	\$1,279	\$1,374	\$1,386	\$1,549	\$2,591
Winter severity index	31.2	31.9	31.8	28.4	37.2
Winter related	26 per 100	25 per 100	24 per 100	23 per 100	43 per 100
Winter related crash	million vehicle				
Clasii	miles traveled				

Key Observations:

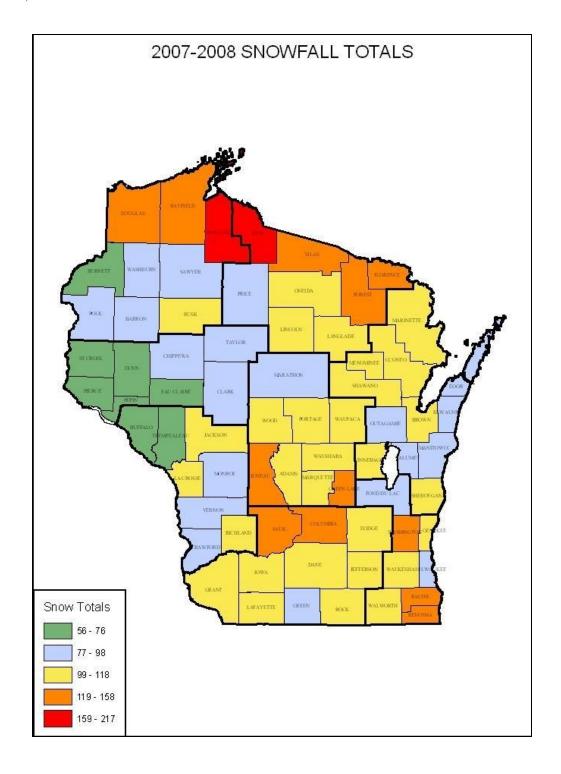
- This winter was significantly more severe than normal in the southern half of the state, with many locations shattering seasonal snowfall records. In northern Wisconsin, snowfall was closer to an average winter. Snowfall came relatively early across the southern part of the state, and never really abated until March. Nineteen winter storms or lake-effect events produced 6 or more inches of snow across at least a portion of the state. Nine of these events produced more than a foot of snow, and three produced at least 18 inches.
- The average time to bare/wet pavement during winter 2007-08 was 3 hours and 16 minutes, which is one hour and 48 minutes more than the previous winter. From storm to storm, most of the variability in this time is due to weather effects (type, duration and severity of storms throughout the winter season).

- This year's total salt use was higher than average relative to the severity index, which may be partly due to the timing of storms. This winter crews faced multiple storms in quick succession spread across many months, as well as extended bouts of lower temperatures when salt is less effective, which may lead crews to use more salt than they would need to on warmer days.
- A total of 80,133 cubic yards of sand was used on state highways this winter, compared to only 13,636 cubic yards last year. This unusually high total was due in large part to the salt shortages in the southern counties, as many counties mixed their salt with sands in order to stretch their salt supplies to cover more storms.

2007-2008 Winter season snowfall for Wisconsin

Note: The below map is in color. If you are not viewing a color copy, please contact the Compass Program Manager at the Bureau of Highway Operations for a color version to be mailed or emailed to you.

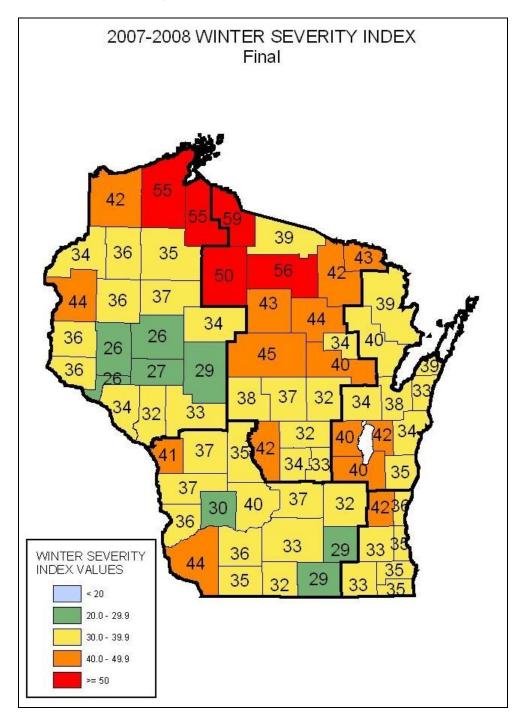
The National Weather Service (NWS) map below shows the snowfall for Wisconsin during the period July 1, 2007 to June 30, 2008.



2007-2008 Wisconsin Winter Severity Index

Note: The below map is in color. If you are not viewing a color copy, please contact the Compass Program Manager at the Bureau of Highway Operations for a color version to be mailed or emailed to you.

Wisconsin's Winter Severity Index (WSI) is highly correlated with snowfall. Looking at the statewide winter severity numbers, the statewide average for winter 2007-2008 was 37.2. The average for the previous ten-years (winter 1997-1998 to winter 2006-2007) is 30.7.



Winter by the numbers

		2004-05	2005-06	2006-07	2007-08
	Lane miles	31,810 miles	33,022 miles	33,221 miles	33,297 miles
	Road Weather	21,010 1111100	00,022 1111100	00,221 111105	20,257 111105
Infrastructure	Information System (RWIS) stations	59	59	58	59
		407,924 tons	426,723 tons	405,793 tons	644,485 tons
		12.8 tons per	12.9 tons per	12.2 tons per	19.4 tons per
	Salt	lane mile	lane mile	lane mile	lane mile
Material usage ⁴	Average cost of salt	\$31.42 per ton	\$35.25 per ton	\$39.04 per ton	\$41.69 per ton
	Pre-wetting liquid used	638,685 gal.	803,131 gal.	745,919 gal.	1,293,655 gal.
	Anti-icing agent	272,856 gal.	435,277 gal.	485, 485 gal.	331,179 gal.
	Sand	15,843 cu. yd.	15,997 cu. yd.	13,636 cu. yd.	80,133 cu. yd.
	Regular county hours on winter ⁸	110,390 hrs.	110,354 hrs.	112,087 hrs.	178,682 hrs.
	Overtime county hours on winter	123,300 hrs.	112,522 hrs.	120,603 hrs.	199,835 hrs.
Services		6,382 total	6,989 total	5,545 total	6,786 total
Services	Public service	5,735 radio;	6,353 radio;	4,966 radio;	6,109 radio;
	announcements aired	647 TV	636 TV	579 TV	677 TV
	Cost of public service				\$35,000
	announcements	\$31,500	\$31,500	\$35,000	(\$301,463 market value)
	Patrol sections	719	733	768	768
	Average patrol section length	44.24 miles	45.05 miles	43.00 miles	43.36 miles
	Salt spreaders equipped with on- board pre-wetting unit ⁹	639 of 2647 (24%)	639 of 2647 (24%)	658 of 2586 (25%)	N/A
	Counties with salt spreaders equipped with on-board pre- wetting unit	59 of 72 (82%)	59 of 72 (82%)	56 of 72 (78%)	52 of 72 (72%)
Management and Technology	Salt spreaders equipped with ground- speed controller unit	1316 of 2647 (50%)	1316 of 2647 (50%)	1332of 2586 (52%)	N/A
	Counties with salt spreaders equipped with ground-speed controller unit	69 of 72 (96%)	69 of 72 (96%)	65 of 72 (90%)	67 of 72 (93%)
	Underbody plows	508	508	507	565
	Counties with underbody plows	51 of 72 (71%)	51 of 72 (71%)	51 of 72 (71%)	55 of 72 (76%)
	Counties equipped to use anti-icing agents	65 of 72 (90%)	65 of 72 (90%)	65 of 72 (90%)	65 of 72 (90%)

 ⁸ Costs and hours come from county storm reports, and reflect sanding, salting, plowing and anti-icing efforts.
 ⁹ County equipment may be used on either state or county roads.
 ⁴ All material usage quantities are from the county storm reports except for salt. The salt quantities are from the Salt Inventory Reporting System.

	2004-05	2005-06	2006-07	2007-08
anti-icing	that used g agents 56 of 72 (78%)	50 of 72 (69%)	56 of 72 (78%)	52 of 72 (72%)

Compass winter operations measures

Time to bare/wet pavement

The counties, under contract to WisDOT, provide different levels of effort during and after a storm depending on how busy and how critical a given category of highway is. State highways fall into five such categories, with category 1 being the highest priority. It is expected that an urban freeway (category 1) receives more materials, labor and equipment – and consequently experiences shorter time to bare/wet pavement – than a rural two-lane highway (category 5).

The following table shows the average time to bare/wet pavement after storms end for each of the highway categories. In general, it is expected that the more critical the highway the shorter the average time to bare/wet pavement. This is true this year with the exception of highways in category 2 having the shortest time to bare/wet pavement.

Time to bare/wet pavement is measured from the reported end time of a storm. 'Bare/wet never achieved' means that it took more than 24 hours to achieve bare/wet condition, or the next storm began before the bare/wet condition was achieved. Less critical highways are more likely to have snow on them 24 hours after a storm has ended than are more critical highways. This suggests that major urban freeways and highways are receiving a higher level of effort for winter operations than secondary roads.

Further analysis suggests that variability of time to bare/wet pavement within a category is due more to weather effects (type, duration and severity of storms throughout the winter season) than to differences in the level of effort or relative resources.

Highway catego	rv	Aver 2003 - 04	rage time to bare/	wet pavement (ho	urs after end of sto 2006 - 07	rm)* 2007 - 08
More critical highways	1	1.07	0.45	-1.21	-2.50	2.20
\	2	1.31	0.64	0.2	-0.55	0.76
•	3	1.52	1.82	1.32	1.57	3.14
Less critical highways	4	2.45	3.06	2.47	2.70	4.01
	5	3.63	2.89	3.4	2.73	4.84

^{*} Only includes storms where bare/wet pavement was achieved

Costs per lane mile versus winter severity index

The following table lists the WSI and total cost per lane mile for winter operations in each Region. The costs were obtained from the WisDOT's FOS (Financial Operating System). The statewide average cost per lane mile was \$2,591 with average severity index of 37.2. Total costs include material, labor, equipment, and administrative costs.

	Average WSI				Cost/LM				Relative cost per WSI point			
Region	2004-	2005-	2006-	2007-	2004-	2005-	2006-	2007-	2004-	2005-	2006-	2007-
	05	06	07	08	05	06	07	08	05	06	07	08
NC	36.0	40.2	32.4	41.2	\$1,481	\$1,612	\$1,509	\$2,373	\$41	\$40	\$47	\$58
NE	31.0	32.5	26.7	37.5	\$1,389	\$1,396	\$1,492	\$2,618	\$45	\$43	\$56	\$70
NW	34.4	32.6	28.7	35.7	\$1,244	\$1,309	\$1,288	\$1,914	\$36	\$40	\$45	\$54
SE	25.3	20.3	24.2	35.6	\$1,733	\$1,431	\$2,138	\$3,233	\$69	\$70	\$88	\$91
SW	27.9	25.9	26.7	35.1	\$1,201	\$1,199	\$1,467	\$2,909	\$43	\$46	\$55	\$83
Statewide	31.9	31.8	28.4	37.2	\$1,374	\$1,386	\$1,549	\$2,591	\$43	\$44	\$55	\$70

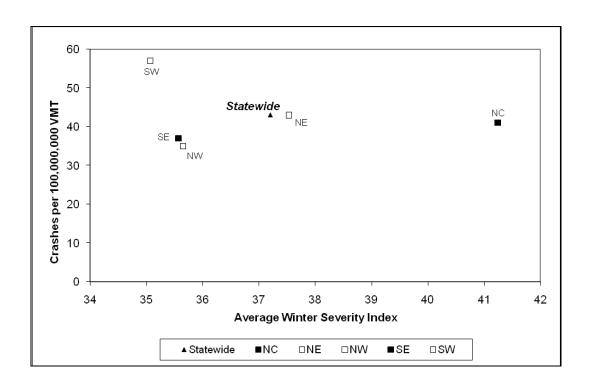
Winter weather crashes per vehicle miles traveled (VMT)

The following table shows the four-year trend of crashes per 100 million VMT statewide and in each Region. The state average is 43 winter crashes per 100 million VMT.

	VMT*		Crashes per 100 million VMT				Average Winter Severity Index			
Scope	(100 million)	Crashes	2004 - 05	2005 - 06	2006 -07	2007 - 08	2004 - 05	2005 – 06	2006- 07	2007 - 08
NC	33.97	1,387	31	31	25	41	36.04	40.16	32.41	41.24
NE	50.20	2,165	25	24	21	43	31.04	32.48	26.67	37.53
NW	39.45	1,379	31	28	20	35	34.43	32.61	28.69	35.65
SE	86.14	3,166	17	17	21	37	25.29	20.32	24.19	35.57
SW	69.55	3,963	26	27	27	57	27.89	25.93	26.66	35.07
Statewide	279.31	12,060	25	24	23	43	31.91	31.80	28.42	37.20

^{*100} million vehicle miles traveled (VMT) for November 1, 2007 though April 30, 2008 determined from annual average daily traffic (AADT) counts, gallons of gas sold, fuel tax collected, and average vehicle miles per gallon.

Based on the information from the table above, the following figure shows the relationship between the severity of the winter and the number of crashes per VMT. As severity of the winter increases, it is expected that the number of winter crashes per VMT also increases. In 2007-08 the SW region has the largest number of crashes per VMT despite having the least severe winter compared to the other regions



Winter Data, Definitions, and Categories

Data

Unless otherwise noted, all material and labor figures come from the winter storm reports that are submitted by each county for every event or anti-icing procedure throughout the winter season. The data quality is unknown. Weather, road conditions, and materials usages are based upon the observations of county patrol superintendents and sometimes on their expert judgment and, as such, contain more variability than direct measurements.

Definitions

Dollars: Cost data are from the fiscal year, July 1, 2007 to June 30, 2008.

Winter: November 1 through April 30, unless otherwise noted.

Winter Activities: Actual cost data incorporates all winter activities, including putting up snow fence, transporting salt, filling salt sheds, thawing out frozen culverts, calibrating salt spreaders, producing and storing salt brine, and anti-icing applications, as well as plowing and salting. Costs from storm reports, however, cover only plowing, sanding, salting, and anti-icing.

Roads: The roads referred to in this report are state maintained highways, including Interstate and US highways. See the following tables for groupings.

Categories & groupings

Winter service group assignments

Winter Service Group	County Name
Α	Brown, Dane, Eau Claire, Kenosha, La Crosse, Marathon, Milwaukee, Ozaukee, Portage, Racine, Waukesha, Winnebago
В	Chippewa, Columbia, Dodge, Dunn, Jefferson, Manitowoc, Marquette, Oneida, Outagamie, Rock, Sauk, Shawano, Sheboygan, St. Croix, Walworth, Washington, Waushara
С	Calumet, Clark, Crawford, Door, Douglas, Fond Du Lac, Grant, Iowa, Jackson, Juneau, Kewaunee, Lafayette, Lincoln, Monroe, Oconto, Trempealeau, Vernon, Vilas, Washburn, Waupaca, Wood
D	Adams, Ashland, Barron, Bayfield, Buffalo, Burnett, Florence, Forest, Green, Green Lake, Iron, Langlade, Marinette, Menominee, Pepin, Pierce, Polk, Price, Richland, Rusk, Sawyer, Taylor

Passable roadway expectation categories

Category	Definition	Lane miles	% of total
1	Major urban freeways and most highways with six lanes and greater	2,863	9%
2	High volume four-lane highways (ADT \geq 25,000) and some four-lane highways (ADT $<$ 25,000), and some 6-lane highways.	3,199	10%
3	All other four-lane highways (ADT < 25,000)	8,202	25%
4	Most high volume two-lane highways (ADT \geq 5,000) and some 2-lanes (ADT $<$ 5000)	4,933	15%
5	All other two-lane highways	14,100	42%

2008 Bridges: Compass Report on Condition, Maintenance, and Inspection Backlog

The Compass bridge report uses data from the Highway Structures Information System (HSI) online report. Data was taken during the period of four weeks from April 7th to May 7th, 2008.

Key observations:

Bridge Deck Condition Distribution

- 32% of decks statewide are in Fair condition and need reactive maintenance, based on their NBI ratings of 5 or 6. These include 26% of concrete bridges and 42% of steel bridges.
- The SE region has the lowest percent of decks in good condition, only 51% of decks in good condition and 4% of decks in poor condition. However, this is a 3% improvement from last year, and SE region does have the largest deck area to maintain (14,866,293 ft²).
- The NE region (837 bridges) has the best bridge ratings in the state with 81% of decks in Good condition and an impressive 0% in Poor condition. This is a 2% improvement from last year.

Bridge Maintenance Needs

- Maintenance actions are those recommended by bridge inspectors for each bridge at the time of inspection.
- The following maintenance actions are recommended as needed. As approaches settle, brush continually grows, decks eventually crack and drainage issues arise at wings, these actions become necessary:
 - Expansion Joints Clean
 - Decks Seal Surface Cracks
 - Expansion Joints Seal
 - Miscellaneous Cut Brush
 - Approaches Seal Approach to Paving Block
 - Decks Clean and Sweep Deck/Drains
 - Drainage Repair Washouts / Erosion

Bridge Special Inspection Backlog

- Backlog for bridge inspection is calculated based on the mandatory inspection frequency
 for each inspection type. Bridges without a 'Last Inspection Date' are reported in HSI as
 'Unknown' and are regarded as non-compliant (backlogged) for this report. All bridges
 require initial and biennial routine inspections. Initial inspections, routine inspections,
 and Underwater Diving inspections are the most up to date with 1% of backlogs
 statewide, while Fracture-Critical inspections is the next lowest with only 4% backlog.
- All nine bridges that need Load Posting inspections still need to get inspected (100% backlog), while the backlog for Underwater Probe/visual inspections is 33% (574 bridges still needs this inspection).

Wisconsin 2008: Bridge Condition Distribution

	Duidoss	Deck Area	Commonant	%	of bridges	in condi	in condition	
	Bridges	(ft^2)	Component	Good ¹	Fair ²	Poor ³	Critical ³	
All			Decks	66%	32%	2%	0%	
	5,084	50,071,378	Superstructures	70%	28%	2%	0%	
			Substructures	70%	29%	1%	0%	
	3,506	27,310,158	Decks	72%	26%	2%	0%	
Concrete			Superstructures	79%	20%	1%	0%	
			Substructures	80%	20%	0%	0%	
			Decks	54%	42%	4%	0%	
Steel	1,578	22,761,220	Superstructures	54%	44%	2%	0%	
			Substructures	52%	46%	2%	0%	

Region 2008: Bridge Condition Distribution

Region	Bridges	Deck Area	Component	% of bridges in condition					
region	Dilages	(ft ²)	Component	Good ¹	Fair ²	Poor ³	Critical ³		
			Decks	77%	21%	2%	0%		
NC	637	4,819,859	Superstructures	82%	17%	1%	0%		
			Substructures	81%	18%	1%	0%		
			Decks	81%	19%	0%	0%		
NE 859	8,999,617	Superstructures	81%	18%	1%	0%			
			Substructures	76%	24%	1%	0%		
			Decks	53%	45%	2%	0%		
NW	1,067	9,459,791	Superstructures	67%	31%	2%	0%		
			Substructures	69%	29%	2%	0%		
			Decks	51%	45%	4%	0%		
SE	1,055	14,866,293	Superstructures	51%	47%	2%	0%		
			Substructures	53%	46%	1%	0%		
		11,925,818	Decks	73%	24%	3%	0%		
SW	1,466		Superstructures	75%	23%	2%	0%		
la i b		7.01	Substructures	77%	22%	1%	0%		

¹Good: Bridges with NBI rating 7-9 should receive Preventive Maintenance

²Fair: Bridges with NBI 5-6 should receive Reactive Maintenance. These bridges are considered backlogged for maintenance

³Poor and Critical: Bridges with NBI 0-4 should receive Rehabilitation or Replacement.

Wisconsin and Regions 2008: Bridge Condition

		Percent	of Bridges Feature i	n Fair condition	Number of	Dollar
Region	Year	Decks	Superstructures	Substructures	state- maintained bridges	spent on bridges (in millions)
	2006	19%	14%	17%	604	
NC	2007	21%	15%	17%	620	
	2008	21%	17%	18%	637	
	2006	23%	15%	27%	771	
NE	2007	21%	17%	25%	837	
	2008	19%	18%	24%	859	
	2006	44%	35%	34%	1040	
NW	2007	47%	32%	31%	1067	
	2008	45%	31%	29%	1067	
	2006	51%	52%	51%	1034	
SE	2007	48%	50%	50%	1023	
	2008	45%	47%	47%	1055	
	2006	24%	20%	16%	1451	
SW	2007	24%	22%	18%	1462	
	2008	24%	23%	22%	1466	
	2006	33%	29%	29%	4900	\$10.50
statewide	2007	33%	28%	29%	5007	\$11.40
	2008	32%	28%	29%	5084	\$11.78

Wisconsin and Regions 2008: Bridge Maintenance Needs

			Percent	of Brid	lges ne	eeding	mainte	enance		# o1	Bridge	s needi	ing ma	intenar	nce
							Mai	intenar	ice Ac	tion					
								Appro	oach						
Region	Year							- Sea	1			Drain	age -		
		Deck-	– Seal	Expar				Appro				Repai	r	Appro	
		Surfac		Joints	_	Misc.		to Pay	_	Deck-		Wash		- Wed	lge
		Crack		Seal		Cut B		Block		Patchi	_	/ Eros	sion	Appro	
	2006	24%	144	8%	48	2%	12	1%	4	10%	61	1%	8	2%	14
NC	2007	39%	241	11%	66	4%	24	1%	5	12%	75	2%	11	3%	17
	2008	45%	287	22%	141	7%	42	2%	11	16%	101	8%	48	4%	26
	2006	13%	102	22%	167	2%	18	2%	15	6%	48	7%	56	1%	5
NE	2007	18%	150	25%	209	4%	32	4%	37	9%	78	9%	78	1%	11
	2008	21%	182	28%	238	6%	53	12%	107	12%	103	13%	115	2%	13
	2006	8%	78	1%	11	8%	85	17%	175	4%	37	5%	50	3%	31
NW	2007	7%	77	2%	24	5%	57	16%	174	4%	37	4%	45	2%	25
	2008	2%	22	3%	28	1%	16	5%	51	3%	29	5%	49	1%	14
	2006	12%	122	15%	150	13%	138	6%	63	8%	87	11%	112	11%	109
SE	2007	14%	140	18%	181	17%	174	9%	89	9%	96	12%	121	12%	126
	2008	15%	153	19%	203	21%	226	14%	147	11%	121	13%	140	14%	147
	2006	8%	114	3%	39	5%	68	5%	74	2%	33	3%	46	4%	65
SW	2007	13%	188	4%	51	12%	174	10%	146	4%	65	6%	83	7%	95
	2008	18%	260	4%	61	18%	257	14%	203	6%	94	9%	131	9%	138
	2006	11%	560	8%	415	7%	321	7%	331	5%	266	6%	272	5%	224
statewide	2007	16%	796	11%	531	9%	461	9%	451	7%	351	7%	338	5%	274
	2008	17%	904	12%	671	11%	594	10%	519	8%	448	9%	483	6%	338

Wisconsin and Regions 2008: Bridge Special Inspection Backlog

Inspection backlogs are shown as 'percent of bridges in the county/region/state requiring this type of inspection'. Shown under the percentages are the numbers of bridges backlogged for that inspection type in the county/region/state. Data was extracted from WisDOT's Highway Structures Information System on-line reports.

The special inspection types have a mandatory inspection frequency. The inspection frequencies for each special inspection are as follows:

• Initial: After construction and major rehabilitations, or 48 months

Routine: 24 monthsLoad Posted: 12 monthsIn-depth: 72 months

Fracture Critical: 24 months
 Underwater Diving: 60 months
 Underwater Probe/Visual: 24 months

			Special Specia		r inspection		
Region	Initial	Routine	Load Posted	In-depth	Fracture Critical		Underwater Probe/Visual
NC	2%	0%		7%	0%	0%	44%
NC	2	1		3	0	0	156
NE	0%	1%	100%	29%	3%	0%	34%
NE	0	8	5	4	1	0	85
NW	0%	0%	100%	83%	6%	1%	22%
IN VV	0	1	2	10	1	1	114
SE	2%	2%	100%	8%	10%	13%	46%
SE	2	25	9	7	1	1	120
SW	2%	1%	100%	0%	3%	2%	28%
S W	3	10	3	9	1	2	99
Statewide	1%	1%	100%	19%	4%	1%	33%
Statewide	7	45	19	33	4	4	574

Appendices

- A. Program Contributors
- **B.** Feature Thresholds and Grade Ranges
- C. Feature Contribution Categories
- D. 2008 Maintenance Targets
- E. 2008 Compass Rating Sheet
- F. County Data:
 - 1. Field Review: Traffic, Shoulders, Drainage and Roadside
 - 2. Signs (routine replacement needs)
 - 3. Bridge Maintenance Needs

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The Wisconsin Department of Transportation appreciates the significant contributions to the Compass program that were made by the following people:

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2008 Certified Compass Raters

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Gary Bauer, Pepin County Mike Bausch, Iron County Jerry Boettcher, Eau Claire County Dennis Bonnell, Waupaca County Lance Burger, WisDOT NW Region Michael Burke, WisDOT NW Region Chuck Buss, Green Lake County Grant Bystol, Shawano County Terry Cilley, Juneau County John Czarnecki, Sawyer County Brandon Dammann, Wood County Dan Davis, WisDOT NE Region Marc Davison, Oneida County John Delaney, WisDOT SW Region William Demler, Winnebago County Jeff DeMuri, Florence County Jeff Fish, Vernon County Jim Garcia, WisDOT SE Region Paul Gingras, WisDOT NW Region Hank Graber, Washburn County Don Grande, Ashland County Susan Greeno-Eichinger, WisDOT NC Region Mark Gruentzel, Menominee County Tim Hammes, La Crosse County Robert Hanifl, WisDOT SW Region Gus Hanold, WisDOT NE Region Jim Harer, St. Croix County Ron Hintz, WisDOT NC Region Todd Hogan, WisDOT SW Region Mike Huber, Burnett County Brandon Hytinen, WisDOT NE Region Jason Jackman, Douglas County Jerry Jagmin, Lincoln County Gerald Kast, Monroe County Stuart Kastein, Fond du Lac County Ed Kazik, Brown County Kevin Kent, Milwaukee County Jon Knautz, Grant County Patrick Kotlowski, Adams County Don Kreft, Walworth County Keith Larson, Bayfield County Michael Larson, WisDOT NW Region Kevin Leffler, Florence County Mark Leibham, Sheboygan County Wayne Lien, Trempealeau County Russ Marske, Barron County Dick Marti, Green County Andrea Maxwell, WisDOT SE Region Hal Mayer, Rock County Jeff McLaughlin, Waukesha County

Brenda McNallan, WisDOT NW Region Carl Meverden, Marinette County Randy Miller, Washington County Michael Mischnick, Calumet County George Molnar, Price County Mark Mullikin, Walworth County Todd Myers, Crawford County John Nelson, Columbia County Gordy Nesseth, Barron County Bill Niederer, Kenosha County Pat Nolan, Racine County Emil "Moe" Norby, Polk County Clair "Jeep" Norris, WisDOT SW Region Charles Oleinik, WisDOT NC Region Donnie Olsen, Jackson County Shaun Olson, Dane County Al Olson, Oconto County Bill Patterson, Waushara County Jon Pauley, Monroe County Tim Pawelski, WisDOT NW Region Kevin Peiffer, WisDOT SE Region Lance Penney, Waupaca County Dale Petersen, Portage County Carl "Buzz" Peterson, Lafayette County Gregg Peterson, Manitowoc County Patricia Pollock, WisDOT NW Region Rick Potter, Juneau County Dennis Premo, Adams County Larry Price, Walworth County Bill Prue, WisDOT NE Region Dan Raczkowski, Marathon County Perry Raivala, WisDOT NW Region Gale Reinecke, Dunn County Louis Revoir, Chippewa County Randal Richardson, Richland County Michael Roberts, WisDOT SW Region Dave Rogers, WisDOT NC Region Jess Sackmann, Taylor County

Chuck Saldivar, WisDOT SE Region Diane Scherrman, WisDOT NW Region Dennis Schmunck, WisDOT SE Region Stacy Shampo, Forest County Ken Stock, Dodge County Pete Strachan, WisDOT SW Region Randy Sudmeier, Iowa County William Tackes, Ozaukee County Raymond Thomas, Florence County John Thompson, Kewaunee County Michael Thompson, Buffalo County Alan Thoner, Pierce County Jarrod Turk, WisDOT SW Region Paul Van Beek, Marinette County Paul Vetter, Dane County Don Walker, Clark County Ken Washatko, Langlade County Allen Washinawatok, Menominee County Jack Yates, Marquette County

Additional Compass Resources

Mike Adams, WisDOT Central Office (winter)
Dr. Teresa Adams, University of Wisconsin - Madison (data analysis, report)
Dave Babler, WisDOT Central Office (bridge)
Scott Erdman, WisDOT Central Office (segment data)
Chuck Failing, WisDOT Central Office (mapping)
Emil Juni, University of Wisconsin - Madison (data analysis, report)
Mary Kirkpatrick, WisDOT Central Office (desktop publishing)
Mike Malaney, WisDOT Central Office (pavement)
Tim Nachreiner, WisDOT Central Office (database,

Rating Sheets)
Matt Rauch, WisDOT Central Office (signs)
Mike Sproul, WisDOT Central Office (winter)

B. Compass Feature Thresholds and Grade Ranges

Element	Feature	Threshold	Ranges for System Grades Grade determined by percent backlogged shown: top of range					
			A	В	С	D	F	
Traffic control &	Centerline markings	Line with > 20% paint missing (by mile)	2%	5%	9%	15%	>15%	
safety devices	Edgeline markings	Line with > 20% paint missing (by mile)	4%	9%	18%	30%	>30%	
(selected)	Delineators	Missing OR not visible at posted speed OR damaged (by delineator)	5%	12%	23%	40%	>40%	
	Detour/object marker/recreation/guide signs (emergency repair)	Missing OR not visible at posted speed (by sign)	4%	9%	18%	30%	>30%	
	Detour/object marker/recreation/guide signs (routine)		7%	18%	35%	60%	>60%	
	Protective barriers	Not functioning as intended (linear feet of barrier)	4%	9%	18%	30%	>30%	
	Regulatory/warning signs (emergency repair)	Missing OR not visible at posted speed (by sign)	2%	5%	9%	15%	>15%	
	Regulatory/warning signs (routine)	Beyond recommended service life (by sign)	5%	12%	23%	40%	>40%	
	Special pavement markings	Missing OR not functioning as intended (by marking)	5%	12%	23%	40%	>40%	
Shoulders	Hazardous debris	Any items large enough to cause a safety hazard (by mile)	2%	5%	9%	15%	>15%	
	Cracking on paved shoulder	200 linear feet or more of unsealed cracks > \(^{1}\)4 inch (by mile)	7%	18%	35%	60%	>60%	
	Potholes/raveling on paved shoulder	Any potholes OR raveling > 1 square foot by 1 inch deep (by mile)	6%	15%	29%	50%	>50%	
	Cross-slope on unpaved shoulder	200 linear feet or more of cross-slope at least 2x planned slope with the maximum cross slope of 8% (by mile)	7%	18%	35%	60%	>60%	
	Drop-off/build-up on unpaved shoulder	200 linear feet or more with drop-off or build-up > 1.5 inches (by mile)	2%	5%	9%	15%	>15%	
	Erosion on unpaved shoulder	200 linear feet or more with erosion >2 inches deep (by mile)		18%	35%	60%	>60%	
Drainage	Culverts	OR where a sharp object - e.g., a shovel-can be pushed through the bottom of the pipe OR pipe is collapsed or separated (by culvert)	7%	18%	35%	60%	>60%	

Element	Feature	Threshold	Ranges for System Grades Grade determined by percent backlogged shown: top of range					
			A	В	С	D	F	
	Curb & gutter	Curb & gutter with severe structural distress OR >1 inch structural misalignment OR >1 inch of debris build-up in the curb line (by linear feet of curb & gutter)	9%	22%	41%	70%	>70%	
	Ditches	Ditch with greater than minimal erosion of ditch line OR obstructions to flow of water requiring action (by linear feet of ditch)	7%	18%	35%	60%	>60%	
	Flumes	Not functioning as intended OR deteriorated to the point that they are causing erosion (by flume)	7%	18%	35%	60%	>60%	
	Storm sewer system	Inlets, catch basins, and outlet pipes with >=50% capacity obstructed OR <80% structurally sound OR >1 inch vertical displacement or heaving OR not functioning as intended (by inlet, catch basin & outlet pipes)	7%	18%	35%	60%	>60%	
	Under-drains/edge-drains	Under- and edge-drains with outlets, endwalls or end protection closed or crushed OR water flow or end protection is obstructed (by drain)	9%	22%	41%	70%	>70%	
	Fences	Fence missing OR not functioning as intended (by LF of fence)	4%	9%	18%	30%	>30%	
	Litter	Any pieces of litter on shoulders and roadside visible at posted speed, but not causing a safety threat. (by mile)	10%	25%	47%	80%	>80%	
	Mowing	Any roadside has mowed grass that is too short, too wide or is mowed in a no-mow zone (by mile)	10%	25%	47%	80%	>80%	
Roadsides	Mowing for vision	Any instances in which grass is too high or blocks a vision triangle (by mile)	4%	9%	18%	30%	>30%	
	Noxious weeds	Any visible clumps (by mile)	7%	18%	35%	60%	>60%	
	Woody vegetation control	Any instances in which a tree is present in the clear zone OR trees and/or branches overhang the roadway or shoulder creating a clearance problem (by mile)	4%	9%	18%	30%	>30%	
	Woody vegetation control for vision	Any instances in which woody vegetation blocks a vision triangle (by mile)	4%	9%	18%	30%	>30%	

C. Feature Contribution Categories

				ıre Contribute	s Primarily To:	
Element	Feature	Critical Safety	Safety/ Mobility	Ride/ Comfort	Stewardship	Aesthetics
	Alligator Cracking				✓	
	Block Cracking				✓	
	Edge Raveling				✓	
	Flushing				✓	
	Longitudinal Cracking				✓	
Asphalt Traveled	Longitudinal Distortion			✓		
Way	Patch Deterioration			✓		
	Rutting	✓				
	Surface Raveling			✓		
	Transverse Cracking				✓	
	Transverse Distortion			✓		
	Distressed Joints/Cracks			✓		
	Longitudinal Joint Distress			✓		
Concrete Traveled	Patch Deterioration			✓	_	
Way	Slab Breakup			✓		
	Surface Distress				✓	
	Transverse Faulting			✓		

			This Featu		es Primarily To:	
Element	Feature	Critical Safety	Safety/ Mobility	Ride/ Comfort	Stewardship	Aesthetics
	Centerline Markings	✓				
	Delineators		✓			
	Edgeline Markings		✓			
Traffic and Safety	Detour/object marker/recreati on/guide signs (emerg. repair)		✓			
	Detour/object marker/recreati on/guide signs (routine repair)			√		
	Protective Barriers		✓			
	Reg./Warning Signs (emerg.)	✓				
	Reg./Warning Signs (routine)		✓			
	Special Pavement Markings		✓			
	Hazardous Debris	✓				
	Cracking (paved)				✓	
Ch ould	Potholes/Ravel- ing (paved)			✓		
Shoulders	Cross-Slope (unpaved)			✓		
	Drop-off/Build- up (unpaved)	✓				
	Erosion (unpaved)				✓	

			This Feat	ure Contribu	tes Primarily To:	
Element	Feature	Critical Safety	Safety/ Mobility	Ride/ Comfort	Stewardship	Aesthetics
	Culverts				✓	
	Curb & Gutter				✓	
	Ditches				✓	
	Flumes				✓	
Drainage	Storm Sewer System				✓	
	Under- drains/Edge- drains				✓	
	Fences		✓			
	Litter					✓
	Mowing		✓			
	Mowing for Vision		✓			
Roadside	Noxious Weeds				✓	
	Woody		√			
	Vegetation					
	Woody Veg. Control for Vision		✓			

Category Definitions:

<u>Critical safety:</u> Critical safety features that would necessitate immediate action – with overtime pay if necessary - to remedy if not properly functioning.

<u>Safety:</u> Highway features and characteristics that protect users against – and provide them with a clear sense of freedom from – danger, injury or damage.

<u>Ride/comfort:</u> Highway features and characteristics, such as ride quality, proper signing, or lack of obstructions, that provide a state of ease and quiet enjoyment for highway users.

Stewardship: Actions taken to help a highway element obtain its full potential service life.

<u>Aesthetics:</u> The display of natural or fabricated beauty items, such as landscaping or decorative structures, located along a highway corridor. Also, the absence of things like litter and graffiti, that detract from the sightlines of the road.

WisDOT Highway Operations 2008 Target Service Levels

January 22, 2008

Issued by David Vieth, Director of the Bureau of Highway Operations

Attached are the 2008 target service levels for highway operations. Highway operations managers expect these targets to provide guidance to central and regional highway operations staff in selecting activities and expending resources. The 2008 targets will help structure the process for developing 2008 Routine Maintenance Agreements.

Targets are the conditions expected on state highways at the end of the summer maintenance season. They were selected by highway operations managers in the regions and BHO to set priorities within the budget, and to increase consistency across region and county lines.

The condition measure used is the percent of inventory with backlogged maintenance work. A measure greater than 0% backlogged reflects work left undone at the end of the summer season. Under full funding of operations needs, we would expect to see features at or close to 0%. The following chart provides historical service levels statewide and by region for 2006. Please remember that targets have not yet been set for a portion of highway operations expenditures including winter operations, certain traffic devices and electrical operations.

Targets do not necessarily reflect an optimal maintenance condition for the highways, but instead reflect organizational priorities, existing highway conditions, and dollars available. It is assumed that all highway operations staff is doing the best job possible, given constrained resources. These organizational priorities include:

- Focusing our resources on keeping the system safe and operating from day to day. Highway operations will:
 - Decrease the amount of hazardous debris on shoulders.
 - Decrease drop-off on unpaved shoulders.
 - Increase the routine replacement of regulatory and warning signs.
- Expending far fewer resources based on limited funding.
 - Activities that address pavement cracking, noxious weeds and fence maintenance will be done infrequently, and primarily to address safety concerns. Litter removal and mowing will be reduced over time and will also have a safety focus.
 - No maintenance of lane-line raised pavement markers and other wet reflective markings.
 Special pavement markings will only be addressed for the most critical safety needs.
 Some edgeline markings will be deferred due to reduced funding.
- Leveraging improvements that can decrease the maintenance workload.
 - Now and going forward, operations managers will step up their work with the improvement program to decrease pavement rutting and to improve culverts.

Thank you to Scott Bush and the Compass program for coordinating this effort and preparing this report.

D. 2008 Highway Operations Targets

Element	Feature	2004	2005	2006	2007	2004	2005	2006	2008
		Target	Target	Target	Target	Actual	Actual	Actual	Target
		Percent							
		Backlogged							
		and Feature							
		Grade -							
		Statewide	Statewide	Statewide	Statewide	Statewide	Statewide	Statewide*	Statewide
Asphalt	Alligator Cracking	3=A	5=A	5=A	5=A	1=A	1=A	2=A	5=A
Traveled									
Way									
	Block Cracking	5=A	5=A	5=A	5=A	3=A	3=A	2=A	5=A
	Edge Raveling	15=B	15=B	18=B	20=C	15=B	15=B	17=B	20=C
	Flushing	1=A	1=A	1=A	1=A	0=A	0=A	0=A	1=A
	Longitudinal Cracking	21=C	25=C	28=C	30=C	26=C	26=C	62=F	30=C
	Longitudinal Distortion	0=A	1=A	1=A	1=A	0=A	0=A	0=A	1=A
	Patch Deterioration	10=B	10=B	10=B	10=B	9=B	9=B	7=B	10=B
	Rutting	17=F	15=D	13=D	10=D	9=C	9=C	7=B	7=B
	Surface Raveling	2=A	2=A	2=A	2=A	1=A	1=A	0=A	2=A
	Transverse Cracking	24=C	25=C	28=C	30=C	24=C	24=C	62=F	30=C
	Transverse Distortion	5=A	5=A	5=A	5=A	1=A	1=A	0=A	5=A
Concrete	Distressed	43=D	43=D	43=D	43=D	34=D	33=D	18=C	43=D
Traveled	Joints/Cracks								
Way									
	Longitudinal Joint Distress	27=C	27=C	27=C	27=C	21=C	21=C	0=A	27=C
	Patch Deterioration	30=D	30=D	30=D	30=D	28=C	28=C	18=C	30=D
	Slab Breakup	44=D	45=D	45=D	45=D	45=D	44=D	29=C	45=D
	Surface Distress	25=C	25=C	25=C	25=C	20=C	20=C	8=B	25=C

	Transverse Faulting	80=F	75=F	75=F	75=F	74=F	74=F	61=F	75=F
Traffic and Safety	Centerline Markings	6=C	5=B	5=B	6=C	5=B	5=B	4=B	5=B
	Delineators	15=C	15=C	25=D	25=D	21=C	24=D	21=C	25=D
	Edgeline Markings	6=B	6=B	6=B	7=B	7=B	5=B	6=B	6=B
	Detour/object marker/recreation/guide signs (emerg. repair)	15=C	1=A	1=A	1=A	0=A	1=A	1=A	1=A
	Detour/object marker/recreation/guide signs (routine repair)		50=D	65=F	70=F	46=D	59=D	55=D	70=F
	Protective Barriers	9=B	3=A	3=A	3=A	3=A	4=A	4=A	3=A
	Reg./Warning Signs (emerg.)	6=C	0=A	0=A	0=A	1=A	1=A	1=A	0=A
	Reg./Warning Signs (routine)		40=D	35=D	30=D	36=D	41=F	31=D	25=D
	Special Pavement Markings	21=C	25=D	25=D	25=D	13=C	5=A	3=A	25=D
Shoulders	Hazardous Debris	6=C	6=C	6=C	6=C	13=D	12=D	13=D	6=C
	Cracking (paved)	50=D	60=D	60=D	60=D	51=D	52=D	50=D	60=D
	Potholes/Raveling (paved)	12=B	10=B	10=B	10=B	5=A	7=B	5=A	10=B
	Cross-Slope (unpaved)	9=B	20=C	20=C	20=C	15=B	14=B	25=C	20=C
	Drop-off/Build-up (unpaved)	34=F	35=F	30=D	25=D	37=F	36=F	40=F	20=D
	Erosion (unpaved)	8=B	5=A	5=A	5=A	3=A	3=A	3=A	5=A
Drainage	Culverts	13=B	15=B	15=B	15=B	17=B	18=B	15=B	15=B

	Curb & Gutter	8=A	8=A	10=B	10=B	6=A	7=A	8=A	10=B
	Ditches	2=A	2=A	2=A	2=A	2=A	2=A	3=A	5=A
	Flumes	14=B	30=C	30=C	30=C	32=C	19=C	27=C	30=C
	Storm Sewer System	8=B	10=B	10=B	10=B	9=B	9=B	9=B	10=B
	Under-drains/Edge- drains	11=B	20=B	25=C	25=C	14=B	20=B	13=B	25=C
Roadside	Fences	16=C	14=C	14=C	14=C	4=A	2=A	3=A	14=C
	Litter	71=D	75=D	75=D	75=D	70=D	62=D	64=D	75=D
	Mowing	58=D	40=C	40=C	40=C	40=C	35=C	39=C	40=C
	Mowing for Vision	5=B	5=B	5=B	5=B	26=D		2=A	5=B
	Noxious Weeds	48=D	50=D	50=D	50=D	30=C	29=C	34=C	61=F
	Woody Vegetation	7=B	5=B	5=B	5=B	4=A	3=A	3=A	5=B
	Woody Veg. Control for Vision	5=B	5=B	3=A	3=A	1=A	1=A	1=A	3=A

E. 2008 Compass Rating Sheet



«MySegment», **«MyRoute**», **«**MyCounty», **«**MyDistrict» Directions: **«**PrimaryDir» Alternate Directions: **«**AltDir»

add the next higher A piece or all or We believe it w	est numbe f the segr ould be u	arded for the following reasons. If this segment meets one of the ered "spare" segment to your list of segments to be rated. Pleas ment falls on a bridge. In A piece or all of the unsafe to rate this segment. In We cannot locate the an WisDOT is responsible for the maintenance of ANY of the four	et reason in the ently under cor	database.	
Shoulders	Stand	ard		Value	Comments
Hazardous Debris (S-1)	Numbe	er of items large enough to cause a safety hazard			
Paved Shoulde	r 🗆 N	one (If none, skip to Unpaved Shoulder)			
Cracking (S-2)		ft. of unsealed cracks greater than ¼" (up to 150' on un n divided hwy)			
Potholes/ Raveling (S-3)	Total so	q. ft. of BOTH potholes AND raveling greater than 1 ft 2 x 1	" deep		
Unpaved Shou	lder □	None (If none, skip to Drainage)			
Drop off/ build-up (S-4)	Linear	ft. of <u>paved-to-unpaved</u> drop-off/build-up greater than	1.5"		
Cross Slope (S-5)	Linear	ft. with unpaved cross slope greater than 2x planned an	gle		
Erosion (S-6)	Linear	ft. with ruts deeper than 2 inches			
Drainage			Value & Rep	oair/Clean	Comments
Ditches (D-1)	□ None	Total linear ft. of ditch Linear ft. with more than minimal erosion of ditch line OR obstructions to the flow of water requiring action		Repair	
Culverts (D-2)	□ None	Total number of culverts Number more than 25% obstructed OR where a sharp object (a shovel) can be pushed thru bottom of pipe OR pipe is collapsing		Repair	
Under/ Edge Drain (D-3)	□ None	Total number of drains. Number with outlets, endwalls or end protection closed or crushed OR where water flow or end protection is obstructed.		□ Repair	
Flumes (D-4)	□ None	Total number of flumes. Number not functioning as intended OR deteriorated to the point that they are causing erosion.		□ Repair	
Curb & Gutter (D-5)	□ None	Total linear ft. of curb and gutter. Linear ft. with severe structural distress OR more than 1" structural misalignment OR more than 1" of debris build up in the curb line.	_	□ Repair	
Storm Sewer (D-6)	□ None	Total number of inlets, catch basins and outlet pipes. Number with more than 50% capacity obstructed OR less than 80% structurally sound OR more than 1" vertical displacement OR not functioning as intended.			

Roadsides			Value	Comments
⇔ Litter (R-1)		er of pieces (up to 15) of litter & non-natural encroachments on ers & roadside visible at posted speed, but not causing a safety		
Mowing (R-2)	If NO	g meets standard. D, grass is mowed: too wide too short too tall in a no mow zone D, why: safety/equipment mowed by property owner woody vegetation control maintenance decision	□yes □no	
⊜ Mowing Vision (R-2)	□ None	Grass blocks a vision triangle or sightlines	□yes □no	
Noxious Weeds (R-3)	Visible	clumps of noxious weeds are present	□yes □no	
Woody Vegetation (R-4)	zone C	er of instances in which a tree > 4" in diameter is present in the clear of trees and/or branches overhang the roadway or shoulder creating trance problem		
₩oody Vegetation Vision (R-4)	Woody	vegetation causes a vision problem	□yes □no	
Fences (R-5)	□ None	Total linear ft. of right-of-way fence. Linear ft. missing OR not functioning as intended.		

Traffic Control	and Saf	ety	Value	Comments
Centerline Markings (T-1)	□ None	Over total segment, > 20% centerline paint missing.	□yes □no	
Edgeline Markings (T-1)	□ None	Over total segment, > 20% edgeline paint missing.	□yes □no	
Special Pavement Markings (T-2)	□ None	Total number Number missing OR not functioning as intended.		
Regulatory/ Warning Signs (T-3)	□ None	Total number Number missing OR not visible at posted speed		
Other Signs (T-4)	□ None	Total number Number missing OR not visible at posted speed		
Delineators (T-5)	□ None	Total number Number missing OR not visible at posted speed OR damaged		
Protective Barriers (T-6)	□ None	Total linear ft. of beam guard, concrete barrier, and cable guard. Linear ft. of protective barriers not functioning as intended and type of deficient protective barrier(s)	☐ Beam Guard ☐ Damaged Terminal ☐ Concrete Barrier ☐ Cable Guard	

 $[\]Rightarrow$ Indicates some or all of feature rating must be completed while driving at posted speed OR rated through the eyes of a driver traveling at posted speed.

1/10-mile	528 ft
X2	1056 ft
Х3	1584 ft
X4	2112 ft

Rating Sheets should be entered into your laptop database and the ratings should be emailed or given to your LAN administrator **by October 16, 2008**

Questions? Please call Scott Bush, Compass Program Manager at 608-266-8666 or email him at scott.bush@dot.state.wi.us

F. County Data

Counties 2008: Traffic and Shoulders

							%	Condition backlogg observat	ed						
				ı	Traffic				Shoulders						
Region	County	Centerline	Delineators	Edgeline Markings	Detour/object marker/recreation/guide Signs (emergency repair)	Protective Barriers	Reg./Warn. Signs (emergency repair)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)	
	·	0%		0%	0%		0%		0%	27%	9%	9%	43%	0%	
NC	ADAMS	11		11	1		3		11	11	11	11	7	7	
		0%		0%		100%	0%		0%	60%	0%	0%	60%	0%	
	FLORENCE	5		5		1	3		5	5	5	5	5	5	
		0%		0%	0%	0%	0%		0%	43%	0%	44%	56%	0%	
	FOREST	11		9	9	1	8		11	7	7	9	18	18	
		0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	
	GREEN LAKE	5	1	5	1	1	1	1	5	5	5	5	2	2	
		5%		42%	0%		0%		11%	29%	0%	26%	9%	0%	
	IRON	19		19	2		4		19	7	7	19	11	11	
		0%	0%	0%	0%		0%		0%	29%	0%	5%	21%	0%	
	LANGLADE	20	1	20	3		4		20	14	14	20	19	19	

					Traffic				Shoulders						
Region	County	Centerline	Delineators	Edgeline Markings	Detour/object marker/recreation/guide Signs (emergency repair)	Protective Barriers	Reg./Warn. Signs (emergency repair)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)	
		0%	0%	0%	0%		0%	0%	13%	71%	21%	36%	39%	0%	
	LINCOLN	15	2	15	3		10	2	15	14	14	14	18	18	
		0%	22%	0%	0%	0%	0%	25%	5%	71%	18%	20%	44%	0%	
	MARATHON	21	6	21	6	1	13	5	21	17	17	20	27	27	
		0%	7%	0%	0%	0%	0%		0%	50%	0%	0%	71%	0%	
	MARQUETTE	10	3	10	5	1	4		10	10	10	10	14	14	
		0%		67%	0%		0%		0%	0%	0%	0%	100%	0%	
	MENOMINEE	4		3	1		1		4	1	1	3	2	2	
		0%		0%	0%		0%	0%	0%	50%	0%	5%	31%	0%	
	ONEIDA	23		23	6		7	1	23	22	22	22	13	13	
		0%	36%	0%	0%		0%	0%	21%	67%	0%	14%	0%	0%	
	PORTAGE	14	4	14	6		6	2	14	12	12	14	13	13	
		0%	0%	0%	0%	0%	0%		6%	36%	9%	19%	8%	0%	
	PRICE	16	1	16	3	1	3		16	11	11	16	13	13	
		0%	0%	0%	0%		5%	0%	22%	81%	0%	59%	50%	0%	
	SHAWANO	18	2	17	4		7	1	18	16	16	17	12	12	

					Traffic				Shoulders						
Region	County	Centerline	Delineators	Edgeline Markings	Detour/object marker/recreation/guide Signs (emergency repair)	Protective Barriers	Reg./Warn. Signs (emergency repair)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)	
		0%	100%	8%	0%	14%	0%		23%	67%	0%	23%	67%	7%	
	VILAS	13	1	13	7	2	7		13	9	9	13	15	15	
		0%	0%	21%	0%		0%	0%	14%	13%	0%	21%	38%	0%	
	WAUPACA	14	2	14	13		10	1	14	8	8	14	16	16	
		0%		0%	7%		0%	0%	0%	0%	0%	9%	0%	0%	
	WAUSHARA	11		11	7		7	1	11	9	9	11	11	11	
		10%		10%	0%		0%	0%	0%	0%	0%	13%	56%	0%	
	WOOD	10		10	7		5	3	10	4	4	8	16	16	
		4%	14%	4%	0%	4%	0%	14%	8%	76%	4%	13%	86%	3%	
NE	BROWN	25	17	25	18	5	16	5	25	25	25	24	29	29	
		0%		0%	0%		0%	0%	22%	56%	11%	0%	20%	0%	
	CALUMET	9		9	7		6	2	9	9	9	8	15	15	
		0%		0%	0%		0%	0%	5%	58%	5%	21%	54%	8%	
	DOOR	20		20	3		11	3	20	19	19	19	13	13	
		3%	60%	0%	0%	18%	0%	0%	3%	83%	7%	31%	57%	0%	
	FOND DU LAC	30	4	29	6	2	13	7	30	29	29	29	28	28	

					Traffic				Shoulders					
Region	County	Centerline	Delineators	Edgeline Markings	Detour/object marker/recreation/guide Signs (emergency repair)	Protective Barriers	Reg./Warn. Signs (emergency repair)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)
		0%		0%	0%		0%	50%	0%	56%	0%	56%	50%	0%
	KEWAUNEE	9		9	4		3	2	9	9	9	9	8	8
		0%	0%	0%	0%		0%	0%	0%	92%	23%		56%	0%
	MANITOWOC	13	4	13	10		10	3	13	13	13		16	16
		3%	14%	0%	0%	0%	8%	0%	3%	68%	4%	13%	35%	0%
	MARINETTE	31	2	31	12	1	12	2	31	28	28	31	23	23
		0%	10%	0%	0%	0%	0%		0%	44%	0%	0%	19%	0%
	OCONTO	27	6	27	8	2	5		27	25	25	27	21	21
		0%	13%	0%	0%	0%	0%	0%	25%	35%	5%	13%	38%	0%
	OUTAGAMIE	24	8	24	13	8	12	4	24	20	20	23	24	24
		4%	3%	4%	0%	0%	0%	0%	19%	38%	4%	20%	40%	0%
	SHEBOYGAN	26	6	25	10	2	9	5	26	26	26	25	25	25
		0%	5%	0%	0%	0%	0%	18%	5%	18%	0%	0%	38%	3%
	WINNEBAGO	22	6	21	14	3	10	5	22	22	22	3	29	29
		30%		20%	0%		0%		0%	33%	11%	20%	36%	0%
NW	ASHLAND	10		10	2		4		10	9	9	10	11	11

		Traffic							Shoulders					
Region	County	Centerline	Delineators	Edgeline Markings	Detour/object marker/recreation/guide Signs (emergency repair)	Protective Barriers	Reg./Warn. Signs (emergency repair)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)
		17%	0%	0%	0%		0%	0%	17%	67%	0%	33%	38%	0%
	BARRON	6	1	6	8		4	1	6	6	6	6	16	16
		0%		10%	0%	0%	0%		0%	50%	17%	30%	33%	0%
	BAYFIELD	10		10	4	1	5		10	6	6	10	12	12
		9%	40%	36%	0%	12%	0%		0%	71%	29%	82%	87%	0%
	BUFFALO	11	1	11	3	1	8		11	7	7	11	15	15
		0%	0%	0%	17%	0%	0%	0%	0%	25%	0%	0%	57%	0%
	BURNETT	6	1	6	4	1	6	1	6	4	4	6	7	7
		4%	0%	4%	0%	0%	0%	0%	0%	14%	0%	0%	27%	0%
	CHIPPEWA	23	3	23	5	1	6	1	23	21	21	23	15	15
		0%	5%	0%	0%	0%	0%		0%	38%	0%	0%	31%	0%
	CLARK	13	3	13	6	3	4		13	13	13	13	16	16
		0%		0%			0%		0%	50%	0%	0%	50%	0%
	DOUGLAS	9		9			2		9	8	8	9	8	8
		0%	19%	0%	0%	0%	0%		7%	57%	14%	27%	36%	9%
	DUNN	15	3	15	3	2	3		15	14	14	15	11	11

					Traffic						Sho	ulders		
Region	County	Centerline	Delineators	Edgeline Markings	Detour/object marker/recreation/guide Signs (emergency repair)	Protective Barriers	Reg./Warn. Signs (emergency repair)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)
		0%	6%	0%	0%	0%	0%	0%	21%	85%	8%	0%	33%	0%
	EAU CLAIRE	14	7	13	5	4	7	5	14	13	13	12	15	15
		8%	0%	8%	0%	0%	0%	0%	0%	50%	10%	23%	47%	0%
	JACKSON	13	4	13	3	3	3	1	13	10	10	13	15	15
		0%		0%	0%		0%		0%	80%	0%	60%	100%	100%
	PEPIN	5		5	1		1		5	5	5	5	1	1
		0%	37%	0%	0%	1%	0%	0%	14%	80%	0%	0%	18%	0%
	PIERCE	7	7	7	4	7	6	1	7	5	5	7	11	11
		5%	0%	0%	0%		0%	0%	9%	33%	10%	50%	38%	0%
	POLK	22	1	22	6		8	1	22	21	21	22	13	13
		0%		0%	0%		0%	0%	0%	11%	11%	56%	30%	0%
	RUSK	9		9	2		4	1	9	9	9	9	10	10
		6%	0%	0%	0%		0%		0%	7%	0%	6%	38%	0%
	SAWYER	17	2	17	4		4		17	14	14	17	13	13
		5%	5%	5%	0%	0%	0%		11%	68%	5%	26%	10%	0%
	ST. CROIX	19	6	19	6	1	7		19	19	19	19	20	20

					Traffic						Shou	ulders		
Region	County	Centerline	Delineators	Edgeline Markings	Detour/object marker/recreation/guide Signs (emergency repair)	Protective Barriers	Reg./Warn. Signs (emergency repair)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)
		0%		0%	0%		0%	0%	0%	44%	0%	0%	11%	0%
	TAYLOR	9		9	6		3	1	9	9	9	9	9	9
		18%		27%	0%		40%		0%	56%	0%	73%	18%	0%
	TREMPEALEAU	11		11	3		4		11	9	9	11	11	11
		0%	0%	9%	0%		0%		9%	27%	9%	18%	30%	0%
	WASHBURN	11	4	11	1		4		11	11	11	11	10	10
		3%	34%	3%	0%	0%	0%	4%	7%	24%	8%	22%	78%	0%
SE	KENOSHA	29	8	29	18	7	20	13	29	25	25	23	18	18
		5%	60%	19%	1%	6%	3%	9%	5%	64%	18%	50%	90%	0%
	MILWAUKEE	39	3	27	32	16	24	33	39	22	22	12	10	10
		0%	17%	0%	0%	0%	0%	0%	0%	63%	0%	6%	67%	7%
	OZAUKEE	19	9	19	7	7	10	5	19	16	16	16	15	15
		0%	76%	3%	0%	0%	0%	0%	0%	54%	18%	40%	37%	0%
	RACINE	31	3	31	9	3	17	5	31	28	28	25	19	19
		5%	64%	5%	0%	6%	0%	10%	5%	71%	13%	0%	38%	3%
	WALWORTH	38	8	38	15	4	14	6	38	38	38	38	39	39

					Traffic						Sho	ulders		
Region	County	Centerline	Delineators	Edgeline Markings	Detour/object marker/recreation/guide Signs (emergency repair)	Protective Barriers	Reg./Warn. Signs (emergency repair)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)
		3%	33%	0%	0%	4%	4%	12%	3%	87%	3%	6%	71%	0%
	WASHINGTON	32	6	32	17	5	19	9	32	31	31	32	14	14
		4%	8%	4%	2%	0%	1%	7%	10%	65%	13%	3%	68%	4%
	WAUKESHA	51	17	51	26	7	38	21	51	40	40	37	53	53
		0%	37%	0%	0%	0%	0%	0%	50%	73%	0%	69%	86%	0%
SW	COLUMBIA	16	3	16	6	2	8	1	16	11	11	16	14	14
		0%	85%	11%	0%	0%	5%		0%	0%	0%	13%	67%	0%
	CRAWFORD	9	6	9	3	3	9		9	8	8	8	18	18
		7%	19%	7%	0%	0%	0%	5%	7%	74%	13%	4%	25%	3%
	DANE	28	4	27	16	3	13	9	28	23	23	28	32	32
		0%	32%	0%	0%	0%	0%	38%	38%	69%	15%	15%	70%	0%
	DODGE	13	7	13	10	3	8	5	13	13	13	13	20	20
		0%	13%	0%	0%	0%	11%		0%	25%	0%	11%	33%	0%
	GRANT	9	4	9	3	1	5		9	8	8	9	12	12
		0%		11%	0%			0%	0%	40%	0%	0%	29%	14%
	GREEN	9		9	4			1	9	5	5	9	7	7

			Traffic Shoulders									ulders		
Region	County	Centerline	Delineators	Edgeline Markings	Detour/object marker/recreation/guide Signs (emergency repair)	Protective Barriers	Reg./Warn. Signs (emergency repair)	Special Pavement Markings	Hazardous Debris	Cracking (paved)	Potholes (paved)	Cross Slope (unpaved)	Drop-off (unpaved)	Erosion (unpaved)
		0%	6%	0%	0%	0%	0%		0%	73%	0%	0%	29%	7%
	IOWA	12	4	12	2	1	5		12	11	11	12	14	14
		0%	0%	5%	0%	0%	0%	0%	16%	50%	0%	32%	13%	7%
	JEFFERSON	19	4	19	8	2	8	4	19	18	18	19	15	15
		6%	0%	6%	0%		0%		13%	54%	0%	0%	20%	0%
	JUNEAU	16	1	16	1		4		16	13	13	16	15	15
		0%	24%	0%	0%	9%	0%	50%	33%	63%	0%	11%	83%	0%
	LA CROSSE	9	6	9	5	6	6	1	9	8	8	9	12	12
		9%	75%	9%	0%	0%	0%		0%	11%	0%	0%	17%	17%
	LAFAYETTE	11	2	11	4	4	1		11	9	9	11	6	6
		7%	0%	7%	0%	0%	0%		30%	70%	0%	0%	37%	5%
	MONROE	27	4	27	7	1	2		27	10	10	27	19	19
		0%	0%	7%	0%	0%	0%	0%	0%	29%	0%	7%	14%	0%
	RICHLAND	14	1	14	3	1	7	1	15	14	14	14	7	7
		0%	11%	0%	0%	11%	0%		0%	82%	9%	0%	38%	0%
	ROCK	13	4	13	2	2	3		13	11	11	13	13	13

Condition % backlogged # of observations Shoulders Traffic Detour/object marker/recreation/guide Signs (emergency repair) Cross Slope (unpaved) Special Pavement Markings Reg./Warn. Signs (emergency repair) Drop-off (unpaved) **Edgeline Markings** Protective Barriers Erosion (unpaved) Hazardous Debris Cracking (paved) Potholes (paved) Delineators Centerline Region County 40% 44% 56% 0% 0% 0% 33% 0% 50% 0% 64% 75% 8% 16 5 16 7 2 9 2 16 9 9 14 12 12 SAUK 93% 0% 2% 0% 0% 33% 33% 11% 13% 54% 15% 6% 0% 18 3 18 13 17 3 3 9 1 9 9 16 13 **VERNON** 231 473 542 185 1000 Total # of observations 1194 1172 138 1195 1000 1084 1099 1099

Counties 2008: Drainage and Roadsides

							%	Conditio backlogo observa	ged					
				Drai	nage					F	Roadside	es		
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
		100%		0%					27%	29%	0%	43%	0%	0%
NC	ADAMS	1		7					11	7	1	7	7	7
		0%		1%					0%	20%	0%	40%	0%	0%
	FLORENCE	1		5					5	5	2	5	5	5
		33%	1%	1%			17%		27%	11%	0%	68%	0%	0%
	FOREST	9	2	16			1		11	19	4	19	19	19
			4%	0%		0%			40%	0%	0%	100%	0%	0%
	GREEN LAKE		1	2		1			5	2	1	2	2	2
		0%		1%					21%	9%	25%	27%	0%	0%
	IRON	2		11					19	11	4	11	11	11
		29%		1%					30%	21%	0%	79%	5%	0%
	LANGLADE	7		19					20	19	11	19	19	19
		40%	5%	1%	0%	0%	50%	14%	80%	50%	0%	67%	6%	0%
	LINCOLN	5	2	17	2	1	2	1	15	18	4	18	18	18
		14%	28%	2%	0%	100%	35%	6%	71%	34%	0%	38%	0%	0%
	MARATHON	5	4	27	4	2	4	4	21	29	10	29	29	29

				Drai	nage					F	Roadside	S		
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
		0%	9%	0%		0%	0%	0%	30%	21%	0%	57%	0%	0%
	MARQUETTE	4	1	13		1	1	3	10	14	1	14	14	14
				0%					100%	0%		50%	0%	0%
	MENOMINEE			2					4	2		2	2	2
		33%	1%	1%			0%		57%	14%	0%	21%	7%	7%
	ONEIDA	3	2	12			1		23	14	5	14	14	14
		0%	0%	0%	0%		0%	0%	57%	36%	0%	29%	0%	0%
	PORTAGE	2	2	13	1		1	1	14	14	1	14	14	14
		0%		0%					63%	23%	0%	15%	0%	0%
	PRICE	3		13					16	13	3	13	13	13
		0%	5%	0%	0%	0%	14%		44%	62%	0%	31%	0%	0%
	SHAWANO	1	3	13	2	2	1		18	13	3	13	13	13
		33%	67%	4%					77%	20%	17%	0%	0%	0%
	VILAS	6	1	12					13	15	6	15	15	15
		0%	1%	0%	0%	100%	11%		57%	74%	0%	5%	0%	0%
	WAUPACA	1	6	16	2	1	5		14	19	7	19	19	19
		0%	13%	0%					36%	0%	0%	45%	0%	0%
	WAUSHARA	1	1	10					11	11	2	11	11	11

Condition % backlogged # of observations Drainage Roadsides Mowing for Vision Woody Vegetation Control Woody Vegetation Control for Vision Noxious Weeds Curb & Gutter Storm Sewer Culverts Flumes Mowing Ditches Fences Drains Litter Region County 0% 29% 0% 100% 20% 50% 56% 0% 13% 0% 0% 3 4 16 1 3 10 16 3 16 16 16 WOOD 25% 30% 50% 80% 14% 1% 0% 8% 0% 0% 69% 0% 0% NE 9 6 31 8 2 3 15 25 32 7 32 32 32 **BROWN** 0% 20% 8% 8% 33% 100% 100% 53% 0% 53% 0% 0% 15 15 15 5 4 2 1 1 9 15 4 15 --**CALUMET** 20% 0% 1% 0% 0% 0% 70% 53% 0% 20% 13% 0% 4 7 3 20 15 3 15 15 15 13 1 1 DOOR --0% 3% 8% 97% 0% 57% 1% 4% 14% 0% 61% 4% 0% 3 4 6 10 28 6 3 2 30 28 28 28 28 FOND DU LAC 0% 5% 0% 50% 67% 0% 78% 0% ----78% 0% 4 3 8 2 9 9 2 9 9 9 **KEWAUNEE** --25% 8% 0% 0% 0% 25% 0% 77% 67% 0% 33% 0% 0% 7 5 17 2 2 1 4 13 18 5 18 18 18 **MANITOWOC** 13% 9% 1% 0% 28% 0% 45% 58% 0% 25% 0% 0% 8 8 24 4 1 31 24 24 24 24 24 --**MARINETTE**

0%

3

0%

4

48%

27

38%

21

0%

21

29%

21

0%

21

0% 21

75%

4

OCONTO

34%

1

0%

21

4%

4

100%

1

			Drainage Roadsides											
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
	,	100%	3%	1%	67%	67%	7%	6%	63%	56%	0%	36%	0%	0%
	OUTAGAMIE	4	8	24	2	3	5	4	24	25	25	25	25	25
		13%	1%	1%	33%	20%	36%	0%	58%	68%	50%	68%	0%	0%
	SHEBOYGAN	8	6	25	3	6	6	6	26	25	2	25	25	25
		20%	1%	0%	9%	50%	0%	0%	73%	24%	0%	72%	0%	0%
	WINNEBAGO	4	7	29	4	2	2	6	22	29	24	29	29	29
		20%		13%					30%	9%	0%	9%	18%	0%
NW	ASHLAND	4		9					10	11	2	11	11	11
		0%	11%	0%			0%	0%	67%	38%	0%	0%	6%	0%
	BARRON	4	2	16			2	3	6	16	3	16	16	16
		63%		2%					60%	33%	0%	17%	8%	0%
	BAYFIELD	7		12					10	12	3	12	12	12
		38%	15%	1%					55%	60%	0%	27%	7%	0%
	BUFFALO	7	1	14					11	15	5	15	15	15
		33%	9%	33%			67%		67%	44%	0%	0%	0%	22%
	BURNETT	3	3	7			2		6	9	4	9	9	9
		33%	0%	0%			100%	0%	70%	20%	0%	0%	0%	0%
	CHIPPEWA	3	2	15			1	3	23	15	2	15	15	15

			Drainage Roadsides											
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
		13%	1%	0%	0%		50%		69%	56%	0%	19%	13%	0%
	CLARK	6	1	15	2		1		13	16	4	16	16	16
		0%		0%	0%				78%	50%		0%	0%	13%
	DOUGLAS	1		7	1				9	8		8	8	8
		0%		0%				0%	53%	27%		18%	0%	0%
	DUNN	2		11				1	15	11		11	11	11
		38%	18%	0%	0%	80%	50%	0%	93%	7%	0%	0%	0%	0%
	EAU CLAIRE	5	3	15	1	4	1	5	14	15	1	15	15	15
		0%		0%		0%	0%	1%	54%	20%	0%	20%	7%	0%
	JACKSON	6		12		2	2	2	13	15	5	15	15	15
		0%		0%					60%	100%	0%	0%	0%	0%
	PEPIN	1		1					5	1	1	1	1	1
		60%		0%					43%	45%	0%	9%	0%	9%
	PIERCE	5		11					7	11	3	11	11	11
		0%	100%	0%				0%	27%	38%	0%	0%	0%	8%
	POLK	3	1	12				1	22	13	4	13	13	13
		0%		0%					44%	30%		0%	0%	0%
	RUSK	1		10					9	10		10	10	10

				Drai	nage					F	Roadside	S		
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
		0%		0%					41%	38%	0%	8%	0%	0%
	SAWYER	4		11					17	13	1	13	13	13
		20%	0%	0%		0%	0%	0%	74%	55%	100%	5%	0%	0%
	ST. CROIX	5	2	20		2	4	3	19	20	1	20	20	20
		100%	37%	0%		0%			67%	89%	33%	0%	22%	0%
	TAYLOR	1	1	9		1			9	9	3	9	9	9
		0%		1%					36%	55%	0%	36%	0%	0%
	TREMPEALEAU	5		9					11	11	3	11	11	11
		50%		0%				0%	64%	80%	0%	0%	0%	0%
	WASHBURN	3		10				1	11	10	2	10	10	10
		38%	1%	4%	58%	50%	4%	0%	93%	52%	0%	48%	0%	4%
SE	KENOSHA	10	12	24	6	3	12	3	29	27	4	27	27	27
		36%	2%	30%	100%	33%	28%	0%	82%	38%	0%	59%	3%	3%
	MILWAUKEE	7	27	23	1	3	32	11	39	37	15	37	37	37
		50%	4%	1%	25%		27%	0%	26%	37%	0%	53%	0%	0%
	OZAUKEE	2	5	15	2		8	5	19	19	1	19	19	19
		14%	0%	1%	11%	0%	0%	0%	71%	57%	0%	71%	4%	0%
	RACINE	6	8	25	9	2	7	2	31	28	2	28	28	28

Condition % backlogged # of observations Drainage Roadsides Mowing for Vision Woody Vegetation Control Woody Vegetation Control for Vision Noxious Weeds Curb & Gutter Storm Sewer Culverts Ditches Flumes Mowing Fences Drains Litter Region County 82% 31% 0% 3% 65% 40% 13% 3% 47% 46% 0% 90% 0% 13 10 37 9 6 8 9 38 39 8 39 39 39 **WALWORTH** 7% 1% 0% 27% 50% 10% 0% 13% 41% 0% 59% 3% 0% 10 7 24 8 3 7 4 32 6 29 29 29 29 WASHINGTON 10% 0% 0% 67% 5% 0% 55% 0% 0% 0% 34% 2% 10 23 46 3 5 23 21 51 61 61 61 61 WAUKESHA --0% 24% 3% 100% 0% 71% 94% 50% 40% 50% 7% 0% SW 4 4 12 2 16 14 5 14 14 1 1 14 COLUMBIA 9% 25% 67% 0% 47% 0% 1% 33% 5% 0% 0% --11 3 4 1 3 19 9 19 19 19 19 **CRAWFORD** --67% 21% 0% 100% 0% 0% 82% 47% 0% 75% 3% 0% 67% 32 12 32 32 32 7 6 31 3 1 5 28 DANE 1 60% 5% 1% 83% 33% 0% 0% 100% 48% 0% 62% 19% 0% 5 5 18 4 2 2 5 13 21 5 21 21 21 DODGE 43% 0% 0% 14% 100% 100% 0% 22% 50% 25% 0% 0% 6 1 12 1 1 1 3 9 12 12 12 12 --**GRANT** 0% 0% 1% 0% 56% 50% 63% 0% 0%

1

9

8

8

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8

8

2

GREEN

1

8

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Condition % backlogged # of observations

		Drainage Roadsides												
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
		29%		1%	0%		0%	0%	58%	29%	100%	71%	0%	0%
	IOWA	7		13	1		1	1	12	14	1	14	14	14
		100%	23%	4%	100%	100%	32%	0%	68%	65%	0%	41%	0%	0%
	JEFFERSON	2	9	15	1	3	4	2	19	17	7	17	17	17
		60%	100%	0%				0%	69%	20%	0%	20%	0%	0%
	JUNEAU	5	1	10				1	16	15	1	15	15	15
		67%	30%	1%	0%	0%	27%	2%	78%	85%	0%	31%	0%	0%
	LA CROSSE	4	2	11	1	1	3	2	9	13	6	13	13	13
		0%	1%	1%	0%		0%		91%	71%		71%	0%	0%
	LAFAYETTE	3	1	7	1		1		11	7		7	7	7
		7%		3%			0%	0%	85%	0%	0%	10%	0%	0%
	MONROE	11		20			1	4	27	20	14	20	20	20
		33%	2%	0%		0%	0%		33%	86%		14%	0%	0%
	RICHLAND	3	1	6		1	1		15	7		7	7	7
		50%		1%			0%	0%	69%	15%		92%	8%	0%
	ROCK	3		13			1	4	13	13		13	13	13
		40%	0%	11%	100%		50%	8%	81%	38%	33%	69%	15%	0%
	SAUK	4	2	12	4		1	5	16	13	3	13	13	13

			Condition % backlogged # of observations											
				Drai	nage					F	Roadside	s		
Region	County	Culverts	Curb & Gutter	Ditches	Drains	Flumes	Storm Sewer	Fences	Litter	Mowing	Mowing for Vision	Noxious Weeds	Woody Vegetation Control	Woody Vegetation Control for Vision
		50%											0%	
	VERNON	6	6 3 14 1 2 18 14 6 14 14 14											
Total #	of observations	338	234	1100	98	85	181	160	1195	1202	337	1202	1202	1202

Counties 2008: Sign Condition

			Regulatory/V	Varning/School Sign	s			Other Signs	
Region	County	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	ADAMS	951	15%	138	2.7	638	47%	297	4.9
	FLORENCE	484	20%	96	7.1	407	62%	254	8.0
	FOREST	1,288	6%	78	6.9	797	29%	232	8.3
	GREEN LAKE	867	12%	108	3.6	646	42%	269	5.7
	IRON	1,058	12%	131	6.3	657	48%	318	9.6
	LANGLADE	1,243	17%	212	4.8	816	67%	546	9.6
NC	LINCOLN	1,461	13%	192	3.5	991	41%	403	7.9
INC.	MARATHON	4,164	19%	788	4.3	2,511	57%	1,420	4.7
	MARQUETTE	957	19%	179	4.1	944	65%	615	5.5
	MENOMINEE	704	9%	66	5.2	254	11%	29	8.0
	ONEIDA	1,822	28%	503	5.2	981	59%	580	8.3
	PORTAGE	2,316	18%	425	4.4	1,911	52%	993	5.0
	PRICE	1,014	12%	122	5.3	781	43%	338	7.2
	SHAWANO	1,920	45%	865	4.7	1,175	48%	562	4.4

			Regulatory/V	Varning/School Sign	S		 	Other Signs	1
Region	County	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	VILAS	1,544	23%	352	5.1	797	63%	503	8.7
	WAUPACA	2,953	14%	405	2.6	1,654	47%	773	4.7
	WAUSHARA	1,895	15%	288	2.9	1,276	60%	767	6.0
	WOOD	2,276	14%	324	2.6	1,241	45%	557	4.9
	BROWN	3,205	44%	1,400	4.8	4,017	76%	3,046	6.8
	CALUMET	1,009	37%	369	5.6	1,135	65%	739	6.8
	DOOR	1,664	50%	835	4.9	999	76%	761	6.0
	FOND DU LAC	2,453	25%	621	5.4	2,315	43%	990	6.5
	KEWAUNEE	571	38%	218	5.6	512	71%	362	6.8
NE	MANITOWOC	1,743	37%	653	5.2	2,006	85%	1,708	6.7
	MARINETTE	1,564	40%	624	5.8	1,354	50%	675	6.5
	OCONTO	1,936	26%	499	4.1	1,531	49%	743	4.8
	OUTAGAMIE	3,129	40%	1,257	6.6	2,686	70%	1,873	6.7
	SHEBOYGAN	2,724	36%	981	5.5	3,025	68%	2,051	6.6
	WINNEBAGO	2,377	41%	969	5.7	2,558	53%	1,366	6.8

								Other Signs	
Region	County	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	ASHLAND	1,219	19%	235	3.5	881	57%	503	4.5
	BARRON	1,754	16%	287	3.9	1,639	49%	795	5.9
	BAYFIELD	1,441	21%	307	3.1	1,171	57%	664	3.8
	BUFFALO	1,560	5%	81	6.2	1,255	61%	766	8.4
	BURNETT	1,175	27%	317	3.7	825	57%	470	4.9
	CHIPPEWA	2,171	9%	206	4.3	2,135	46%	974	5.0
	CLARK	1,686	7%	114	5.0	1,296	50%	643	4.5
NW	DOUGLAS	1,898	27%	507	3.3	1,645	55%	901	4.2
	DUNN	2,033	15%	305	3.5	2,300	58%	1,335	4.2
	EAU CLAIRE	2,238	20%	449	5.6	2,113	51%	1,076	5.1
	JACKSON	1,562	13%	200	4.7	1,566	53%	831	8.4
	PEPIN	568	13%	76	6.3	535	56%	299	6.3
	PIERCE	1,657	15%	253	3.6	2,098	73%	1,524	5.5
	POLK	2,155	16%	351	3.7	1,490	52%	777	5.0
	RUSK	1,008	13%	129	3.1	758	31%	237	3.0

	T		Regulatory/V	Warning/School Sign	S			Other Signs	T
Region	County	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
	SAWYER	1,407	12%	166	3.5	1,184	47%	558	3.8
	ST. CROIX	2,522	21%	538	4.4	2,890	69%	1,991	4.8
	TAYLOR	957	4%	40	5.2	918	30%	272	4.8
	TREMPEALEAU	1,875	13%	247	6.0	1,630	52%	853	7.5
	WASHBURN	1,951	26%	513	3.5	1,469	59%	868	4.5
	KENOSHA	3,874	32%	1,244	4.9	3,271	44%	1,454	6.6
	MILWAUKEE	11,003	31%	3,372	5.0	8,712	57%	4,943	7.3
	OZAUKEE	1,956	14%	270	3.7	1,310	60%	781	6.3
SE	RACINE	4,684	33%	1,569	4.3	3,426	55%	1,880	5.8
	WALWORTH	3,676	19%	694	4.6	2,634	53%	1,397	5.8
	WASHINGTON	3,686	26%	952	4.6	2,871	50%	1,435	5.5
	WAUKESHA	8,370	28%	2,360	5.3	5,253	43%	2,243	5.6
	COLUMBIA	3,142	13%	408	4.6	1,520	49%	751	6.9
SW	CRAWFORD	2,166	17%	363	3.0	1,537	61%	938	6.6
S VV	DANE	6,421	34%	2,155	6.1	3,027	54%	1,637	7.6

			Regulatory/V	Varning/School Sign	s			Other Signs	
Region	County	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life	Total Signs	%Backlog	Deficient Signs	Average Years Beyond Service Life
J	DODGE	2,968	23%	696	4.7	1,744	53%	933	6.8
	GRANT	2,999	10%	312	3.8	1,808	53%	954	7.4
	GREEN	1,497	18%	272	4.5	710	55%	390	7.1
	IOWA	2,035	16%	327	4.8	1,245	53%	655	7.4
	JEFFERSON	2,011	13%	264	3.3	1,106	55%	606	8.0
	JUNEAU	1,798	12%	224	3.1	1,610	62%	992	7.3
	LA CROSSE	2,694	17%	459	2.4	2,447	53%	1,309	7.8
	LAFAYETTE	1,341	11%	141	4.1	844	56%	469	10.1
	MONROE	2,540	13%	328	2.5	2,276	46%	1,053	7.6
	RICHLAND	1,942	13%	246	2.7	1,532	53%	818	6.4
	ROCK	2,302	20%	464	4.2	1,546	55%	848	8.0
	SAUK	3,229	12%	391	5.5	1,342	42%	565	7.3
	VERNON	2,752	19%	530	3.3	2,149	59%	1,272	6.7

Counties 2008: Bridge Maintenance Needs

			% of bridges recommended for maintenance								
Region	County	Number of state bridges	Expansion Joints - Clean	Deck - Seal Surface Cracks	Expansion Joints - Seal	Misc - Cut Brush	Approach - Seal Approach to Paving Block	Deck - Clean and Sweep Deck/Drains	Drainage - Repair Washouts / Erosion	Misc - Other Work*	
	ADAMS	7	1	3	2	0	0	0	0	0	
	FLORENCE	8	0	0	0	0	0	0	0	0	
	FOREST	11	0	0	0	1	0	0	1	0	
	GREEN LAKE	10	0	5	2	1	0	0	0	2	
	IRON	18	0	1	0	3	1	0	0	0	
	LANGLADE	11	0	1	0	0	1	0	0	0	
	LINCOLN	52	0	8	1	1	0	0	0	3	
	MARATHON	165	29	90	49	17	0	7	17	30	
	MARQUETTE	37	4	16	20	3	0	0	2	4	
NC	MENOMINEE	3	0	1	0	1	1	0	0	0	
	ONEIDA	14	0	3	0	1	1	0	0	1	
	PORTAGE	78	17	62	32	2	3	0	10	24	
	PRICE	21	1	3	0	1	1	0	0	2	
	SHAWANO	53	4	26	1	9	1	3	3	21	
	VILAS	12	0	7	0	0	0	0	0	1	
	WAUPACA	64	13	21	16	0	1	0	10	10	
	WAUSHARA	21	8	8	9	0	0	0	3	2	
	WOOD	52	4	32	10	2	1	5	2	7	
	BROWN	246	61	42	57	14	12	8	25	29	
	CALUMET	13	1	1	5	1	0	0	4	1	
	DOOR	19	1	4	2	1	0	0	0	4	
NE	FOND DU LAC	79	12	35	13	0	10	9	8	6	
	KEWAUNEE	18	1	0	2	0	0	0	1	0	
	MANITOWOC	89	9	5	20	5	9	0	5	3	

		% of bridges recommended for maintenance								
Region	County	Number of state bridges	Expansion Joints - Clean	Deck - Seal Surface Cracks	Expansion Joints - Seal	Misc - Cut Brush	Approach - Seal Approach to Paving Block	Deck - Clean and Sweep Deck/Drains	Drainage - Repair Washouts / Erosion	Misc - Other Work*
	MARINETTE	36	8	7	13	4	6	3	0	0
	OCONTO	41	0	14	11	1	3	0	6	0
	OUTAGAMIE	80	6	14	40	8	13	2	19	9
	SHEBOYGAN	85	10	23	22	10	13	0	13	0
	WINNEBAGO	149	39	37	52	9	41	4	34	18
	ASHLAND	19	0	0	0	0	2	0	0	0
	BARRON	65	0	1	0	6	4	0	1	0
	BAYFIELD	34	0	0	0	0	0	0	2	1
	BUFFALO	71	2	2	1	2	2	0	0	0
	BURNETT	14	0	0	0	0	2	0	0	0
	CHIPPEWA	135	10	4	15	0	0	0	4	0
	CLARK	43	1	0	1	0	6	0	0	0
	DOUGLAS	60	0	1	1	0	3	0	0	0
	DUNN	93	0	4	4	2	4	0	13	1
	EAU CLAIRE	114	4	1	0	0	7	2	5	0
NW	JACKSON	74	0	1	2	0	2	0	5	0
	PEPIN	16	0	0	1	0	0	0	0	0
	PIERCE	57	0	1	0	5	2	0	5	1
	POLK	13	0	1	0	0	0	0	1	0
	RUSK	28	0	1	1	0	0	0	0	0
	SAWYER	19	0	0	0	1	2	0	0	0
	ST. CROIX	99	0	1	2	0	3	0	9	0
	TAYLOR	20	0	1	0	0	0	0	0	2
	TREMPEALEAU	73	2	2	0	0	12	0	4	0
	WASHBURN	20	0	1	0	0	0	0	0	0

			% of bridges recommended for maintenance								
Region	County	Number of state bridges	Expansion Joints - Clean	Deck - Seal Surface Cracks	Expansion Joints - Seal	Misc - Cut Brush	Approach - Seal Approach to Paving Block	Deck - Clean and Sweep Deck/Drains	Drainage - Repair Washouts / Erosion	Misc - Other Work*	
	KENOSHA	56	12	16	21	3	6	26	6	17	
	MILWAUKEE	527	416	59	130	145	60	94	32	209	
	OZAUKEE	50	10	8	3	15	13	3	8	33	
SE	RACINE	59	9	4	7	6	12	10	1	20	
SE	WALWORTH	115	30	18	18	17	10	8	17	82	
	WASHINGTON	74	33	2	6	4	16	70	3	20	
	WAUKESHA	174	21	46	18	36	30	8	73	75	
	COLUMBIA	97	6	9	2	34	14	19	8	6	
	CRAWFORD	67	2	46	1	10	10	3	10	8	
	DANE	283	45	7	18	89	53	107	32	33	
	DODGE	64	2	3	2	11	2	5	4	5	
	GRANT	67	11	23	1	8	9	5	8	6	
	GREEN	28	3	4	0	3	0	6	2	2	
	IOWA	56	1	6	0	6	4	10	4	1	
	JEFFERSON	71	9	1	3	11	8	14	1	2	
SW	JUNEAU	80	20	26	13	0	6	1	4	1	
	LA CROSSE	109	44	38	5	11	35	12	13	10	
	LAFAYETTE	40	0	1	0	7	1	10	5	0	
	MONROE	154	10	47	7	14	28	6	8	15	
	RICHLAND	78	5	32	2	16	13	6	2	5	
	ROCK	120	19	7	3	15	7	33	2	8	
	SAUK	79	5	4	1	7	8	15	7	2	
	VERNON	73	1	6	3	15	5	0	21	1	

Counties 2008: Bridge Special Inspection Backlog

			% #	bridges ba	cial Inspect cklogged f s backlogge	or inspected for insp	ion type pection	
Region	County	Initial	Routine	Load Posted	In-depth	Fracture Critical	Underwater Diving	Underwater Probe/Visual
		0%	0%	-		-	0%	22%
	ADAMS	0	0				0	2
		100%	0%			0%	0%	100%
	FLORENCE	1	0			0	0	1
		0%	0%					100%
	FOREST	0	0					3
		0%						
	GREEN LAKE	0						
		0%	0%				0	0%
	IRON	0	0				0	0
		0%	0%					50%
	LANGLADE	0	0					1
		0%	0%		0%	0%	0%	100%
	LINCOLN	0	0		0	0	0	6
		0%	0%		7%	0%	0%	37%
	MARATHON	0	0		2	0	0	40
		0%	0%				0%	60%
NG	MARQUETTE	0	0				0	15
NC		0%	0%					100%
	MENOMINEE	0	0					1
		0%	0%				0%	100%
	ONEIDA	0	0				0	3
		0%	0%		0%		0%	37%
	PORTAGE	0	0		0		0	14
		0%	0%				0%	100%
	PRICE	0	0				0	1
		0%	0%			0%	0%	43%
	SHAWANO	0	0			0	0	3
		0%	0%				0%	75%
	VILAS	0	0				0	3
		10%	0%		0%	0%	0%	55%
	WAUPACA	1	0		0	0	0	28
		0%	5%					88%
	WAUSHARA	0	0					14
		0%	0%		33%	0%	0%	24%
	WOOD	0	0		1	0	0	15
		0%	0%		11%	0%	0%	51%
NIE	BROWN	0	0		1	0	0	25
NE		0%	0%	-		-		0%
	CALUMET	0	0					0

Special Inspection Type % bridges backlogged for inspection type # of bridges backlogged for inspection

			#		s backlogge			
Region	County	Initial	Routine	Load Posted	In-depth	Fracture Critical	Underwater Diving	Underwater Probe/Visual
		0%	21%	100%		0%	0%	0%
	DOOR	0	4	4		0	0	0
		0%	3%					16%
	FOND DU LAC	0	2					5
		0%	0%				0%	100%
	KEWAUNEE	0	0				0	14
		0%	0%			0%		13%
	MANITOWOC	0	0			0		4
		0%	3%			0%	0%	83%
	MARINETTE	0	1			0	0	5
		0%	0%			0%		50%
	OCONTO	0	0			0		12
		0%	0%	100%	50%	0%	0%	40%
	OUTAGAMIE	0	0	1	1	0	0	8
		0%	0%					27%
	SHEBOYGAN	0	0					8
		0%	0%		67%	13%	0%	13%
	WINNEBAGO	0	0		2	1	0	4
		0%	0%				0%	44%
	ASHLAND	0	0				0	4
		0%	0%				0%	17%
	BARRON	0	0				0	4
		0%	0%				0%	4%
	BAYFIELD	0	0				0	1
		0%	0%			0%	7%	15%
	BUFFALO	0	0			0	1	6
		0%	0%				0%	33%
	BURNETT	0	0				0	2
		0%	0%			33%	0%	39%
	CHIPPEWA	0	0			1	0	20
NW		0%	0%					100%
	CLARK	0	0					23
		0%	0%			0%	0%	16%
	DOUGLAS	0	0			0	0	5
		0%	0%		100%	0%	0%	7%
	DUNN	0	0		2	0	0	4
	EALLOI AIDE	0%						
	EAU CLAIRE	0%	 0%				 0%	 13%
	IACKCON							13%
	JACKSON	0%	0 0%				0 0%	0%
	DEDIN							0%
	PEPIN PIERCE	0%	0 2%		100%	 0%	0 0%	5%
	FIERCE	U%	Z70		100%	0%	U%	ე%

Special Inspection Type % bridges backlogged for inspection type # of bridges backlogged for inspection

	# of bridges backlogged for i									
Region	County	Initial	Routine	Load Posted	In-depth	Fracture Critical	Underwater Diving	Underwater Probe/Visual		
		0	1		1	0	0	2		
		0%	0%		0%	0%	0%	0%		
	POLK	0	0		0	0	0	0		
		0%	0%		100%		0%	63%		
	RUSK	0	0		1		0	12		
		0%	0%				0%	0%		
	SAWYER	0	0				0	0		
		0%	0%	100%	0%		0%	13%		
	ST. CROIX	0	0	1	0		0	8		
		0%	0%		100%	0%		33%		
	TAYLOR	0	0		1	0		2		
		0%	0%	100%	100%	0%	0%	10%		
	TREMPEALEAU	0	0	1	1	0	0	2		
		0%	0%					14%		
	WASHBURN	0	0					2		
		0%	0%			0%		65%		
	KENOSHA	0	0			0		15		
		2%	1%	100%	7%	11%	0%	60%		
SE	MILWAUKEE	1	5	2	6	1	0	45		
	WILLWITCHEE	0%	0%	100%			100%	47%		
	OZAUKEE	0	0	1			1	7		
	OZ. TO TEZE	0%	0%					21%		
	RACINE	0	0					5		
	Tu Ton (E	13%	17%	100%	50%			43%		
	WALWORTH	1	20	6	1			15		
	WIEWORII	0%								
	WASHINGTON	0								
		0%	0%		0%			42%		
	WAUKESHA	0	0		0			26		
SW		0%	0%	100%	0%	0%	13%	18%		
	COLUMBIA	0	0	1	0	0	2	3		
		25%	6%	100%	0%	0%	0%	5%		
	CRAWFORD	1	4	1	0	0	0	1		
		0%	1%		100%	0%	0%	50%		
	DANE	0	2		1	0	0	14		
		0%	0%				0%	22%		
	DODGE	0	0				0	2		
		0%	0%		0%	0%	0%	0%		
	GRANT	0	0		0	0	0	0		
		0%	0%				0%	25%		
	GREEN	0	0				0	3		
		50%	0%		100%	0%	0%	17%		
	IOWA	2	0		1	0	0	2		

Special Inspection Type % bridges backlogged for inspection type # of bridges backlogged for inspection

		# of bridges backlogged for inspection							
Region	County	Initial	Routine	Load Posted	In-depth	Fracture Critical	Underwater Diving	Underwater Probe/Visual	
		0%	0%				0%	18%	
	JEFFERSON	0	0				0	3	
		0%	0%			0%	0%	71%	
	JUNEAU	0	0	1	1	0	0	37	
		0%	0%		100%	0%	0%	56%	
	LA CROSSE	0	0	-	3	0	0	9	
		0%	10%				0%	46%	
	LAFAYETTE	0	4	-			0	6	
		0%	0%		100%	0%		3%	
	MONROE	0	0	-	1	0	-	1	
		0%	0%			0%	0%	9%	
	RICHLAND	0	0			0	0	2	
		0%	0%		50%	0%	0%	30%	
	ROCK	0	0		2	0	0	8	
		0%	0%		100%	33%	0%	12%	
	SAUK	0	0		1	1	0	4	
		0%	0%	100%	0%	0%		14%	
	VERNON	0	0	1	0	0	-	4	